

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ANKER INNOVATIONS LTD.,
Petitioner,

v.

POWERMAT TECHNOLOGIES LTD.,
Patent Owner

Case: IPR2024-00996

U.S. Patent No. 8,626,461

**PATENT OWNER'S RESPONSE TO PETITION FOR *INTER PARTES*
REVIEW OF U.S. PATENT NO. 8,626,461**

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Patent Trial and Appeal Board
U.S. Patent and Trademark Office
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TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. BACKGROUND	1
A. Overview of the '461 Patent.....	1
B. Patent Prosecution History	6
C. Summary of Petitioner's Proposed Grounds for Unpatentability	10
D. The Relied-Upon References	10
1. Olson (EX1004)	11
2. Stevens (EX1005)	14
3. Jin (EX1006)	15
III. PERSON OF ORDINARY SKILL IN THE ART	16
IV. CLAIM CONSTRUCTION	17
V. THE PETITION FAILS TO DEMONSTRATE BY A PREPONDERANCE OF THE EVIDENCE THAT ANY CHALLENGED CLAIM IS UNPATENTABLE	17
A. Ground 1A: Petitioner Fails to Establish that Claims 13-16 and 18 Are Anticipated by Olson.....	17
1. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.1]	18
2. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.2]	27
3. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.3]	31
4. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.4]	34
5. Petitioner Fails to Demonstrate that Olson Anticipates Claim 14	37
6. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [15.2]	39

7.	Petitioner Fails to Demonstrate that Olson Anticipates Claims 16-18	42
B.	Ground 1B: Petitioner Fails to Establish that Claim 17 is Rendered Obvious by Olson in View of Stevens.....	43
1.	Petitioner Fails to Establish That a POSITA Would Combine Olson and Stevens.	43
2.	Petitioner Fails to Establish That Olson in View of Stevens Renders Obvious Claim Limitation [17.1]	46
C.	Ground 2: Petitioner Fails to Establish that Claims 13-18 are Rendered Obvious by Stevens in View of Olson.....	48
1.	Petitioner Fails to Demonstrate That a POSITA Would Combine Stevens and Olson	48
2.	Petitioner Fails to Demonstrate that Limitation [13.1] is Rendered Obvious by Stevens in View of Olson	51
3.	Petitioner Fails to Demonstrate that Limitation [13.2] is Rendered Obvious by Stevens in View of Olson	57
4.	Petitioner Fails to Demonstrate that Limitation [13.3] is Obvious Based on Stevens in View of Olson	59
5.	Petitioner Fails to Demonstrate that Limitation [13.4] is Obvious Based on Stevens in View of Olson	62
6.	Petitioner Fails to Demonstrate that Limitation [15.2] is Obvious Based on Stevens in View of Olson	63
D.	Ground 3: Petitioner Fails to Establish that Claims 13-18 are Rendered Obvious by Stevens in View of Jin.....	66
1.	Petitioner Fails to Demonstrate That a POSITA Would Combine Stevens and Jin	66
2.	Petitioner Fails to Demonstrate that Limitation [13.1] is Rendered Obvious by Stevens in View of Jin	69
3.	Petitioner Fails to Demonstrate that Limitation [13.2] is Rendered Obvious by Stevens in View of Jin	70
4.	Petitioner Fails to Demonstrate that Limitation [13.3] is Rendered Obvious by Stevens in View of Jin	71

5.	Petitioner Fails to Demonstrate that Limitation [13.4] is Rendered Obvious by Stevens in View of Jin	73
6.	Petitioner Fails to Demonstrate that Limitation [15.2] is Rendered Obvious by Stevens in View of Jin	75
7.	Petitioner Fails to Demonstrate that Stevens In View of Jin Renders Obvious Claims 14-18	76
VI.	CONCLUSION.....	76

TABLE OF AUTHORITIES

Page(s)

Cases

<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	17
<i>TVIIM, LLC v. McAfee, Inc.</i> , 851 F.3d 1356 (Fed. Cir. 2017)	37

Statutes

35 U.S.C. § 102	6, 7, 10
35 U.S.C. § 103	6, 7, 10
35 U.S.C. § 112	6

Case IPR2024-00996
Patent No. 8,626,461
Patent Owner's Response

PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	U.S. Patent Publication No. US 2007/0279002 ("Partovi")
2002	PCT Publication No. WO2010/025156 ("Cook")
2003	Expert Declaration of Patrick Mercier, Ph.D.
2004	Deposition Transcript of Gary Woods, Ph.D., taken on May 14, 2025
2005	Excerpts from the Rebuttal Expert Report of James Dickens Regarding Non-Infringement of U.S. Patent Nos. 8,626,461; 8,981,598, 9,006,937; 9,048,696; and 9,038,204

LISTING OF CHALLENGED CLAIMS¹

Claim Element	Claim Text
[13.P]	An inductive power outlet comprising at least one primary coil, for inductively coupling with a secondary coil wired to an electric load, the inductive power outlet further comprising an efficiency monitor comprising:
[13.1]	at least one input power monitor configured to measure input power received by the primary coil from the power supply;
[13.2]	at least one signal detector configured to detect signals carrying data pertaining to output power received by the secondary coil;
[13.3]	at least one processor configured to receive data pertaining to the input power and the output power, the processor further configured to determine an index of power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil;
[13.4]	wherein the index of power-loss comprises at least one of: an efficiency quotient Q , defined as the ratio of the output power to the input power; and an efficiency differential Δ , defined as the difference between the output power and the input power.
[14]	The inductive power outlet of claim 13 additionally comprising at least one circuit-breaker configured to disconnect the primary coil from the power supply.
[15.1]	An inductive power receiver comprising at least one secondary coil for inductively coupling to a primary coil and supplying power to an electric load,
[15.2]	the inductive power receiver further comprising at least one output power monitor for measuring output power received inductively by the secondary coil from the primary coil, and

¹ For convenience purposes only, Patent Owner adopts for this Response the numbering of claim limitations advanced by Petitioner in the Petition (Paper 2). Patent Owner does not concede the appropriateness of such grouping and numbering of claim limitations.

Claim Element	Claim Text
[15.3]	at least one signal transmitter configured to transmit signals carrying data pertaining to the output power to the inductive power outlet of claim 13.
[16]	The inductive power receiver of claim 15 wherein the signal transmitter is selected from a group consisting of: light emitting diodes, radio transmitters, optocouplers, and transmitter circuits.
[17.1]	The inductive power receiver of claim 15 wherein the transmitter comprises: an ancillary load selectively connectable to the secondary inductive coil, a modulator for modulating a bit-rate signal with an input signal to create a modulated signal, and
[17.2]	a switch for intermittently connecting the ancillary load to the secondary inductive coil according to the modulated signal.
[18]	The inductive power receiver of claim 15 wherein the output power monitor is incorporated into an electric device.

I. INTRODUCTION

Petitioner challenges the patentability of claims 13-18 (the “challenged claims”) of U.S. Patent No. 8,626,461 (“the ’461 Patent”). Petitioner has failed to establish that the challenged claims are anticipated or rendered obvious by any of the asserted grounds.

Specifically, none of the cited references alone or in combination disclose or suggest the arrangement of each limitation of claims 13-18. For example, Olson (Ground 1A) fails to disclose claim limitations [13.1]-[13.4], [14], and [15.2]; the combination of Olson and Stevens (Ground 1B) fails to render obvious claim limitation [17.1]; the combination of Stevens and Olson (Ground 2) fails to render obvious claim limitations [13.1]-[13.4] and [15.2]; and the combination of Stevens and Olson (Ground 3) fails to render obvious claim limitations [13.1]-[13.4] and [15.2]. Because claims 14-18 depend from claim 13, claims 14-18 are patentable for at least the same reasons claim 13 is patentable.

Accordingly, Petitioner has failed to meet its burden of showing that any of the challenged claims are unpatentable.

II. BACKGROUND

A. Overview of the ’461 Patent

The ’461 Patent, entitled “Efficiency Monitor for Inductive Power

Transmission,” is generally directed to a system for monitoring efficiency and controlling power transfer across an inductive power coupling. ’461 Patent at 1:20-22. As an example, an inductive power outlet may include a primary coil connected to a power supply which is configured to inductively couple with a secondary coil connected to an electric device. *See, e.g., id.* at 12:10-12. When the primary coil and the secondary coil are inductively coupled, the inductive power outlet may monitor, via an efficiency monitor, the efficiency of the system’s power transmission. *See, e.g., id.* at 12:9-10, 33-38.

Prior to the ’461 Patent, power-loss (*i.e.*, leak prevention) systems existed for detecting power emanating from a primary coil not coupled to a secondary coil and cutting of power to the uncoupled primary coil. *Id.* at 2:47-50. However, due to the lack of connecting wires in inductive power couplings, communication channels for determining power-loss between a primary coil coupled to a secondary coil was not practical until the ’461 Patent. *Id.* at 2:50-55.

The ’461 Patent discloses—as illustrated below in Figure 5—an efficiency monitor that includes an input power monitor for measuring the input power delivered to the primary coil, an output power monitor for measuring the output power received by the secondary coil, a processor for determining an index of power

loss, and a communication channel for communicating the input power and the output power to the processor. *Id.* at 12:38-39.

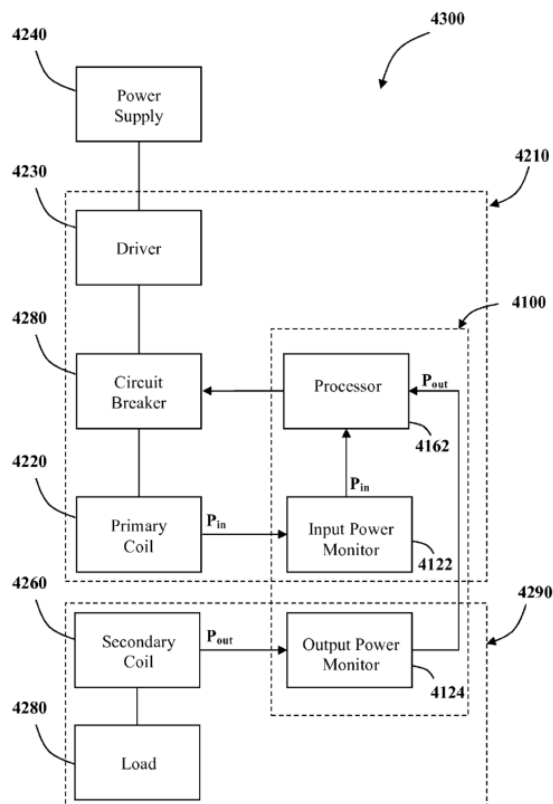


Fig. 5

Id. at Fig. 5.

The '461 Patent explains that the processor “is configured to receive the values of the input power P_{in} and the output power P_{out} and to calculate an index of power-loss,” where the index of power-loss “indicates how much power is leaking from the inductive couple.” *Id.* at 13:21-24. Specifically, “[t]he index of power-loss

may be the efficiency quotient Q which is the ration between them, P_{out}/P_{in} , which is an indication of the efficiency of the inductive coupling” or it “may be the efficiency differential Δ which is the difference between P_{out} and P_{in} .” *Id.* at 13:24-29.

Notably, the processor may optionally be configured to trigger a circuit-breaker to cut off the primary coil from the power supply when either the efficiency quotient Q falls below a predetermined threshold or the efficiency differential Δ rises above a predetermined threshold. *Id.* at 13:30-35.

Figure 7 illustrates the process described above:

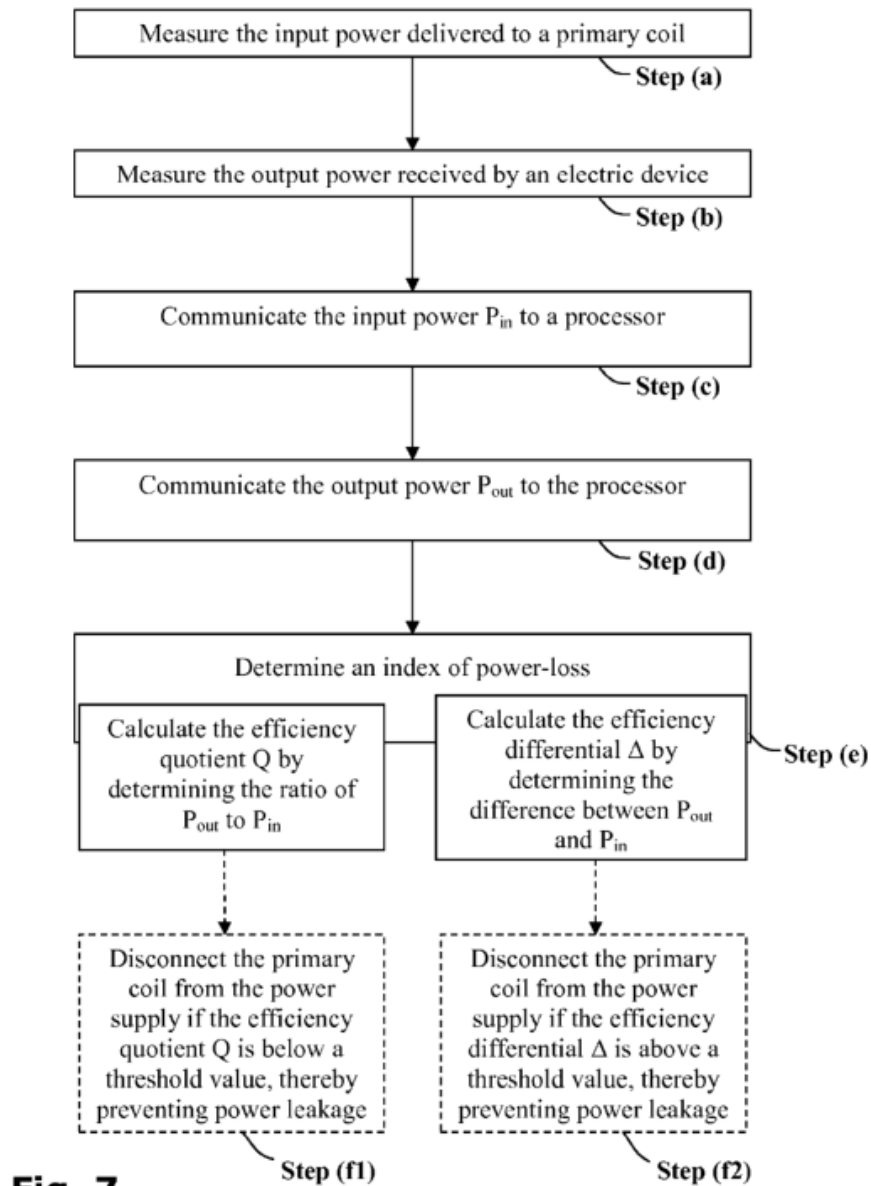


Fig. 7

Id. at Fig. 7.

Accordingly, the '461 Patent proposes, among other things, a “processor . . . configured to determine an index of power-loss indicative of the efficiency of an

inductive coupling between the primary coil and the secondary coil; wherein the index of power-loss comprises at least one of: [(1)] an efficiency quotient Q , defined as the ratio of the output power to the input power; and [(2)] an efficiency differential Δ , defined as the difference between the output power and the input power.” *Id.* at 22:9-19.

B. Patent Prosecution History

U.S. Patent Application No. 13/306,379—which would ultimately issue as the ’461 Patent—was filed on November 29, 2011, as a continuation of U.S. Patent Application No. 12/563,558. The ’461 Patent claims priority to a number of U.S. provisional applications, the earliest of which is U.S. Application No. 60/907,132, filed on March 22, 2007.

On August 29, 2012, the Examiner issued a non-final office action that, among other things, rejected the original claims under (1) 35 U.S.C. § 112 as indefinite, (2) 35 U.S.C. § 102 as anticipated based on Stevens⁴⁹⁶ (EX1013); and (3) 35 U.S.C. § 103 as obvious based on Stevens⁴⁹⁶ and U.S. Patent No. 7,791,312 (“Kook”). EX1002 at 91, 94.

In a response filed on January 29, 2013, the Applicant corrected a typographical error to overcome the § 112 rejection and traversed the Examiner’s rejections under § 102 and § 103. EX1002 at 182, 188. Addressing the § 102

rejection, the Applicant explained that Stevens496 merely states that “a control unit which compares measured power with a **predetermined** shutdown threshold and restricts the power supply accordingly,” as opposed to “a processor which compares a measured input power to a measured output power.” *Id.* at 184 (emphasis in original).

“... the control unit 16 simply compares the measured power with a **predetermined shutdown threshold**. If the measured power exceeds the shutdown threshold value, the control unit 16 determines that the inductive power supply from the primary unit should be restricted or stopped.”

Id. (quoting Stevens496 at 12:58-62) (emphasis in original).

On March 21, 2013, the Examiner issued a final office action, maintaining the § 102 rejection based on Stevens496 and the § 103 rejection based on Stevens496 and Kook. EX1002 at 197-200. On June 12, 2013, the Applicant conducted an Examiner Interview, during which:

The examiner conveyed to the applicant's representative claim language suggestions . . . [to] improve the clarity of the claimed invention. In particular, replacing “delivered to the primary coil” . . . with “received by the primary coil from a power supply”; . . . and

including the limitations of claim 10² in claim 1, with a clarification that the efficiency quotient Q and efficiency differential delta are indicative of the efficiency of the inductive coupling.

EX1002 at 210.

In a June 19, 2013, response, the Applicant further amended claim 14 (issued as claim 13), in relevant part, to recite:

at least one input power monitor configured to measure input power received by the primary coil from the power supply~~delivered to the primary coil;~~

...

at least one processor configured to receive data pertaining to the

² Claim 10 recited:

The efficiency monitor of claim 1 wherein the index of power loss comprises at least one of:

an efficiency quotient Q, defined as the ratio of the output power to the input power, and

an efficiency differential Δ , defined as the difference between the output power and the input power.

EX1002 at 179 (emphasis in original).

input power and the output power, the processor further configured to determine an index of power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil;

wherein the index of power-loss comprises at least one of:

an efficiency quotient Q , defined as the ratio of the output power to the input power, and

an efficiency differential Δ , defined as the difference between the output power and the input power.

EX1002 at 218 (emphasis in original). The Applicant noted that the “Examiner appears to acknowledge that the claimed invention may be distinguishable from Stevens[496]” based on the clarifying amendments that “more explicitly define the claimed ‘index of power loss’ within the claims.” *Id.* at 223-224.

On August 30, 2013, the Examiner issued a Notice of Allowance. EX1002 at 240. In the Notice of Allowance, the Examiner specifically noted the following:

U.S. Patent No. 7,605,496 to Stevens et al. is **the reference closest to the claimed invention**. . . . However, Stevens et al. **do not teach** the processor further configured to determine an index power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil; wherein the index of power-loss

comprises at least one of: an efficiency quotient Q, defined as the ratio of the output power to the input power; and an efficiency differential A (sic) defined as the difference between the output power and the input power; and including all of the other limitations in the respective independent claims.

EX1002 at 247-248 (emphasis added).

C. Summary of Petitioner's Proposed Grounds for Unpatentability

Petitioner alleges that claims 13-18 would have been anticipated under pre-AIA 35 U.S.C. § 102 or obvious under pre-AIA 35 U.S.C. § 103 and raises four grounds of alleged unpatentability based on three references:

1. U.S. Patent Pub. 2005/0075699 ("Olson");
2. PCT Pub. No. WO 2005/109597 ("Stevens"); and
3. U.S. Patent Pub. 2002/0057164 ("Jin").

The alleged invalidity grounds are as follows:

Ground	'461 Patent Claims	Type of Challenge	Primary Reference	Secondary References
1A	13-16, and 18	§ 102	Olson	
1B	17	§ 103	Olson	Stevens
2	13-18	§ 103	Stevens	Olson
3	13-18	§ 103	Stevens	Jin

D. The Relied-Upon References

The three references relied upon by Petitioner to challenge the patentability of

claims 13-18 of the '461 Patent are summarized as follows:

1. Olson (EX1004)

U.S. Patent Pub. 2005/0075699 (“Olson”) is entitled “System and Method for Transcutaneous Energy Transfer Achieving High Efficiency.” Olson was filed on April 30, 2004, and was published on April 7, 2005. Olson claims priority to U.S. Provisional Application No. 60/508,110, filed on October 2, 2003.

Olson is directed to “implantable medical devices and, in particular, to energy transfer devices, systems and methods for implantable medical devices.” EX1004 ¶ [0001]. More specifically, Olson describes “[a] system and method for transcutaneous energy transfer and/or charging in a transverse direction.” *Id.* at Abstract.

Olson explains that “[f]or implanted medical devices, the efficiency at which energy is transcutaneously transferred is crucial” because (1) “the inductive coupling, while inductively inducing a current in the secondary coil, also has a tendency to heat surrounding components and tissue,” (2) “it is desirable to limit the amount of time required to achieve a desired charge, or recharge, or an internal power source,” and (3) “amount of charging, or recharging, can be limited by the amount of time required for charging, or recharging.” *Id.* ¶ [0017]. Olson specifically discusses using efficiency measurements to determine “the best location of external

antenna 52 and/or rotating core cup assembly.” *Id.* ¶ [0074].

Olson further discloses calculating an efficiency based on current to a power supply and power “induced in implantable medical device 16:”

Current measure block 226 measures current to 12 volt power supply 216. Current measured by current measure block 226 is used in the calculation of power in along with the voltage of batteries 160. As noted above, power in is used in the calculation of efficiency of power transfer and/or charging efficiency to determine, in part, the best location of external antenna 52 and/or rotating core cup assembly 92.

. . . . External charging device 48 measures the power out of external charging device 48. The power out is gauged by the power induced in implantable medical device 16 and is determined by multiplying the voltage of rechargeable power source 24 by the charging current in implantable medical device 16. . . The power in is gauged by the power generated by charging unit 50 and is determined by multiplying the voltage of the internal voltage of charging unit 50

Id. at [0074]-[0075].

Olson further discusses the particularity taken into consideration for efficiency measurements.

Efficiency of energy transfer is an important measure of effectiveness of energy transfer from primary coil 54 of external antenna 52 to secondary coil 34. Efficiency is measured by dividing the power in, i.e., the power received by secondary coil 34, by the power out, i.e., the power transmitted by primary coil 54. While energy efficiency can be measured at other locations in external antenna 52 and/or implantable medical device 16, for purposes of some embodiments of the present invention it is preferred that efficiency is measured coil-to-coil, i.e., from primary coil 54 to secondary coil 34.

Id. at [0112].

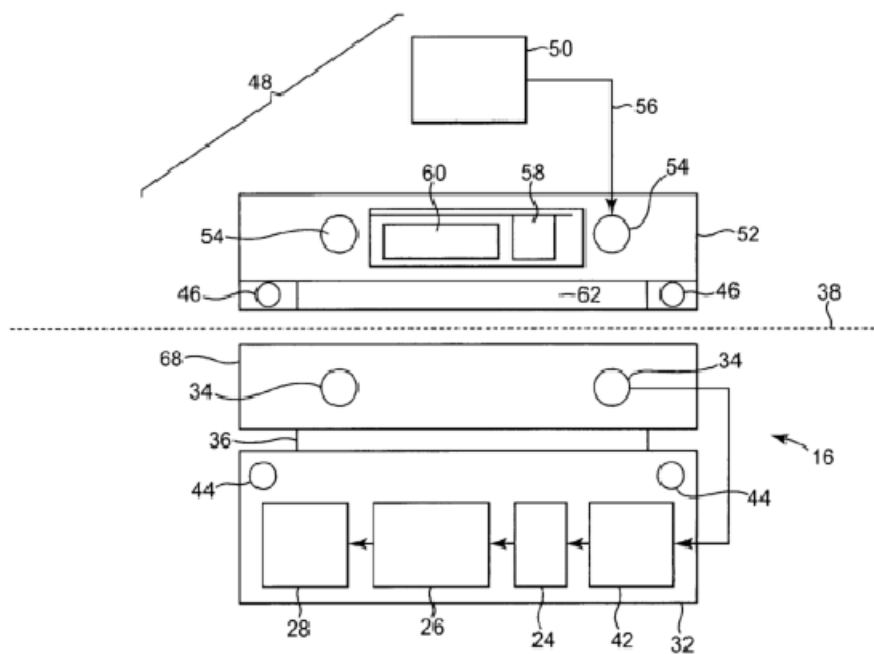


Fig. 3

2. Stevens (EX1005)

PCT Publication No. WO 2005/109597 (“Stevens”) is entitled “Controlling Inductive Power Transfer Systems.” Stevens was filed on May 11, 2005. Stevens claims priority to Great Britain Patent Application No. 0410503.7, filed on May 11, 2004, and Great Britain Patent Application No. 0502775.0, filed on February 10, 2005.

Stevens is directed to an inductive power transfer system that detects if there is a substantial parasitic load based on power drawn from the primary unit and power requirement information of a secondary device. EX1005 at Abstract. Power requirement information is defined as power required (but not actual power drawn) by the secondary device(s). EX1005 36:23-37:3. Therefore, power requirement information can include, for example, a binary part used to indicate either “no power required,” “power required,” or information identifying a type associated with the secondary devices, since all secondary devices of a certain type will have the same power requirement information. *Id.* Based on comparing the power requirement information with power drawn from the primary unit with a threshold value, the system determines whether to restrict or stop the inductive power supply. EX1005 at Abstract; 5:5-10.

A patent cited by the Examiner during prosecution of the '461 Patent, U.S.

Patent No. 7,605,496 (EX1013, “Stevens496”), is a National Stage Entry of Stevens. Stevens and Stevens496 include *nearly identical* disclosures, including the same figures and accompanying descriptions. *Compare, e.g.,* EX1005 Figs. 1-12 with EX1013 Figs. 1-12. Further, each paragraph of Stevens has an almost exact replica in Stevens496. *Compare, e.g.,* EX1005 at 32:32-33:8 with EX1013 at 21:49-59; *see generally* EX1005; EX1013.

3. Jin (EX1006)

U.S. Patent Pub. No. 2002/0057164 (“Jin”) is entitled “Isolation Transformer.” Jin was filed on July 3, 1998 (filed at PCT No. PCT/JP98/03006) and was published on May 16, 2002. Jin claims priority to Japanese Patent Application No. 9-178608, filed on July 3, 1997.

Jin is directed to a specific structure for an isolation transformer. EX1006 at Abstract. Jin states that the objects of the invention are to (a) “provide an isolation transformer capable of inhibiting a drop of the coupling conditions between the coils even if the gap between the cores is enlarged,” (b) “provide an isolation transformer having an excellent high frequency characteristic an[d] a high transmission efficiency capable of transmitting a large current electric energy instantaneously with a simple structure,” and (c) “provide a transmission control apparatus capable of igniting the air bag surely by supplying a current without a delay of time when

the ignition of the air bag is required and further capable of achieving signal transmission between the primary side and secondary side of the isolation transformer effectively.” EX1006 ¶¶ [0022]-[0024].

To achieve these objects, Jin recites particular structural elements of an isolation transformer and transmission control apparatus. *See id.* ¶¶ [0025], [0030]-[0032], [0035]. For example, Jin discloses an isolation transformer made of “primary and secondary cores and primary and secondary coils,” and the primary coil and secondary coil being disposed via a gap between the coils, as well as particular positioning and shaping associated with the primary and secondary coils. *See id.* ¶ [0025].

III. PERSON OF ORDINARY SKILL IN THE ART

Patent Owner proposes that at the time of the '461 Patent, a POSITA would have a working knowledge of wireless charging and inductive charging. EX2003 ¶ 44. The person would have gained this knowledge through an undergraduate Bachelor of Science degree in electrical engineering, computer engineering, computer science, or a related field, with at least two years of experience working in the field of wireless or inductive charging device design, or testing of such wireless or inductive charging device testing, or an equivalent combination of academic study and work experience. *Id.* More education (e.g., a Master's degree) or work

experience any relevant field may compensate for a deficit in one or more relevant qualifications stated above. *Id.*

IV. CLAIM CONSTRUCTION

Petitioner has not identified any claim terms for construction but rather has asserted that “no claim elements need a formal construction for purposes of resolving the controversy in this proceeding.” Pet. 8. To simplify the issues before the Board, Patent Owner has not asserted any claim constructions in this response and adopts the Petitioner's position that “[a]ll claim terms should be construed according to the *Phillips* standard.” *Id.* (citing *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005)).

V. THE PETITION FAILS TO DEMONSTRATE BY A PREPONDERANCE OF THE EVIDENCE THAT ANY CHALLENGED CLAIM IS UNPATENTABLE

The Petition is full of manifest gaps that illustrate Petitioner has not met its burden of demonstrating the claims are unpatentable by a preponderance of the evidence. Thus, the Board should confirm the patentability of the challenged claims.

A. Ground 1A: Petitioner Fails to Establish that Claims 13-16 and 18 Are Anticipated by Olson

As explained below, Petitioner has not shown a likelihood of prevailing with respect to Ground 1A. Olson fails to disclose at least claim limitations [13.1], [13.2],

[13.3], [13.4], [14], [15.2], and [17.1]. See EX2003 ¶76. As claims 14-18 depend on 13, Petitioner cannot show that Olson anticipates any of claims 13-18.

1. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.1]

Petitioner fails to establish by a preponderance of evidence that Olson discloses “at least one input power monitor configured to *measure input power received by the primary coil from the power supply*,” as required by limitation [13.1]. Petitioner alleges that Olson’s current measure block 226 “in connection with” microprocessor 212 qualifies as the claimed “input power monitor” of limitation [13.1]. See Pet. 15. This argument fails for several reasons.

First, current measure block 226 measures current *to power supply 216* instead of the input power *received by the primary coil from the power supply*, as required by limitation [13.1]. See EX1004 ¶ [0074] (“Current measure block 226 measures current to 12 volt power supply 216”); Pet. 15; EX2003 ¶79 (“As shown in Figure 14, current measure block 226 instead measures current **into** the twelve volt supply 216.”). Measuring current to the power supply is fundamentally different from measuring the power received by the primary coil. See EX2003 ¶79. “[T]he placement of both current measure block 226 and batteries 160 are such that corresponding current and voltage measurements do not qualify as the input power

received by the primary coil from the power supply.” EX2003 ¶79. An annotated Figure 14 of Olson, showing placement of current measure block 226 in relation to the 12 volt power supply and primary coil, is shown below.

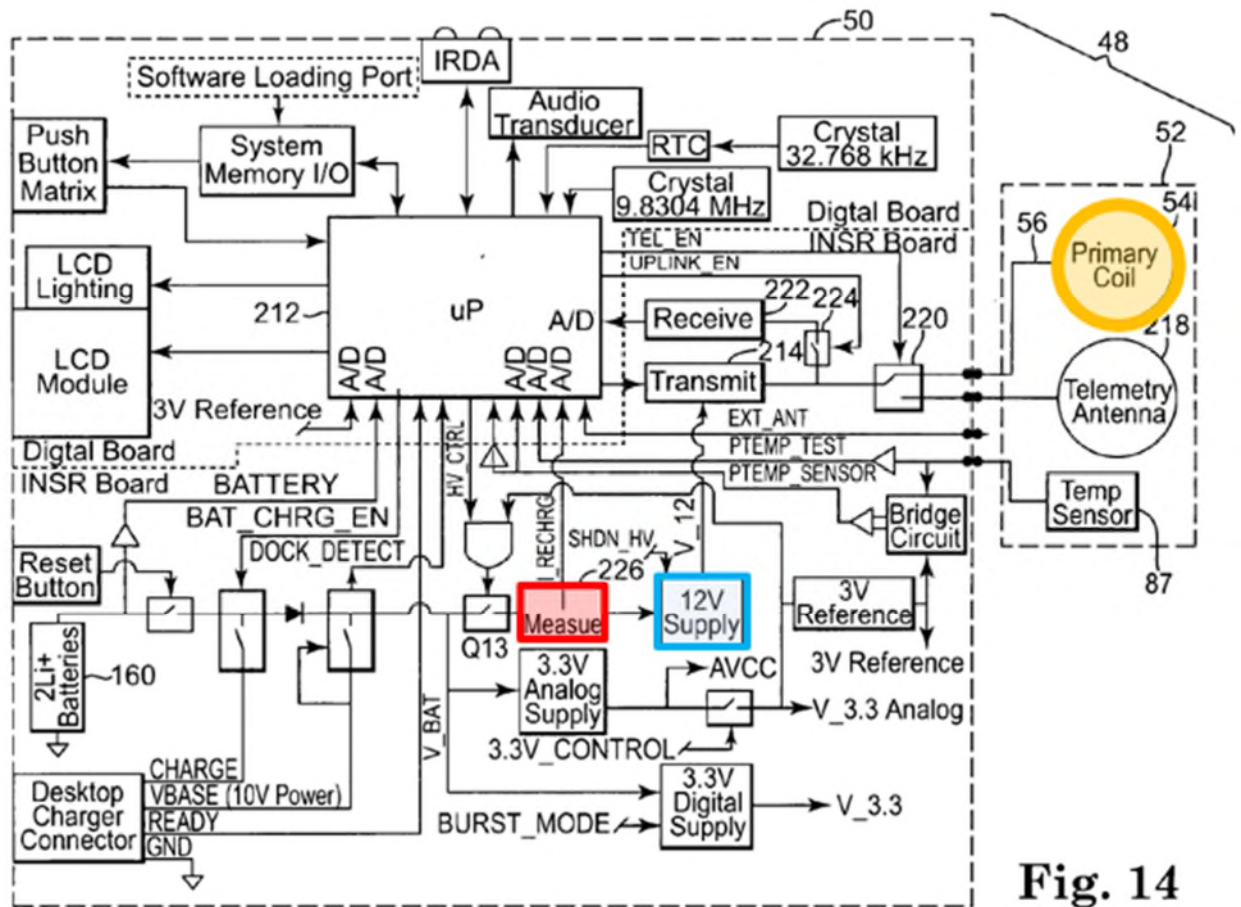


Fig. 14

EX2003 ¶79.

A measurement of current input into a power supply is not the same as a measurement of power received by the primary coil from the power supply:

As shown in Figure 14, current measure block 226 instead measures current **into** the twelve volt supply 216, which, in turn, supplies power to **multiple other components**, including a transmit block 214, an electronically controllable switch 220, and a telemetry antenna 218. Ex. 1004 Fig. 14, ¶ [0072]. For example, Olson explicitly states that the twelve volt power supply 216 “suppl[ies] power to transmit block 214 during power transfer and/or charging **as well as telemetry downlink.**” Current measure block 226 therefore measures current into multiple other components other than the primary coil of Olson. In other words, current measure block 226 does not measure current and/or power “received by the primary coil from the power supply,” but instead measures power into the twelve volt power supply 216, which powers multiple components other than the primary coil.

EX2003 ¶79.

Further, a POSITA would understand that Olson's input current into the power supply 216 is different from the output current coming out of the power supply 216:

It should be noted that the 12V power supply 216 is disclosed by Olson as being a switching regulator (paragraph 73), which is a type of DC-DC converter that changes the input voltage (disclosed as being either 7.5V or 12V in paragraph 73) to 12V at the output and, necessarily, also means that the input current is different from the output current, especially if the converter doesn't operate with 100% efficiency (which

no practical converter does). As a result, the power going into the 12V supply is not the same as the power coming out of the 12V supply. For all of these reasons, measuring the power going into the 12V supply is different than measuring the power received by the primary coil, as required by claim [13.1].

EX2003 ¶79.

The disclosure of Olson is therefore in direct contrast to the '461 Patent, which provides diagrams that are consistent with measuring “input power received by the primary coil from the power supply” as recited in claim 13:

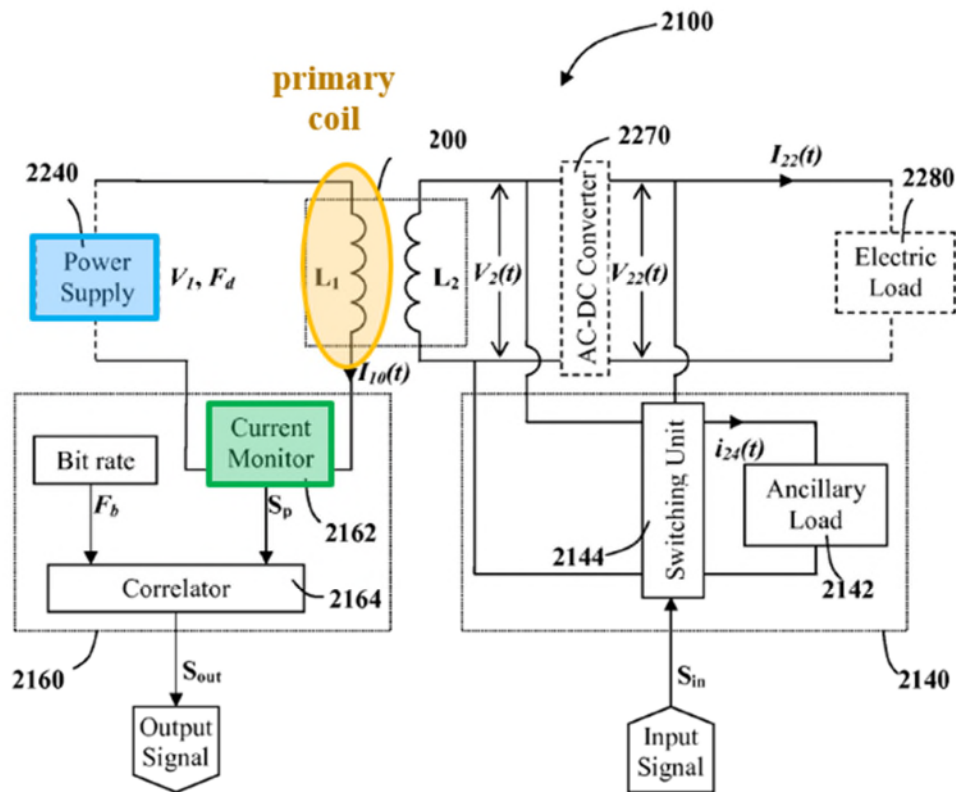


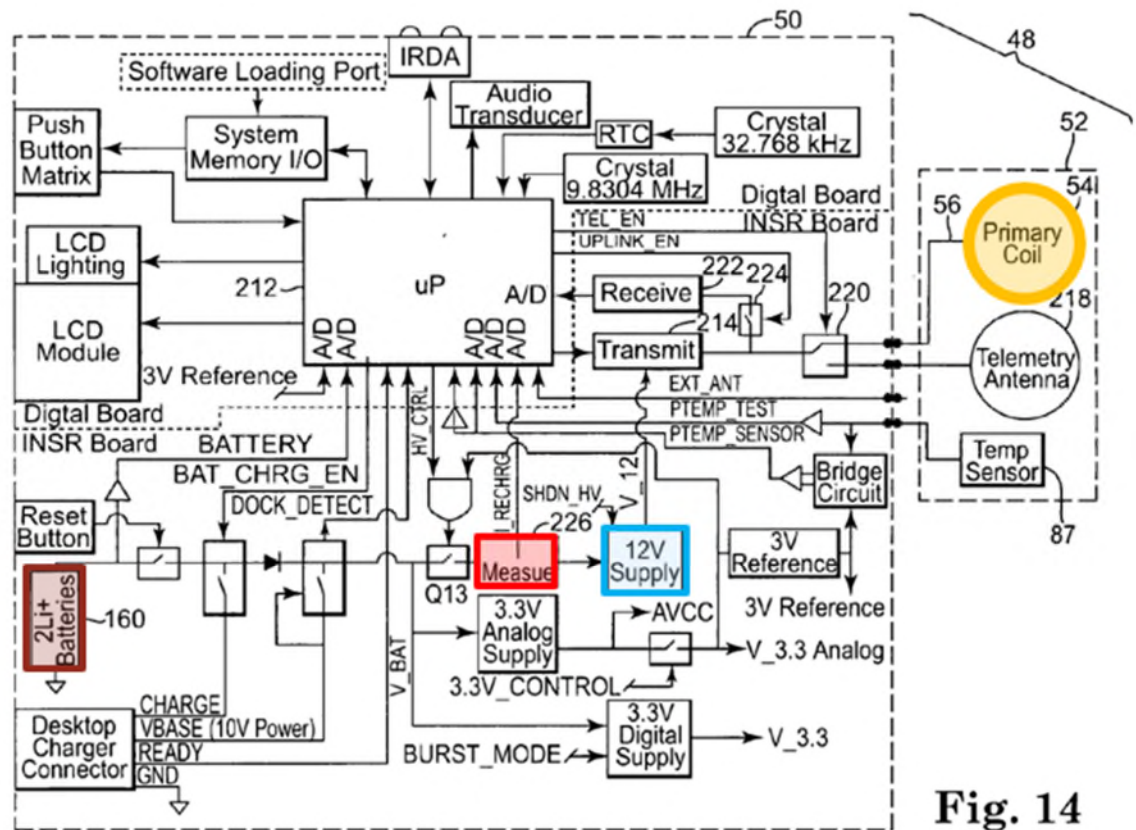
Fig. 2a

EX2003 ¶80 (reproducing Ex. 1001 Fig. 2a with annotations). For example, “Figure 2A of the ’461 Patent shows a current monitor in series with the primary coil such that the resultant measured current can be used in measuring input power received by the primary coil from the power supply.” *Id.*

Second, Petitioner fails to establish that Olson’s voltage “measurement” is measured at the appropriate place to determine power received by the primary coil. *Id.* ¶81; see also *id.* ¶79 (“[T]he placement of both current measure block 226 and

batteries 160 are such that corresponding current and voltage measurements do not qualify as the input power received by the primary coil from the power supply.”). For example, Petitioner relies on voltage “from the batteries 160 and/or desktop charging device 162” in combination with the aforementioned current measurement. Pet. 16.

These measurements are not the same, for example “batteries 160 are placed even further away in the circuit than the current measure block 226.” EX2003 ¶81. An annotated figure 14 of Olson is reproduced below showing placement of batteries 160 in maroon:



EX2003 ¶ 81. Olson describes that voltage is not measured at the primary coil but at batteries 160. Therefore, Olson’s “voltage” measurement does not qualify as the “input power” required by claim [13.1]:

Current flowing from the batteries to the current measure block 226 passes through multiple switches and a diode as depicted in Fig. 14, each of which would cause a voltage drop (and have power loss) prior to reaching the current measure block 226; as a result, the voltage at the current measuring block would not be the same as at the batteries, nor would it be the same as at the transmitter block or at the primary coil,

and thus it's unclear what power is being calculated here. Furthermore, there are numerous other components besides the primary coil that would receive power from batteries 160. For example, microprocessor 212, transmit block 214, telemetry antenna 218 are other components powered by the batteries 160. Ex. 1004 at Fig. 14.

EX2003 ¶82.

Therefore, “[a]ny calculation of power based on these incorrect measurements is not a measurement of input power received by the primary coil from the power supply.” EX2003 ¶83.

Petitioner cites other paragraphs of Olson in relation to [13.1]. Pet. 15-17. To the extent these paragraphs can be considered to describe different embodiments, these paragraphs also fail to disclose limitation [13.1]. EX1003 ¶¶84-88.

For example, Petitioner cites paragraphs [0074]-[0076] of Olson. Pet. 15-17. These paragraphs describe gauging power into external charging device 48 or “power in,” but gauging power into external charging device 48 and “power in” are different from measuring “input power received by the primary coil from the power supply,” as recited in limitation [13.1]. EX2003 ¶85. Olson states that the “power in” is “gauged by the power generated by charging unit 50 and is determined by multiplying the voltage of the internal voltage of charging unit 50 e.g., the voltage

of a battery or batteries internal to charging unit 50, by the current driving external antenna 52.” Ex. 1004 ¶ [0075]. Therefore, the “power in” described in these paragraphs of Olson fails to qualify as the input power described in this paragraph because the voltage of a battery or batteries internal to charging unit 50 is not a measurement of “input power received by the primary coil from the power supply” for the reasons presented above in relation to Figure 14. EX1003 ¶ 85.

The “current driving external antenna 52” described in these paragraphs of Olson is also “an inappropriate basis for measurement” for the input power recited in limitation [13.1]. EX1003 ¶ 86. “External antenna 52 includes components other than the primary coil 54, such as the telemetry antenna” and thus a measurement of current driving external antenna 52 is not a measurement of “input power received by the primary coil from the power supply” as recited in limitation [13.1]. EX1003 ¶ 86. Further, to the extent that this passage of Olson can be considered to describe a different embodiment from Figure 14, “this passage offers no detail as to what component would perform the current measurement or where the measurement is taken.” EX1003 ¶86.

Petitioner also cites paragraph [0112] of Olson, but Petitioner considers this passage to describe the same measurements and same calculation described in

relation to paragraph [0074]-[0076] of Olson. Pet. 19-20; EX2004 23:9-21; *see also* EX2003 ¶87. Thus, paragraph [0112] of Olson fails to disclose limitation [13.1] for at least the same reasons presented above in relation to paragraphs [0074]-[0076] of Olson. EX2003 ¶¶ 87-88. Further, “paragraph [0112] of Olson fails to provide **any** detail on how to perform the measurements, including details on what components are used to measure power, how to determine power, or where the ‘coil-to-coil’ measurement is being performed.” EX2003 ¶87.

The Petition fails to articulate any component other than current measure block 226 and microprocessor 212 as the alleged “input power monitor” of limitation [13.1], fails to articulate any inherency argument in relation to limitation [13.1], and further fails to articulate any combination rationale of different embodiments of Olson. Pet. 15-17; EX2004 at 9:19-11:3.

Therefore, Petition fails to establish by a preponderance of evidence that Olson discloses limitation [13.1]. Because claims 14-16 and 18 depend on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-16 and 18 are anticipated by Olson.

2. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.2]

Petitioner fails to establish by a preponderance of evidence that Olson

discloses “at least one signal detector configured to ***detect signals carrying data pertaining to output power received by the secondary coil,***” as required by limitation [13.2].

Claim 13.2 specifically recites that the detector configured to detect signals must detect signals carrying data pertaining to output power ***received by the secondary coil.*** Figure 5 of the '461 Patent shows an example of an output power monitor in relation to the secondary coil to obtain “data pertaining to output power received by the secondary coil”.

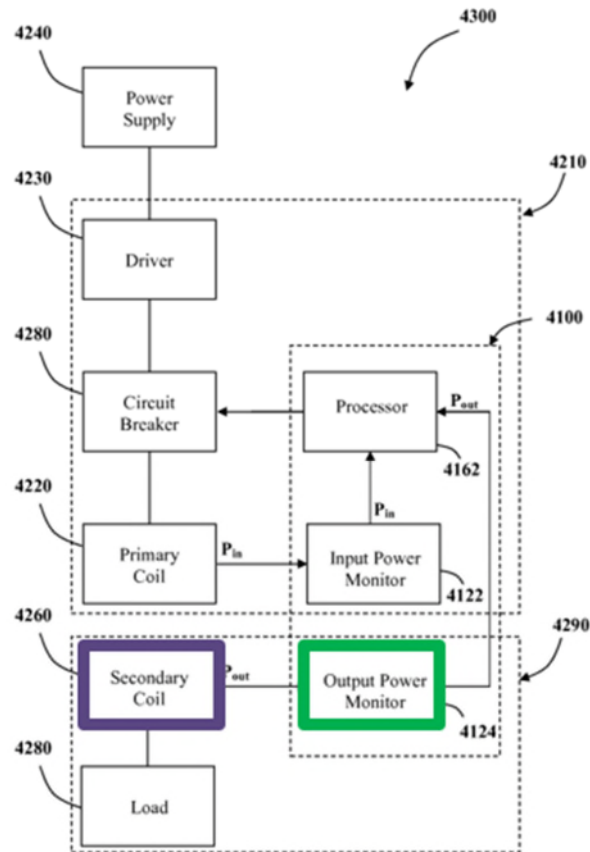


Fig. 5

EX1001 Fig. 5.

Petitioner alleges that “Olson describes that microprocessor 212 receives ‘by telemetry’ measurement data pertaining to ‘the power induced in implantable device 16’ (e.g., via the telemetry antenna 218)” and cites paragraphs [0072], [0075], and Figure 14 of Olson, as well as its expert declaration Pet. 17. However, Petitioner fails to address how the “power induced in implantable medical device” in Olson is

necessarily the same as “output power ***received by*** the secondary coil.” Pet. 17.

For example, Olson fails to “describe any detail of how ‘power induced in implantable device 16’ is gauged.” EX2003 ¶91. Paragraph [0072] of Olson describes a “telemetry antenna 218” but fails to “describe what specific information is being transferred.” See EX2003 ¶91; EX1004 ¶[0072].

Paragraph [0075] of Olson only states that “[t]he power out is gauged by the power induced in implantable medical device 16 and is determined by multiplying the voltage of rechargeable power source 24 by the charging current in implantable medical device 16.” EX1004 ¶[0075]; EX2003 ¶92. The “power out” described in Olson fails to satisfy the “output power” recited in limitation of [13.2]. “This paragraph includes no detail of how or where either voltage or current measurement is performed.” EX2003 ¶92. “For example, this paragraph mentions ‘charging current in implantable medical device 16’ without specifying where the current is measured such that this paragraph would disclose ‘output power received by the secondary coil,’ as recited in limitation [13.2].” *Id.*

Further, Olson states that power measurements at a “rechargeable power source 24” are different from measurements of power “received by the secondary coil”:

Further, power goes through the secondary coil through electronics 26 and potentially “therapy module 28” before going to “rechargeable power source 24. Ex. 1004 Fig. 2, ¶ [0050]. Power measurements at rechargeable power source 24 are therefore different than power measurements “received by the secondary coil” because power is transferred to other components between the secondary coil and the rechargeable power source, where Olson states voltage is measured.

EX2003¶ 93.

Accordingly, Petitioner fails to establish by a preponderance of the evidence that Olson discloses limitation [13.2]. Because claims 14-16 and 18 depend on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-16 and 18 are anticipated by Olson.

3. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.3]

Petitioner fails to establish by a preponderance of evidence that Olson discloses “*at least one processor configured to receive data pertaining to the input power and the output power*, the processor further configured to determine an index of power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil,” as required by Limitation [13.3].

Limitation [13.3] is reliant on the “input power” defined in limitation [13.1], as “*input power received by the primary coil from the power supply*,” as well as the

“output power” defined in limitation [13.2] as “**output power received by the secondary coil.**” See EX2003 ¶96. Because Olson fails to disclose “input power” and “output power” in the first place, Olson further fails to disclose any functionality based on the recited “input power” and “output power,” such as a “processor configured to **receive data pertaining to the input power and the output power,**” as recited in limitation [13.3]. See *supra* Sections VII.A.1, VII.A.2; see also EX2003 ¶¶97-98.

Petitioner also cites paragraph [0112] of Olson, which states that

Efficiency of energy transfer is an important measure of the effectiveness of energy transfer from primary coil 54 of external antenna 52 to secondary coil 34. Efficiency is measured by dividing the power in, i.e., the power received by secondary coil 34, by the power out, i.e., the power transmitted by primary coil 54. While energy efficiency can be measured at other locations in external antenna 52 and/or implantable medical device 16, for purposes of some embodiments of the present invention it is preferred that efficiency is measured coil-to-coil, i.e., from primary coil 54 to secondary coil 34.

EX1004 ¶ [0112]. Petitioner cites to this passage of Olson several times to allege that Olson discloses the particular output power, input power, and resulting efficiency determination required by claim 13. However, this paragraph of Olson

fails to describe, with any particularity, what it considers “coil-to-coil” measurements. On the other hand, claim 13 **does** recite particular measurements (*e.g.*, “input power received by the primary coil from the power supply,” and “output power received by the secondary coil”). Olson’s only description of particular measurements pertains to current measure block 226, which measures current **into** a power supply (instead of **from** a power supply as recited in claim 13). *See supra* Section V.A.1. Therefore, Olson’s general disclosure of “preferr[ing] that efficiency is measured coil-to-coil” does not satisfy the particular limitations required by claim 13.

Further, Petitioner considers this passage to describe the same measurements and same calculation described in relation to paragraph [0074]-[0076] of Olson. Pet. 19-20; EX2004 23:9-21; EX2003 ¶87. Thus, paragraph [0112] of Olson fails to disclose limitation [13.3] for at least the same reasons presented above in relation to paragraphs [0074]-[0076] of Olson in limitation [13.1]. *See supra* Section V.A.1

Given the above deficiencies in Olson, Petitioner fails to establish by a preponderance of the evidence that limitation [13.3] is anticipated by Olson. Because claims 14-16 and 18 depend on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-16 and 18 are anticipated by Olson.

4. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [13.4]

Petitioner fails to establish by a preponderance of evidence that Olson discloses an “index of power-loss [that] comprises at least one of: an efficiency quotient Q , defined as the ratio of the output power to the input power; and an efficiency differential Δ , defined as the difference between the output power and the input power.”

Limitation [13.4] requires at least three things: **1)** input power defined as “power received by the primary coil from the power supply,” **2)** output power defined as “output power received by secondary coil,” and **3)** an index of power loss determined based on either: **a)** a ratio of the output power to the input power (efficiency quotient) or **b)** a difference between the output power and the input power (efficiency differential).

Because limitation [13.4] relies on the “input power” defined in limitation [13.1] and “output power” defined in limitation [13.2], limitation [13.4] fails for at least the same reasons presented above in relation to limitations [13.1] and [13.2]. *See supra* Sections V.A.1, V.A.2; EX2003 ¶¶101-102.

For example, Petitioner alleges that two sections of Olson (first, paragraphs [0074]-[0076] and second, paragraph [0112]) describe calculating a “ratio of power

out divided by power in” as the claimed efficiency quotient. Pet. at 19. Paragraph [0075] of Olson states that “a measure of the efficiency of external charging device 48” that is calculated based on “power out of external charging device 48 divided by the power into external charging device 48.” Olson further defines that power in is “gauged by the power generated by charging unit 50 and is determined by multiplying the voltage of the internal voltage of charging unit 50...by the current driving external antenna 52.” EX1004 ¶ [0075]. Specifically, the current driving external antenna 52 is measured by current measure block 226, which “measures current *to* 12 volt power supply 215,” instead of *from* the 12 volt power supply, as recited in claim 13. See EX1004 ¶ [0075]; see also *supra* Section V.A.1. If Olson is deficient in disclosing “input power,” it follows that any determination based on Olson’s deficient “input power” (such as any alleged efficiency quotient) will also be deficient. EX2003 ¶¶78-88; *supra* Section V.A.1.

Regarding Olson’s “output power” measurement, Olson merely states that this measurement is “gauged by the power induced in implantable medical device 16 and is determined by multiplying the voltage of rechargeable power source 24 by the charging current in implantable medical device 16.” EX1004 ¶ [0075]. However, Olson fails to describe with any particularity, where this measurement is taken with

respect to any alleged secondary coil. *See id.*; EX2003 ¶¶89-94; *supra* Section V.A.2. Because Olson is deficient in disclosing “output power,” it follows that any determination based on Olson’s deficient “output power” (such as any alleged efficiency quotient) will also be deficient.

Petitioner also alleges paragraph [0112] of Olson discloses limitation [13.4]. Pet. at 19-20. However, while paragraph [0112] states “it is preferred that efficiency is measured coil-to-coil, i.e., from primary coil 54 to secondary coil 34,” it fails to describe the particular input power and output power measurements recited in limitation [13.4]. *See supra* Section V.A.3. For example, while paragraph [0112] of Olson describes an efficiency of energy transfer “measured by dividing the power in, i.e., the power received by secondary coil 34, by the power out, i.e., **the power transmitted by primary coil 54**” (emphasis added), both Petitioner and Olson fail to address whether “power transmitted by primary coil 54” is the same as “power **received by** the primary coil **from** the power supply” of limitation [13.4]. *See id.*; Pet. 19-20. Instead, as alleged by Petitioner, Olson’s only disclosure of particular measurements of alleged “input power” or “output power” pertains to its disclosure of current measure block 226, which measures current **into** a power supply (instead of **from** a power supply as recited in claim 13). *See supra* Sections V.A.1-V.A.3.

Therefore, Olson's general disclosure of "preferr[ing] that efficiency is measured coil-to-coil" cannot be considered to disclose the particular limitations recited in claim 13. *See supra* Section V.A.3.

Given the above deficiencies in Olson, Petitioner fails to establish by a preponderance of evidence that [13.4] is anticipated by Olson. Because claims 14-16 and 18 depend on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-16 and 18 are anticipated by Olson.

5. Petitioner Fails to Demonstrate that Olson Anticipates Claim 14

Petitioner fails to establish by a preponderance of evidence that Olson anticipates "The inductive power outlet of claim 13 additionally comprising ***at least one circuit breaker*** configured to disconnect the primary coil from the power supply," as required by claim 14.

"Claim terms must be construed the same way for the purpose of determining invalidity and infringement." *TVIIM, LLC v. McAfee, Inc.*, 851 F.3d 1356, 1362 (Fed. Cir. 2017). Petitioner has asserted contrary positions in this proceeding and the District Court Litigation (*Powermat Technologies Ltd. v. Anker Innovations Ltd.*, Case No. 5-23-cv-00052 (E.D. Tex.)). *See* EX1012. For its non-infringement position in the District Court Litigation, Petitioner has asserted that "[a] circuit-

breaker is a device that is designed to prevent damage to an electrical circuit by turning off, or disconnecting, when excessive current flows through the circuit-breaker.” EX2005 at 2. To the extent that Petitioner's interpretation of “circuit breaker” applies in this proceeding, Petitioner has failed to demonstrate that Olson anticipates “at least one circuit breaker configured to disconnect the primary coil from the power supply.”³

Petitioner cites the “electronically controllable switch 220” and “control circuitry” in relation to this limitation. Pet. 20-22. However, neither qualify as the “at least one circuit breaker configured to disconnect the primary coil from the power supply” based on Petitioner's interpretation. See EX2005 at 2-3. For example, Petitioner has asserted that a “circuit breaker” and “switch” are different components. EX2005 at 3 ([T]he A2503 could use ***something other than a circuit-breaker, such as*** a transistor or ***a switch***, to disconnect the primary coil from the power supply.” (emphasis added)).

Petitioner's second example relating to “control circuitry/control logic”

³ Patent Owner does not concede the appropriateness of Petitioner's claim construction of “circuit breaker” but raises the issue of Petitioner's inconsistent positions relating to the same claim term.

similarly fails. While Petitioner states that “Olson discloses control circuitry/control logic that switches off energy transfer from the primary coil 54 in the event too much heat is generated (e.g., due to inefficient power transfer),” Petitioner never establishes that this involves a circuit breaker. Instead, Petitioner has asserted that:

There are many ways to stop power transfer without using a circuit-breaker to disconnect the primary coil from the power supply. For example, the A2503 could simply deactivate the drivers that drive the Primary Coil. Alternatively, the A2503 could use something other than a circuit-breaker, such as a transistor or a switch, to disconnect the primary coil from the power supply.

EX2005 at 3.

Petitioner fails to assert any inherency argument or combination rationale related to combining different embodiments of Olson in relation to this limitation. Pet. 20-22; EX2004 at 19:4-20:14. Therefore, based on Petitioner's construction proffered in District Court Litigation, Petitioner fails to establish by a preponderance of the evidence that Olson anticipates claim 14.

6. Petitioner Fails to Demonstrate that Olson Anticipates Limitation [15.2]

Petitioner fails to establish by a preponderance of evidence that Olson anticipates limitation [15.2]: “the inductive power receiver further comprising: at

least one output power monitor for measuring output power received inductively by the secondary coil from the primary coil.”

Petitioner relies on a multiplication of current **and** voltage as a power measurement. *See, e.g.*, Pet. 15; EX2004 at 12:8-13. Olson further confirms, based on its disclosure, a product of current and voltage must be used to determine power. *See, e.g.*, EX1004 ¶ [0075]; EX2003 ¶104.

Olson fails to disclose limitation [15.2] because it fails to disclose any “output power monitor” for measuring output power. Pet. 23-24. While Petitioner relies on the “power electronics 26” in “implantable medical device 16,” as the “output power monitor,” Olson fails to state that “power electronics 26” of “implantable medical device 16 performs any power determination. EX2003 ¶106-110.

For example, Olson only describes that “implantable medical device 16 obtains separate values of the ‘charging current in implantable medical device 16’ and ‘voltage of rechargeable power source 24,’ and transmits those values to another device without any determination of power preceding the transmittal.” EX2003 ¶105 (citing EX1004 ¶ [0075]). Olson further fails to provide any details of how these “values” are obtained: “is no disclosure of how voltage is **measured** in the implantable medical device 16, and no disclosure of a component in implantable

medical device 16 that **measures** voltage, only that the value is somehow obtained.”

EX2003 ¶105.

Other sections of Olson confirm this. See EX2003 ¶106-08. For example, the language of paragraph [0075] describes that:

The power out is gauged by the power induced in implantable medical device 16 and is determined by multiplying the voltage of rechargeable power source 24 by the charging current in implantable medical device 16. These values are obtained by telemetry from implanted medical device 16.

Ex. 1004 ¶ [0075].

The fact that Olson states that “**values** are obtained by telemetry” implies that **multiple** values (*i.e.*, the current and voltage values) are transmitted rather than a single value (*i.e.*, a measurement of power). Therefore, this passage of Olson supports that the individual values of current and voltage are obtained, and no such power measurement is performed on the implantable medical device 16. Instead, Olson implies that a **different** device performs such a calculation based on the implantable medical device 16 transmitting these separate values of current and voltage. In further confirmation of this, Olson includes no language that indicates that the implantable medical device 16 performs such a power determination and fails to disclose that the implantable medical device 16 includes a component that performs such a power

determination. Ex. 1004 ¶ [0075], Figs. 2-3. Dr. Woods also fails to point to any component in Olson that performs the calculation.

EX2003 ¶108.

Further, the values described in Olson for such a power measurement do not “measur[e] output power received inductively by the secondary coil.” EX2003 ¶110; *see also supra* Section V.A.2. For example, the voltage value described in Olson is the “voltage of a battery or batteries internal to charging unit 50.” EX1004 ¶ [0075]; *see also* EX2003 ¶110. “The voltage at such a location, such as at rechargeable power source 24, is not indicative of power ‘received by the secondary coil from the primary coil,’ because power is lost through several other components, such as ‘electronics 26’ before reaching rechargeable power source 24.” EX2003 ¶110.

Therefore, Petitioner fails to establish by a preponderance of the evidence that limitation [15.2] is anticipated by Olson.

7. Petitioner Fails to Demonstrate that Olson Anticipates Claims 16-18

Claims 16-18 depend from claim 13. Therefore, for at least the reasons presented above in relation to claim 13, Petitioner fails to establish by a preponderance of evidence that Olson anticipates claims 16-18.

Claims 16-18 further depend from claim 18. Therefore, for the additional

reasons presented above in relation to claim 15, Petitioner fails to establish by a preponderance of the evidence that Olson anticipates claims 16-18.

B. Ground 1B: Petitioner Fails to Establish that Claim 17 is Rendered Obvious by Olson in View of Stevens

Petitioner relies on Stevens solely “[t]o the extent Olson does not expressly disclose the limitations of dependent claim 17...” Pet. 29-30. Claim 17 depends from claim 13 and is therefore, for at least the same reasons provided in relation to claim 13, Petitioner fails to establish by a preponderance of evidence that claim 17 is rendered obvious by Olson in view of Stevens. Additional reasoning is provided below.

1. Petitioner Fails to Establish That a POSITA Would Combine Olson and Stevens.

Petitioner relies on a combination of Olson and Stevens in relation to Ground 1B. *See, e.g.*, Pet. 26-33. However, Petitioner fails to establish by a preponderance of evidence that a POSITA would be motivated to combine Olson and Stevens in the manner suggested by Petitioner. *See* EX2003 ¶¶111-16.

Petitioner's proposed combination relies on implementing “Stevens' suggestion for communicating power information to the primary unit by varying the imposed load using a dummy load, thereby modulating a bit-rate signal” with Olson's charging unit. Pet. 30-31.

However, a POSITA would not be motivated to use Stevens's dummy loads in Olson's charging unit. *See* EX2003 ¶¶111-16. Olson is directed to making positional adjustments to a charging unit for an implanted medical device to attain an efficiency of energy transfer of at least thirty percent from the external power source to the implantable medical device. EX2003 ¶112 (citing EX1004 at Abstract, ¶ [0075]). Stevens is not directed to the efficiency of energy transfer as described in Olson, but instead towards the detection of unwanted parasitic loads. EX2003 ¶113 (citing EX1005 at Abstract). Stevens thus discussed determining a difference between "power drawn from the primary unit" and "power required by the secondary device" and comparing this difference to a threshold. EX2003 ¶113; EX1005 at Abstract.

When Stevens describes the use of a dummy load, the purpose is to **represent** the amount of power required by the secondary device. EX2003 ¶114; EX1005 at 8:26-28. The dummy load is not a "determination of power actually induced in the secondary device," which is what Olson is directed to using to determine efficiency of energy transfer. EX2003 ¶¶ 114-17; EX1005 8:26-28. The use of dummy loads would thus be contrary to Olson's purpose of determining efficiency of energy transfer to determine proper positional or frequency adjustments:

The purpose of Olson is to evaluate power induced in the secondary device to determine whether to make positional or frequency adjustments to increase efficiency. Ex. 1004 at Abstract; ¶ [0075]. Therefore, a POSITA would not integrate Stevens's dummy load that is **representative** of power required by implantable medical device 16 rather than a Olson's method to determine power **induced** in "implantable medical device 16."

Stevens states that the dummy loads are attached to preset values, that are merely representative of power requirements or parasitic loads of the secondary device. Ex. 1005 at 23:34-35; 27:13-16. For example, Stevens describes that the dummy load may include a "resistor ladder with an array of switches." Ex. 1005 at 30:13-17. Using the dummy loads to represent power requirements of implantable medical device instead of determining power induced in the medical device 16 would be contrary to the intent of Olson.

EX2003 ¶¶115-16.

Thus, the use of dummy loads in Stevens would go against the intent of Olson and a POSITA would not be motivated to combine Olson and Stevens in the manner suggested by the Petition. Therefore, Petitioner fails to establish by a preponderance of evidence that a POSITA would combine Olson in view of Stevens in the manner suggested.

2. Petitioner Fails to Establish That Olson in View of Stevens Renders Obvious Claim Limitation [17.1]

Petitioner fails to establish by a preponderance of evidence that Stevens in view of Olson renders obvious “The inductive power receiver of claim 15 wherein the transmitter comprises: an ancillary load selectively connectable to the secondary inductive coil, a modulator for modulating a bit-rate signal with an input signal to create a modulated signal,” as required by limitation [17.1].

Petitioner states that “it would have been obvious to implement in Olson’s electric device a load modulation transmitter that includes a modulator for modulating a bit-rate signal with an input signal to create a modulated signal in order to communicate power requirement information to the primary device using “bits” as suggested by Stevens. Pet. 35. Petitioner specifically relies on Stevens’s modulation aspect in relation to communicating power requirement information in relation to this limitation. Pet. 34-35. However, “a POSITA would not be motivated to combine this aspect of Stevens with Olson.” EX2003 ¶120.

Stevens is concerned with different measurements than Olson. EX2003 ¶122. For example:

Stevens’s power requirement information does not relate to power delivered to the secondary coil, but rather the “actual load 46.” Ex. 1005 at Figs. 4, 12, 38:19-20. As stated by Stevens, this measurement is

different than power received by the secondary coil 32 because it “will also reflect any losses in the system” such as losses between the secondary coil 32 and actual load 46. Ex. 1005 at 37:14-15.

EX2003 ¶122.

Further, Petitioner relies on an embodiment of Stevens where “the secondary devices are adapted for changing the magnitude of their dummy loads dynamically.” Pet. 34. Stevens states that the purpose changing the dummy load dynamically is “useful for devices whose ‘friendly parasitic’ load may change” and further describes examples of such devices as “a self-charging battery connected to **removable** attachments such as a ‘phone,’ ‘removable camera attachments,’ and ‘cases and speakers.’ EX2003 ¶123; EX1005 at 30:24-32.

The purpose of modulating information to simulate parasitic loads of different removable attachments fails to make sense in Olson. For example, Olson is directed to energy transfer of “implantable medical devices” and explicitly describes a motivation against needing to “explant and re-implant the implantable medical device.” EX2003 ¶124 (citing EX1004 ¶¶ [0001], [0004]).

There is therefore no motivation to combine Olson and Stevens to include Stevens’s modulation aspect to communicate load requirement information and parasitic information. EX2003 ¶¶ 123-25:

Because Olson is directed to an implanted device that is undesirable to explant, Olson is not directed to a device recited in Stevens that would be commonly connected/disconnected from “removeable attachments.” Such attachments would require explant of the device, which Olson specifically states is undesirable. Ex. 1003 ¶¶ [0001], [0004].

EX2003 ¶125.

Therefore, Petitioner fails to establish by a preponderance of evidence that a POSITA would be motivated to combine Olson and Stevens to include Stevens's modulation aspect and Petitioner fails to establish by a preponderance of evidence that limitation [17.1] is rendered obvious by Olson in view of Stevens.

C. Ground 2: Petitioner Fails to Establish that Claims 13-18 are Rendered Obvious by Stevens in View of Olson

For Ground 2, Petitioner relies on a combination of Stevens and Olson. For at least the following reasons, Steven and Olson, whether taken alone or in reasonable combination, fail to disclose at least claim 13.

1. Petitioner Fails to Demonstrate That a POSITA Would Combine Stevens and Olson

Petitioner states that a POSITA would be motivated to “implement Olson's suggestion (calculating a power transfer efficiency ratio) in Stevens' system to achieve known benefits.” Pet. 37. However, Petitioner's rationale is based on a misunderstanding of Stevens and Olson. EX2003 ¶128. Stevens and Olson are

directed to different goals and using Olson's efficiency calculation would not make sense in Stevens. EX2003 ¶¶127-36.

Stevens is directed to determination of whether a substantial parasitic load is present and restricting or stopping a power supply accordingly. EX1005 at Abstract; EX2003 ¶129. For example, Stevens describes:

If the measured power from the power measurement 730 exceeds the sum of the load measures from the secondary devices by more than a shutdown threshold, then the control unit 720 concludes that a substantial parasitic load must be present and places the primary unit in the shutdown mode, as in step S24 in Fig. 11.

EX1005 at 38:34-39:6.

Olson, conversely, is directed to "improving power transfer to an implanted medical device" using positional or frequency adjustments. EX1004 ¶¶ [0019]-[0021]; EX2003 ¶131. For example, Olson describes "calculating a 'ratio of power out divided by power in' to assist evaluating a proper location of the external charger (including the rotatable core cup assembly and external antenna 52)." EX2003 ¶132 (citing EX1004 ¶¶ [0076]-[0078]).

Stevens' comparison of "measured power with a predetermined threshold" and Olson's "ratio of power out divided by power in" are directed to different goals.

EX2003 ¶133. For example, “Stevens describes a different goal than Olson because Stevens is directed to comparing values to determine whether an unwanted parasitic load is present and stopping energy transfer based on whether the parasitic load is substantial. Olson, on the other hand, is directed to improving power transfer and not stopping power transfer.” *Id.*

While Petitioner relies on substituting Stevens's values using Stevens's comparison methodology with Olson's “ratio” calculation, a POSITA would not be motivated to combine Stevens and Olson in this manner. For example:

Dr. Woods's ratio format is less desirable for evaluating parasitic load because it evaluates relative values instead of absolute values. Parasitic loads are better evaluated as absolute values and using Stevens's methodology of comparison. For example, if the sum of load measures is zero, Stevens's method would lead to a proper determination of the parasitic load and scale appropriately with increasing measured power. On the other hand, using Olson's ratio format, the resultant value would be “zero,” regardless of how small or large the parasitic load is.

As additional examples, minor parasitic load could be misrepresented as a substantial parasitic load when using the ratio format if very small values comprise the measured power and sum of load measures. Similarly, very large parasitic load could be misrepresented as small parasitic load when using the ratio format if large values comprise the

measured power and sum of load measures. It is therefore detrimental to use Olson's ratio format to determine substantial parasitic loss and a POSITA would not be motivated to combine Stevens with Olson to use Olson's ratio format over Stevens's prescribed methodology. A POSITA would better understand "substantial" parasitic loss in terms of absolute values, whereas use of a ratio format forces a POSITA to know other measurements to determine whether the parasitic loss is substantial or not.

EX2003 ¶¶134-36.

Therefore, Petitioner fails to establish by a preponderance of the evidence that a POSITA would be motivated to combine Stevens and Olson.

2. Petitioner Fails to Demonstrate that Limitation [13.1] is Rendered Obvious by Stevens in View of Olson

Petitioner fails to establish by a preponderance of evidence that Stevens and Olson render obvious "at least one input power monitor configured to *measure input power received by the primary coil from the power supply*," as required by limitation [13.1].

Petitioner alleges that Stevens's power measurement unit 100/730 acts as the claimed input power monitor. Pet. 42. In describing the power measurement unit, Stevens states that the "power drawn by the electrical drive unit is representative of the power drawn by the primary coil 12 and hence also the power drawn by all the

secondary devices 30 **plus other losses.**” EX1005 at 18:9-11 (emphasis added); EX2003 ¶¶138-39.

Therefore, Stevens states that the power measurement unit 100 measures power provided *to the electrical drive unit* 14 instead of input power provided *to the primary coil*. EX1005 at 18:9-11; EX2003 ¶¶137-44. On the other hand, limitation [13.1] specifically recites “at least one input power monitor configured to *measure input power received by the primary coil from the power supply.*”

Power provided to the electrical drive unit is not the same as power received by the primary coil *from the power supply*. EX2003 ¶¶138-44. Similarly to Olson's deficiencies described in Section V.A.1, “Stevens's power measurement unit is not placed in the correct place to measure input power received by the primary coil from the power supply, and instead measures power into the electrical drive unit rather than power ‘from the power supply.’” EX2003 ¶140. An annotated Figure 4 of Stevens is reproduced below for reference that shows placement of power measurement unit 100 in relation to electrical drive unit 14 and primary coil 12:

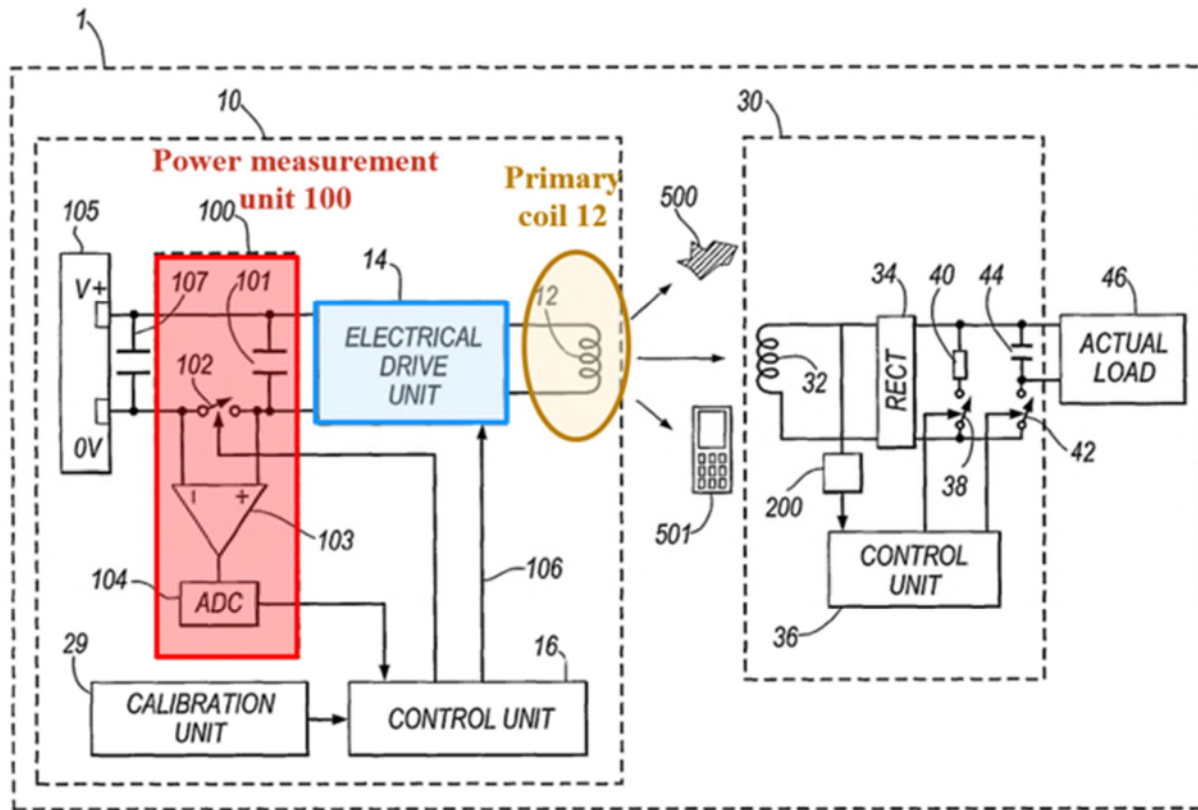


Fig.4

EX2003 ¶140 (showing annotated Figure 4 of Stevens).

This measurement is different “due to losses in components such as the electrical drive unit:

This measurement is not the same, for example, due to losses in components such as the electrical drive unit, as discussed in Stevens. Stevens explicitly states that losses “inevitably occur in the power transfer system” and affect power measurements. Ex. 1005 at 19:13-15. Stevens also notes that “these losses include losses in the primary unit

itself” and includes losses in “any other components associated with the primary coil such as the electrical drive unit.” Ex. 1005 at 18:13-18. These losses affect the measurement such that the power measured in Stevens is not power received by the primary coil from the power supply. For all of these reasons, measuring the power going into the electric drive unit is different than measuring the power received by the primary coil, as required by claim [13.1].

EX2003 ¶141. Stevens also states that “the power drawn by the electrical drive unit 14 is representative of the power drawn by the primary coil 12 and hence also the power drawn by all the secondary devices 30 ***plus other losses***,” indicating that power measured at one location may be representative of power measured at a different location, but does not accurately reflect the power measurement because of power losses that can occur. EX1005 at 18:9-11.

Stevens’s disclosure is in direct contrast with that of the ’461 Patent, which shows a “correct method of measuring ‘input power received by the primary coil from the power supply” :

For example, Figure 2A of the ’461 Patent shows a current monitor in series with the primary coil such that the resultant measured current can be used in measuring input power received by the primary coil from the power supply.

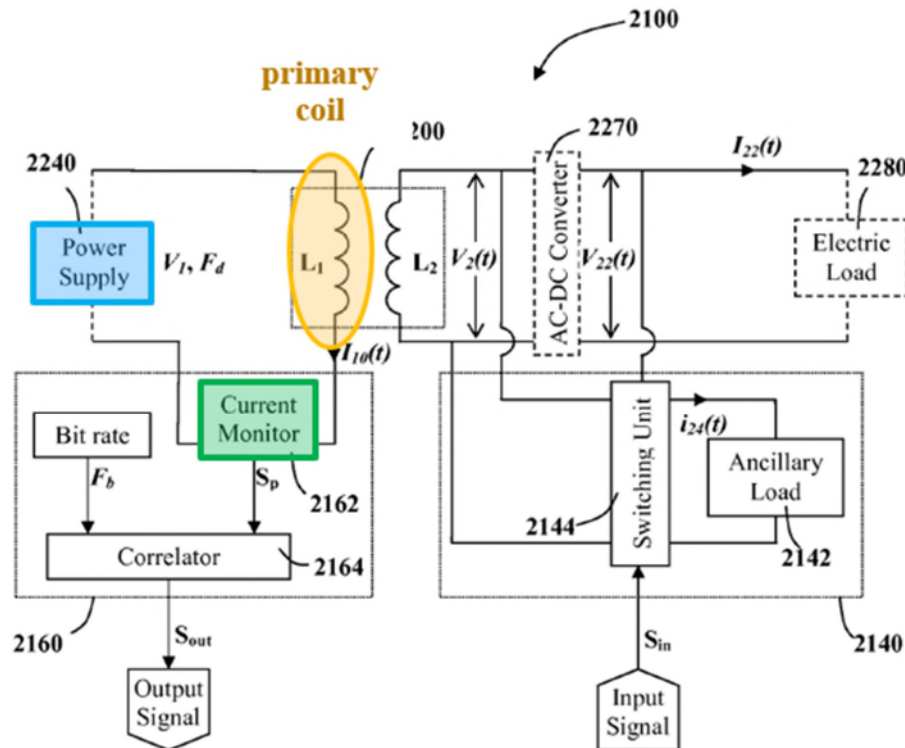


Fig. 2a

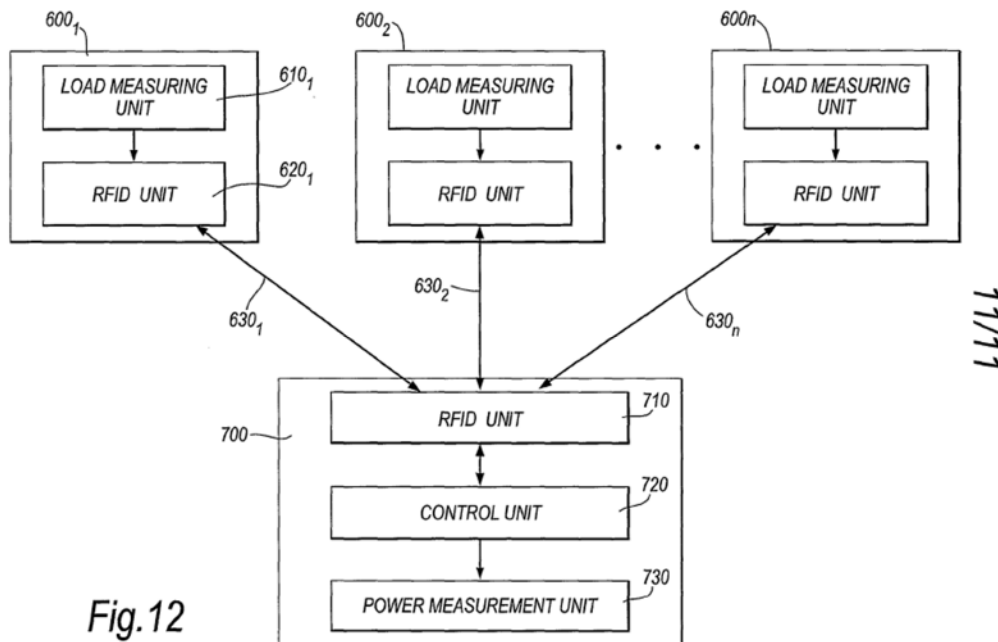
Ex. 1001 at Fig. 2a (annotations added).

As shown above, the current monitor is positioned such that it can be used to measure input power **received by the primary coil from the power supply**.

EX2003 ¶142.

Petitioner also cites Figure 12 of Stevens, but this embodiment fails to cure the deficiencies of Figure 4 of Stevens. EX2003 ¶143. For example, this embodiment is essentially the same as Figure 4 of Stevens. EX1005 at 38:13-14 (“[T]he power

measurement unit 730 corresponds generally to the power measurement unit 100.”);
EX2003 ¶143. Further, “Figure 12 of Stevens offers no detail as to where power is
measured at all.”



EX1005 Fig. 12

Olson fails to remedy the above deficiencies in Stevens, nor does Petitioner make such an allegation. See Pet. 42; Ex. 2004 at 32:20-22. Therefore, Petitioner fails to establish by a preponderance of the evidence that Stevens and Olson render obvious limitation [13.1]. Because the remainder of the challenged claims depends on claim 13, Petitioner fails to establish by a preponderance of evidence that any of

claims 13-18 are rendered obvious by Steven and Olson.

3. Petitioner Fails to Demonstrate that Limitation [13.2] is Rendered Obvious by Stevens in View of Olson

First, Petitioner fails to demonstrate that Stevens in view of Olson renders obvious “at least one signal detector configured to detect signals carrying *data pertaining to output power received by the secondary coil.*”

Petitioner relies exclusively on Stevens to satisfy limitation [13.2]. *See* Pet. 42-43; Ex. 2004 at 33:4-7. Specifically, Petitioner alleges Stevens’s “load measure” qualifies as “data pertaining to output power received by the secondary coil.” *See id.*

Stevens’s load measure is a “measurement of ‘the power being supplied to the actual load (46 in Fig. 4) of that secondary device.’” EX1005 at 38:19-20; EX2003 ¶149. However, such a power measurement is not reflective of “output power received by the secondary coil,” as required by limitation [13.2]. Annotated Figure 4 of Stevens, showing the location of actual load 46 relative to the secondary coil 32 is shown below:

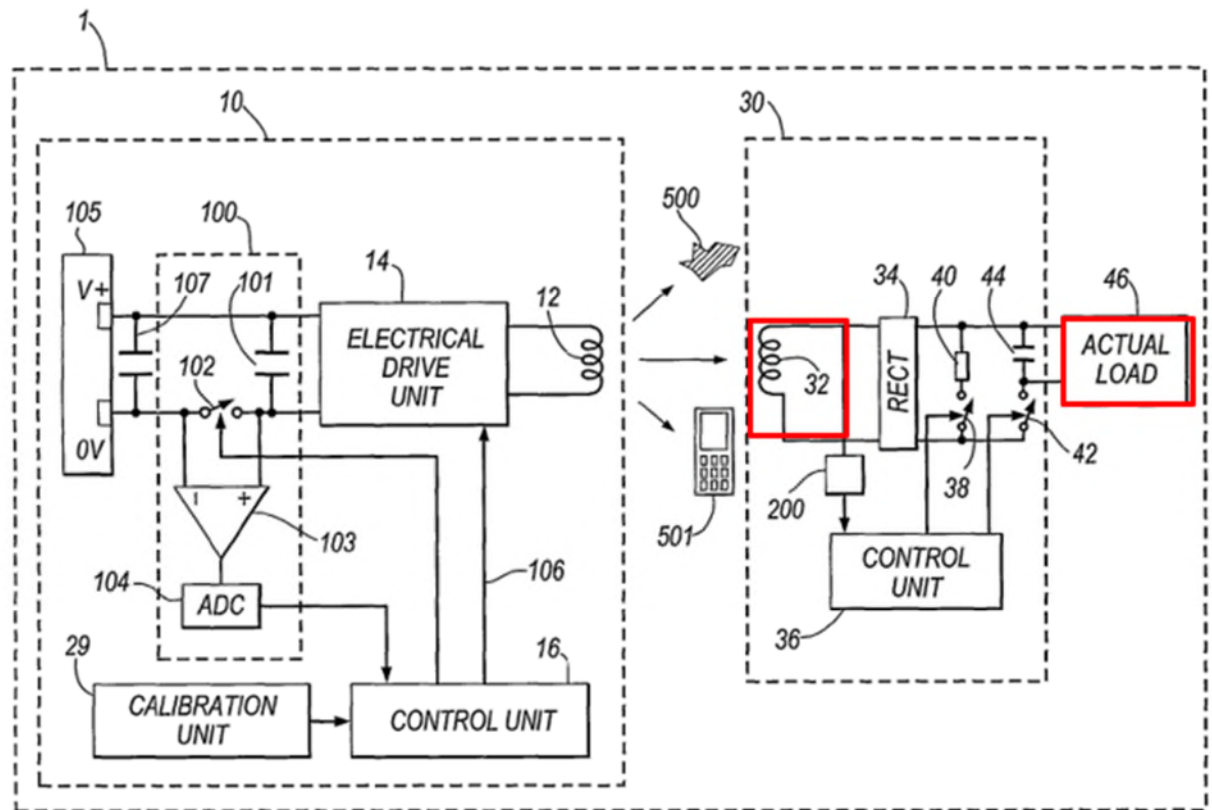


Fig.4

EX2003 ¶149.

The placement of actual load 46 relative to secondary coil 32 shows that the power measurement is not reflective of “output power received by the secondary coil”:

As seen in Figure 4, the power being supplied to the actual load 46 is different than “output power received by the secondary coil,” because losses occur between the secondary coil 32 and the actual load 46. Stevens discloses that losses affect power measurements and that losses

will “inevitably occur in the power transfer system” and include “losses in the primary unit itself and/or any secondary devices/host objects present.” Ex. 1005 at 19:13-22. Because losses occur throughout the secondary device, a measurement at “actual load 46” is not indicative of “output power received by the secondary coil,” as recited in element [13.2].

EX2003 ¶150.

Olson fails to remedy the above deficiencies in Stevens, nor does Petitioner make such an allegation. *See* Pet. 42-43. Therefore, Petitioner fails to establish by a preponderance of evidence that Stevens and Olson render obvious limitation [13.2]. Because the remainder of the challenged claims depends on claim 13, Petitioner has failed to establish by a preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Olson.

4. Petitioner Fails to Demonstrate that Limitation [13.3] is Obvious Based on Stevens in View of Olson

Petitioner fails to establish by a preponderance of evidence that Stevens in view of Olson renders obvious “at least one processor configured to receive data pertaining to the input power and the output power, the processor further configured to determine an index of power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil,” as required by limitation

[13.3].

Limitation [13.3] is reliant on the “input power” defined in limitation [13.1] and the “output power” defined in limitation [13.2]. Input power is defined with specificity as “input power received by the primary coil from the power supply” and “output power” is defined with specificity as “output power received by the secondary coil.” Because Stevens in view of Olson fails to disclose or render obvious “input power” and “output power” in the first place, Stevens in view of Olson fails to disclose or render obvious any additional limitation based on the recited “input power” or “output power,” such as a “processor configured to receive data pertaining to the input power and the output power,” as recited in limitation [13.3]. *See supra* Sections V.C.2, V.C.3.

Further, as described above in relation to Section V.C.1, a POSITA would not be motivated to combine Stevens and Olson because they are directed to different goals and because “a POSITA would not be motivated to use Stevens’s values in Olson’s ratio format.” *See supra* Section V.C.1, EX2003 ¶156. As alleged by Petitioner, Stevens describes a comparison of load measures and measured power against a threshold (which Petitioner alleges is an “efficiency” measure). There is no motivation to put Stevens’s values in a “ratio” format versus its existing

methodology. *See supra* Section V.C.1.

Additionally, Stevens is concerned with a comparison of load measures and measured power against a threshold to determine parasitic load, and describes a resultant restricting or stopping supply of power based on the comparison. EX1005 at 4:14-18. On the other hand, Olson describes calculating efficiency in relation to determining the “best location of external antenna 52 and/or rotating core cup assembly.” EX1004 ¶ [0074]. Stevens and Olson are directed to different goals and a POSITA would not be motivated to combine the two art. This is because Stevens is directed to ***restricting or shutting off power transfer*** when its argued “efficiency” value (comparison of load measures and measured power against a threshold) is undesirable and Olson is directed to ***increasing power transfer*** (by moving devices into a better position) when its argued “efficiency” value is undesirable. *See supra* Section V.C.1.

While Petitioner only cites Olson in relation to the ratio calculation and not the input power and output power measurements, Olson’s alleged “input power” and “output power” also fail to cure the deficiencies of Stevens. *See supra* Section V.A.

Accordingly, Petitioner fails to establish by a preponderance of evidence that Stevens and Olson renders obvious limitation [13.3]. Because the remainder of the

challenged claims depends on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Olson.

5. Petitioner Fails to Demonstrate that Limitation [13.4] is Obvious Based on Stevens in View of Olson

Petitioner fails to establish by a preponderance of evidence that Stevens in view of Olson renders obvious an “index of power-loss [that] comprises at least one of: an efficiency quotient Q , defined as the ratio of the output power to the input power; and an efficiency differential Δ , defined as the difference between the output power and the input power,” as required by limitation [13.4].

Limitation [13.4] is reliant on the “input power” defined in limitation [13.1] and the “output power” defined in limitation [13.2]. Input power is defined with specificity as “input power received by the primary coil from the power supply” and “output power” is defined with specificity as “output power received by the secondary coil.” Because Stevens in view of Olson fails to disclose or render obvious “input power” and “output power” in the first place, Stevens in view of Olson fails to disclose or render obvious any additional limitation based on the recited “input power” or “output power,” such as a “processor configured to receive data pertaining to the input power and the output power,” as recited in limitation [13.4]. *See supra*

Sections V.C.2, V.C.3.

Further, as described above in relation to Section V.C.1, “a POSITA would not turn to Olson because Olson is not directed to the same determination, and the ratio format would be disadvantageous compared to Stevens’s methodology.” *See supra* Section V.C.1, EX2003 ¶160. There is no motivation to put Stevens’s values in a “ratio” format versus its existing methodology. *See supra* Section V.C.1.

While Petitioner only cites Olson in relation to the ratio calculation and not the input power and output power measurements, Olson’s alleged “input power” and “output power” also fail to cure the deficiencies of Stevens. *See supra* Section V.A.

Therefore, Petitioner fails to establish by a preponderance of evidence that Stevens and Olson render obvious limitation [13.4]. Because the remainder of the challenged claims depends on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Olson.

6. Petitioner Fails to Demonstrate that Limitation [15.2] is Obvious Based on Stevens in View of Olson

Petitioner fails to establish by a preponderance of evidence that Stevens in view of Olson renders obvious “the inductive power receiver further comprising: at least one output power monitor for measuring output power received inductively by

the secondary coil from the primary coil,” as required by limitation [15.2].

Petitioner states that Stevens discloses a “load measuring unit 610.” Pet. 48-49. However, the “load measuring unit 610” of Stevens fails to “measur[e] output power received inductively by the secondary coil from the primary coil,” as required by limitation [15.2]. EX2003¶¶164-68.

Stevens’s “load measuring unit 610” measures “the power being supplied to the actual load (46 in Fig. 4) of that secondary device.” EX1005 at 38:19-20. Annotated Figure 4 of Stevens, showing the location of actual load 46 in relation to a secondary coil, is shown below:

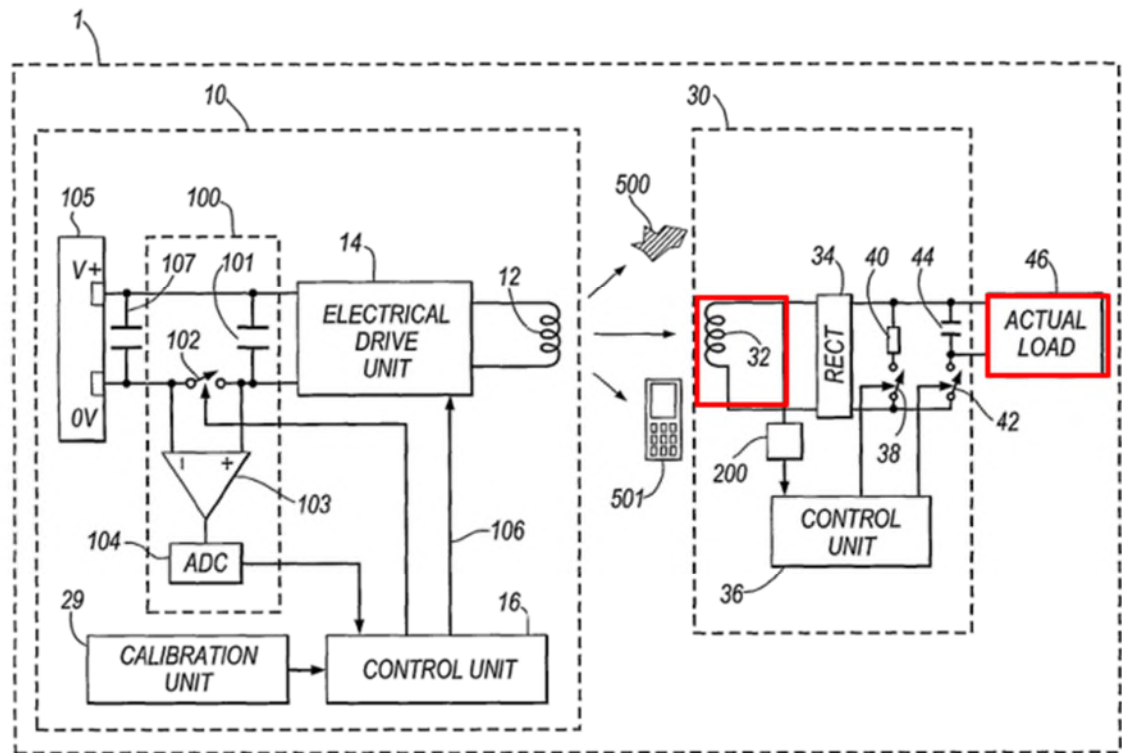


Fig.4

EX2003 ¶165. Measuring power “being supplied to the actual load” is different than measuring output power received inductively by the secondary coil from the primary coil,” as required by limitation [15.2]:

As seen in Figure 4, the power being supplied to the actual load 46 is different than “output power received by the secondary coil,” and instead measures power after the power has been received by the secondary coil and delivered to other components before reaching actual load 46. Ex. 1005 at Fig. 4. Losses occur between the secondary coil 32 and the actual load 46 such that the power supplied to the actual

load 46 is different than output power received by the secondary coil
32. Stevens confirms that losses affect power measurements and states that these losses will “inevitably occur in the power transfer system” and include “losses in the primary unit itself and/or any secondary devices/host objects present.” Ex. 1005 at 19:13-22.

EX2003 ¶166.

Thus, Stevens fails to disclose or render obvious limitation [15.2]. Petitioner relies exclusively on Stevens in relation to this limitation Pet. 48-49; EX2004 at 34:10-13. Therefore, Petitioner fails to establish by a preponderance of evidence that Stevens in view of Olson renders obvious limitation [15.2].

D. Ground 3: Petitioner Fails to Establish that Claims 13-18 are Rendered Obvious by Stevens in View of Jin

For Ground 3, Petitioner relies on a combination of Stevens and Jin. For at least the following reasons, Petitioner fails to establish by a preponderance of evidence that Stevens and Jin render obvious claims 13-18.

1. Petitioner Fails to Demonstrate That a POSITA Would Combine Stevens and Jin

Petitioner states that “Multiple reasons would have prompted a POSITA to implement Jin’s suggestion (e.g., for determining a “transmission efficiency” ratio) in Stevens’s system to achieve known benefits.” Pet. 56.

However, a POSITA would not have been motivated to combine Stevens and

Jin in this manner. Stevens and Jin are directed to different goals:

Stevens is directed to determining whether a substantial parasitic load is present to determine whether to reduce or cut off power, while Jin describes improving transmission efficiency based on changing the shape of a wire. Ex. 1005 at Abstract; Ex. 1006 ¶¶ [0093]-[0095]. Stevens and Jin are therefore directed to different goals and a POSITA would not be motivated to turn to Jin to “expressly disclose determining an index of power-loss.”

EX2003 ¶172.

Stevens, is concerned with determining parasitic loads and restricting or stopping power supply based on this determination. EX1003 at 2:1-20, 4:1-12, 4:27-5:10, 5:30-35; EX2003 ¶173. Jin, on the other hand, is directed to “providing particular structures of isolation transformers.” EX2003 ¶174 (citing EX1006 ¶¶ [0025], [0030]-[0032], [0035]). Jin discusses “transmission efficiency” specifically in the context of “testing the coupling condition between the coils for a rectangular wire versus a round wire.” EX2003 ¶174 (citing EX1006 ¶¶ [0092]-[0095]); *see also* EX2003 ¶175.

A POSITA would not be motivated to combining Jin’s transmission efficiency aspect with Stevens. EX2003 ¶176 (“Jin’s transmission efficiency calculation is specifically discussed in relation to evaluating whether a of wire (rectangular versus

round) has better transmission efficiency, while Stevens is directed to determination of a substantial parasitic load.”).

Further, a POSITA would not be motivated to using Jin's transmission efficiency calculation in combination with Stevens, e.g., using Stevens's values in a ratio format based on Jin. EX2003 ¶177. Such a combination would be contrary to the intent of Stevens:

As described above in relation to Section **Error! Reference source not found.**, a ratio format is undesirable for the values of Stevens that Dr. Woods cites for power in and power out. These values of Steven are meant for evaluating parasitic load, and parasitic load is better gauged based on absolute values rather than relative values, as this is exactly what Stevens teaches.

For example, if the sum of load measures is zero, Stevens's method would lead to a proper determination of the parasitic load and scale appropriately with increasing measured power. On the other hand, using Jin's ratio format, the resultant value would be “zero,” regardless of how small or large the parasitic load is.

As additional examples, minor parasitic load could be misrepresented as a substantial parasitic load when using the ratio format if very small values comprise the measured power and sum of load measures. Similarly, very large parasitic load could be misrepresented as small parasitic load when using the ratio format if large values comprise the

measured power and sum of load measures. It is therefore detrimental to use Jin's ratio format to determine substantial parasitic loss and a POSITA would not be motivated to combine Stevens with Jin to use Jin's ratio format over Stevens's prescribed methodology. A POSITA would better understand "substantial" parasitic loss in terms of absolute values, whereas use of a ratio format forces a POSITA to know other measurements to determine whether the parasitic loss is substantial or not.

EX2003 ¶¶177-79.

Thus, Petitioner fails to establish by a preponderance of evidence that a POSITA would be motivated to combine Stevens with Jin in the manner suggested by Petitioner and Ground 3 should fail for this reason alone.

2. Petitioner Fails to Demonstrate that Limitation [13.1] is Rendered Obvious by Stevens in View of Jin

Petitioner fails to establish by a preponderance of evidence that Stevens in View of Jin render obvious limitation [13.1]. Petitioner exclusively relies on Stevens (and not Jin) in relation to limitation [13.1], and cites back to Ground 2 for the entirety of the discussion in relation to this limitation. Pet. 58; EX2004 32:20-22. Therefore Ground 3 fails for at least the same reasons given above with respect to Ground 2 *See supra* Section V.C.2; EX2003 ¶181.

Jin fails to remedy the above deficiencies in Stevens, nor does Petitioner make

such an allegation. *See* Pet. 58; EX2004 32:20-22. Therefore, Petitioner fails to demonstrate that Stevens and Jin render obvious limitation [13.1]. Because the remainder of the challenged claims depends on claim 13, Petitioner has failed to establish that any of claims 13-18 are rendered obvious by Steven and Jin.

3. Petitioner Fails to Demonstrate that Limitation [13.2] is Rendered Obvious by Stevens in View of Jin

Petitioner fails to establish by a preponderance of evidence that Stevens in View of Jin render obvious limitation [13.1]. Petitioner exclusively relies on Stevens (and not Jin) in relation to limitation [13.2], and therefore Ground 3 fails for at least the same reasons given above with respect to Ground 2 (which also alleges Stevens discloses limitation [13.2]). *See supra* Section V.C.3; EX2003 ¶183; *see also* Pet. 58. For example, Petitioner fails to establish that Stevens discloses the “output power” recited in limitation [13.2] because Petitioner fails to show that Stevens’s “power requirement information” or “load measure” is necessarily the same as output power ***received by*** the secondary coil.” *See supra* Section V.C.3.

Jin fails to remedy the above deficiencies in Stevens, nor does Petitioner make such an allegation. *See* Pet. 58. Therefore, Petitioner fails to demonstrate that Stevens and Jin render obvious limitation [13.2]. Because the remainder of the challenged claims depends on claim 13, Petitioner fails to establish by a

preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Jin.

4. Petitioner Fails to Demonstrate that Limitation [13.3] is Rendered Obvious by Stevens in View of Jin

Petitioner fails to establish by a preponderance of evidence that Stevens and Jin render obvious “at least one processor configured to receive data pertaining to the input power and the output power, the processor further configured to determine an index of power-loss indicative of the efficiency of an inductive coupling between the primary coil and the secondary coil,” as required by limitation [13.3].

Limitation [13.3] is reliant on “input power” defined in limitation [13.1] and the “output power” defined in limitation [13.2]. *See* EX2003 ¶185. Input power is defined in the claims with specificity as “input power received by the primary coil from the power supply” and output power is similarly defined in the claims with specificity as “output power received by the secondary coil.” *See* EX2003 ¶185. Because limitation [13.3] depends on particular “input power” and “output power” measurements that were previously discussed as not rendered obvious by Petitioner’s recited combination of Stevens and Jin, Stevens and Jin do not render obvious limitation [13.3] for at least the reasons set forth above in relation to limitations [13.1] and [13.2]. *See supra* Sections V.D.2, V.D.3; *see also* Sections

V.C.2, V.C.3.

Jin fails to cure the deficiencies of Stevens. As described above in relation to Section V.D.1, a POSITA would not be motivated to incorporate the ratio format of Jin using values from Stevens. Further, Jin fails to cure the deficiencies of Stevens, as Jin fails to offer any details regarding how to determine transmission efficiency:

Jin offers no additional details regarding transmission efficiency, such as where “effective current value of secondary side,” “effective voltage,” and “effective current value of primary side,” are measured, or any component that are used to perform the measurements or perform the calculations. Ex. 1006 ¶¶ [0093]-[0095]. Instead, Jin only describes transmission efficiency in relation to “a result of test for comparing the shielding effect of the rectangular wire coil with that of the round wire coil.” Ex. 1006 ¶ [0092].

EX2003 ¶175.

Therefore, Petitioner fails to establish by a preponderance of evidence that the combination of Stevens and Jin renders obvious limitation [13.3]. Because the remainder of the challenged claims depends on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Jin.

5. Petitioner Fails to Demonstrate that Limitation [13.4] is Rendered Obvious by Stevens in View of Jin

Petitioner fails to establish by a preponderance of evidence that Stevens and Jin render obvious “wherein the index of power-loss comprises at least one of: an efficiency quotient Q , defined as the ratio of the output power to the input power; and an efficiency differential Δ , defined as the difference between the output power and the input power,” as required by limitation [13.4].

Petitioner alleges that Jin’s “Transmission efficiency = (effective current value of secondary side x effective voltage)/(effective current value of primary side x effective voltage)” qualifies as the index of power-loss recited in this limitation. *See* Pet. 60-61. However, Jin’s general transmission efficiency equation cannot qualify as the index of power-loss of limitation [13.4], because limitation [13.4] is reliant on particular output power and input power measurements (“an efficiency quotient Q , defined as the ratio of *the* output power to *the* input power”).

In other words, limitation [13.4] is reliant on “input power” defined in limitation [13.1] and the “output power” defined in limitation [13.2]. *See* EX2003 ¶191. Input power is defined in the claims with specificity as “input power received by the primary coil from the power supply” and output power is similarly defined in the claims with specificity as “output power received by the secondary coil.” *See*

EX2003 ¶191. Because limitation [13.4] depends on particular “input power” and “output power” measurements that were previously discussed as not rendered obvious by Petitioner’s recited combination of Stevens and Jin, Stevens and Jin do not render obvious limitation [13.4] for at least the reasons set forth above in relation to limitations [13.1] and [13.2]. *See supra* Sections V.D.2, V.D.3; *see also* Sections V.C.2, V.C.3.

Jin itself fails to provide any details on “effective current value of secondary side” or “effective current value of primary side” and where these measurements are taken. *See* EX1006 ¶¶ [0093]-[0094]; EX2003 ¶175. Jin merely provides a transmission efficiency equation on a general level, and fails to dictate, with any particularity, where the current and voltage measurements would be taken with respect to the primary coil, secondary coil, and power supply, as recited in limitations [13.1] and [13.2].

Further, a POSITA would not be motivated to use Jin’s transmission efficiency in combination with Stevens’s system. *See* EX2003 ¶190; *supra* Section V.D.1. For example, a POSITA would not be motivated to use Stevens’s values in Jin’s ratio format. *See* EX2003 ¶190; *supra* Section V.D.1.

Therefore, Petitioner fails to establish by a preponderance of evidence that

Stevens and Jin render obvious limitation [13.4]. Because the remainder of the challenged claims depends on claim 13, Petitioner fails to establish by a preponderance of evidence that any of claims 13-18 are rendered obvious by Steven and Jin.

6. Petitioner Fails to Demonstrate that Limitation [15.2] is Rendered Obvious by Stevens in View of Jin

Petitioner fails to establish by a preponderance of evidence that limitation [15.2] is rendered obvious in by Stevens in view of Jin. Petitioner exclusively relies on Stevens (and not Jin) in relation to limitation [15.2], and therefore Ground 3 fails for at least the same reasons given above with respect to Ground 2 (which also alleges Stevens discloses limitation [13.2]). *See supra* Section V.C.6; EX2003 ¶294; *see also* Pet. 62.

Jin fails to remedy the above deficiencies in Stevens, nor does Petitioner make such an allegation. *See* Pet. 62. Therefore, Petitioner fails to establish by a preponderance of evidence that Stevens and Jin render obvious limitation [15.2]. Because the remainder of the challenged claims depends on claim 15, Petitioner fails to establish by a preponderance of evidence that any of claims 16-18 are rendered

obvious by Steven and Jin.

7. Petitioner Fails to Demonstrate that Stevens In View of Jin Renders Obvious Claims 14-18

Claim limitations 14-18 depend from claim limitation 13. Therefore, for at least the reasons set forth above in relation to claim 13 and general motivation to combine, Petitioner fails to establish by a preponderance of evidence that Stevens in view of Jin renders obvious claims 14-18. *See supra* Sections V.D.1-V.D.5; *see also* EX2003 ¶197.

Dependent claims 16-18 further depend from claim 15. Therefore, for the additional reasons set forth in relation to claim 15, Petitioner fails to establish by a preponderance of evidence that Stevens in view of Jin renders obvious claims 16-18. *See supra* Section V.D.6.

VI. CONCLUSION

For at least the foregoing reasons, Petitioner has not met its burden of demonstrating the unpatentability of any challenged claim. Accordingly, Patent Owner requests the Board confirm the patentability the challenged claims.

Case IPR2024-00996
Patent No. 8,626,461
Patent Owner's Response

Dated: May 21, 2025

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Case IPR2024-00996
Patent No. 8,626,461
Patent Owner's Response

CERTIFICATE OF SERVICE

I hereby certify that on this 21st day of May, 2025, a copy of the attached **PATENT OWNER'S RESPONSE** was served by electronic mail to the attorneys of record, at the following addresses:

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Case IPR2024-00996
Patent No. 8,626,461
Patent Owner's Response

CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)

Pursuant 37 CFR 42.24(d), the undersigned certifies that this Response complies with the type-volume limitation of 37 CFR §42.24(a). The word count application of the word processing program used to prepare this Response indicates that the Response contains 13,569 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

Respectfully submitted,

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