

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
Patent 8,626,461

**PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE TO PETITION**

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LIST OF EXHIBITS

EX1001	U.S. Patent No. 8,626,461
EX1002	Prosecution History of U.S. Patent No. 8,626,461 (“the ‘461 application”)
EX1003	Expert Declaration of Gary Woods, Ph.D.
EX1004	U.S. Publication No. 2005/0075699 (“Olson”)
EX1005	PCT Publication No. WO2005/109597 (“Stevens”)
EX1006	US Publication No. 2002/0057164 (“Jin”)
EX1007	U.S. Provisional App. Serial No. 60/907,132 (March 22, 2007)
EX1008	U.S. Provisional App. Serial No. 60/935,847 (September 4, 2007)
EX1009	U.S. Provisional App. Serial No. 61/006,076 (December 18, 2007)
EX1010	U.S. Provisional App. Serial No. 61/006,448 (January 16, 2008)
EX1011	U.S. Provisional App. Serial No. 61/006,721 (January 29, 2008)
EX1012	<i>Powermat Technologies Ltd. v. Anker Innovations Ltd.</i> , Case No. 5-23-cv-00052 (E.D. Tex.), Document 1 (Complaint), June 5, 2023
EX1013	U.S. Patent No. 7,605,496 (“Stevens496”)
EX1014	U.S. Patent No. 7,791,312 (“Kook”)
EX1015	Petitioner’s <i>Sotera</i> Stipulation

- EX1016 Waiver of Service, *Powermat Technologies Ltd. v. Anker Innovations Ltd.*, Case No. 5-23-cv-00052 (E.D. Tex.), September 27, 2023
- EX1017 Second Expert Declaration of Gary Woods, Ph.D.
- EX1018 Transcript of August 7, 2025 Deposition of Dr. Patrick Mercier in IPR2024-00995 and IPR2024-00996
- EX1019 Determination of the dice forward I–V characteristics of a power diode from a packaged device and its applications (2005), *available at* <https://www.sciencedirect.com/science/article/abs/pii/S0026271404001489> \
- EX1020 LePage, *Introduction to Electrical Science* (1964), *available at* <https://files.eric.ed.gov/fulltext/ED021737.pdf>
- EX1021 RF-MEMS Switches for Reconfigurable Integrated Circuits (1998), *available at* https://www.researchgate.net/publication/3120534_RF-MEMS_Switches_for_Reconfigurable_Integrated_Circuits
- EX1022 Collins English Dictionary (2011)
- EX1023 The American Heritage Dictionary of the English Language, Fifth Edition (2011)
- EX1024 How Diodes Work as a Rectifier, *available at* <https://byjus.com/physics/how-diodes-work-as-a-rectifier/>

I. INTRODUCTION

Seeking to distinguish prior art that aligns with preferred embodiments of the '461 Patent, the Patent Owner's Response ("POR") attempts to import unclaimed limitations through implicit interpretations of two claim phrases. Patent Owner's ("PO" or "Powermat") implicit claim interpretations are not only lacking support from the specification, they contradict the specification's examples of these very features. If the Board properly rejects PO's attempt to import such limitations into the claims, nearly all of PO's arguments throughout Grounds 1A-3 simply fall away. But even if PO's implicit claim constructions were applied, the POR neglects that Olson and Stevens would nevertheless disclose those claim elements. *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1380-84 (Fed. Cir. 2023).

II. CLAIM CONSTRUCTION

Powermat contends that it "has not asserted any claim constructions." POR, 17. The substance of its arguments, however, reveal a different reality. Petitioner addresses two of Powermat's implicit claim interpretations below. EX1017, ¶7; POR, 18-31.

A. The "at least one input power monitor configured to measure input power received by the primary coil from the power supply" (Element [13.1])

Through arguments addressing the prior art, Powermat seeks to improperly inject unclaimed limitations in Element [13.1] by demanding that (1) the at least

one input power monitor **directly** measure input power, and (2) the measurement of input power be a measurement of the power received **only** by the primary coil and no other components:

[13.1] at least one input power monitor configured to ^{directly} measure
input power received ^{only} by the primary coil from the power
supply;

EX1017, ¶¶8-9; *see e.g.*, POR, 20 (contending that the claim element must exclude “measur[ing] current into **multiple other components** other than the primary coil”), 24 (arguing what type of measure “does not qualify” for this claim element, namely, the type voltage measurement where “[c]urrent flowing from the batteries to the current measure block 226 **passes through multiple switches and a diode**”), 52-53 (arguing that Stevens’s “[p]ower provided to the electrical drive unit is not the same as power received by the primary coil” and “[t]his measurement is different ‘due to **losses in components** such as the electrical drive unit’)” (citing EX2003, ¶¶79, 82) (emphases added).

Powermat demands the Board should interpret this claim element to require direct measurements of input power received only by the primary coil, yet Powermat waived its opportunity to amend the claims here in such a manner. Of course, Powermat likely opted against such a motion to amend here (and instead

sought to implicitly assume a narrow construction) because this interpretation is unsupported by the specification. EX1017, ¶10. There are simply no hallmarks in the specification that would mandate importation to rewrite the claims. *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 874-875 (Fed. Cir. 2004) (“not a substitute for, nor can it be used to rewrite, the chosen claim language”). Worse yet, Powermat’s narrow view of this claim element is contrary to the specification—improperly excluding the preferred embodiments. *CUPP Computing AS v. Trend Micro Inc.*, 53 F.4th 1376, 1381 (Fed. Cir. 2022) (“[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.”). The evidence here instead confirms that the claimed “measure [of] input power received by the primary coil” encompasses measurements that correspond to and reasonably reflect the input power received by the primary coil—even if the measurement is not direct or is not specifically for the entire input power received only by the primary coil. EX1017, ¶10.

The specification is instructive here. In particular, Powermat’s interpretation is inconsistent with the specification’s characterization of “input power...provided to the primary coil” in connection with the circuitry depicted in FIG. 2c. EX1001, 9:38-44, FIGs. 2a, 2c; EX1017, ¶11. FIG. 2c illustrates the primary side of an inductive power transfer system and includes a power supply 2240, a primary inductive coil L_1 , and a current monitor 2162:

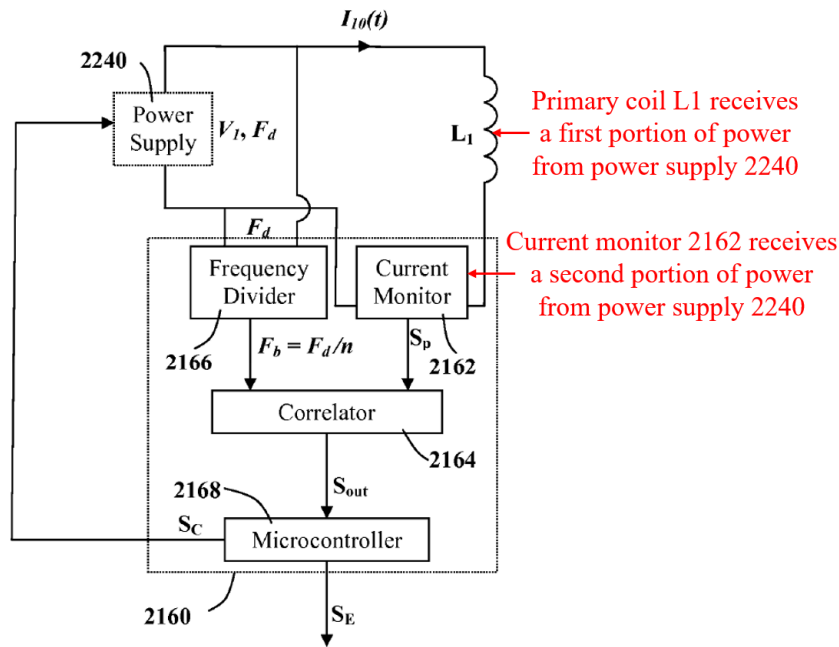


Fig. 2c

'461 Patent (EX1001), FIG. 2c (annotated)

As depicted in FIG. 2c, the power supply provides a voltage $V_1(t)$ across the series combination of primary inductive coil L_1 and current monitor 2162.

EX1001, FIG. 2c. It is fundamental, according to Kirchhoff's Voltage Law (KVL), that the sum of all voltages in a closed circuit must equal zero. EX1017, ¶12;

EX1020, 17 (corroborating KVL). This means that in the circuit of FIG. 2c, the

positive voltage $V_1(t)$ provided by the power supply 2240 must equal the voltage

drop across ***not only*** the primary coil L_1 ***but also the voltage drop across current monitor 2162***. EX1017, ¶12. Because power is the product of voltage and current,

the true power received by primary coil L_1 is equal to the voltage drop across L_1

alone and the current $I_{10}(t)$ through coil L_1 .

Notably, however, this is *not* how the '461 Patent characterizes the power received by L₁. The specification instead describes the power provided to the primary coil L₁ as follows:

The input power P₁(t) provided to the primary coil L₁ is given by:

$$P_1(t) = \boxed{\bar{V}_1(t)} \bullet \bar{I}_{10}(t)$$

where the primary voltage V₁(t) oscillates at the driving frequency F_d which is determined by the power supply 2240.

EX1001, 9:38-42 (annotated). As shown by the input power equation, the '461 Patent only *approximates* the power provided to the primary coil L₁ based on the primary voltage V₁(t), which is the voltage from the power supply 2240—*not* the actual voltage drop across primary coil L₁. V₁(t) as used in the input power equation overestimates the power to primary coil L₁ since it further includes the voltage drop across current monitor 2162 rather than isolating the voltage drop across L₁ alone. EX1017, ¶13-14. While the power loss incurred by current monitor 2162 is likely small relative to the power received by primary coil L₁, it is nonetheless undeniably a non-zero loss. *Id.*; EX1018, 24. The specification thus explicitly endorses power measurements that correspond to and reasonably reflect the power received by the primary coil, even if it is not a direct measurement of the power received only by the primary coil. *Id.*

Confronted at his deposition with the reality that the '461 Patent does not directly measure the true power received by the primary coil L₁, Powermat's

declarant Dr. Mercier retreated from the narrow claim interpretations that underpinned the analysis in his declaration. EX1018, 24:1-14, 24:17-25:3, 26:1-10, 28:5-10, 30:6-16, 33:17-22, 34:5-10, 36:24-37:22, 38:4-14, 43:15-25, 44:17-45:1. For example, Dr. Mercier admitted that “engineers are practical people, generally, and if there’s something in a circuit that has a negligible impact on it, then it’s usually fair to ignore that.” EX1018, 45:6-25; *generally id.*, 45:6-47:25. Dr. Mercier further explained that negligible means “something is present but doesn’t materially impact a parameter that you care about, like efficiency.” *Id.*, 46:15-23. EX1017, ¶¶15-16.

On this point, Anker’s expert, Dr. Woods, agrees. If a measurement closely corresponds to and reasonably reflects the target physical parameter sufficiently for a given context/application, the measurement is valid. EX1017, ¶16. It follows that the measure of power received by a primary coil can include negligible or otherwise predictable power losses if the measurement still corresponds to and reasonably reflects the actual power received by the coil. *Id.* This understanding aligns not only with the specification and Dr. Mercier’s cross-examination testimony, but also Powermat’s infringement theories in district court.

B. The “at least one signal detector configured to detect signals carrying data pertaining to output power received by the secondary coil” (Element [13.2])

Powermat’s arguments that the prior art fails to provide Element [13.2] vividly expose yet another implicit claim construction. EX1017, ¶17. Like its mischaracterization of [13.1], Powermat imports new requirements in Element [13.2] for (1) the signals carrying data pertaining to the output power to specify *a direct measure* of the output power received by the secondary coil, and for (2) the data to pertain to output power received *only* by the secondary coil and no other components:

[13.2] at least one signal detector configured to detect signals
a direct measure of
↓
carrying data pertaining to output power received by the
↑
secondary coil; only

EX1017, ¶17; *see e.g.*, POR, 30-31 (demanding that “received by the secondary coil” excludes power measurements where “*power is transferred to other components* between the secondary coil and the rechargeable power source” (citing EX2003, ¶93)); 58-59.

Powermat’s implicit interpretation invites legal error. *SuperGuide*, 358 F.3d at 874-875 (“not a substitute for, nor can it be used to rewrite, the chosen claim language”); *IQRIS Techs. LLC v. Point Blank Enters.*, 130 F.4th 998, 1003-04 (Fed. Cir. 2025) (“we are not inclined to import limitations”). Here again,

Powermat waived its opportunity for a motion to amend, and it instead seeks to sidestep this process via its implicit constructions here. *CUPP*, 53 F.4th at 1383-84 (cautioning against “[n]ullifying” the amendment process).

The intrinsic evidence here cuts against Powermat’s narrow view. The plain language of Element [13.2] merely recites “at least one signal detector configured to detect signals carrying data pertaining to output power received by the secondary coil,” and is thus satisfied if the signal detector is configured to detect signals carrying any data “*pertaining to*” output power received by the secondary coil. EX1017, ¶20. The term “pertaining to” does not require any particular form of measurement of the output power received by the secondary coil—in fact, no measurement is recited at all. EX1017, ¶20 (citing corroborating references EX1022 (“to have reference or relevance”); EX1023). The specification, for example, broadly describes data “pertaining to” power transmission to cover a range of parameters including “required operating voltage, current, temperature or power ..., the measured voltage, current, temperature or power,” and more. EX1001, 7:21-29. The breadth of “pertaining to” certainly does not support Powermat’s demand in the POR for direct measurements of the power received by the secondary coil. EX1017, ¶21.

If this were not enough, the specification provides additional clues that Powermat’s implicit interpretation is wrong. For example, the POR criticizes the

prior art (Olson) for allegedly providing “no detail of how or where either voltage or current measurement is performed” in the secondary device, and Powermat argues that “without specifying where the current is measured,” the prior art does not “disclose ‘output power received by the secondary coil.’” POR, 30 (quoting EX2003, ¶92). But these arguments improperly interpret the claims to require more detail than the ’461 Patent actually discloses. Indeed, FIGs. 2a-2b of the ’461 Patent disclose no circuitry for measuring input power received at the secondary coil L_2 at all. *See* EX1001, 8:60-10:37, FIGS. 2a-2b; EX1018, 49:19-50:2. FIG. 5 provides a high-level block diagram of the system including output power monitor 4124, but it describes no underlying circuitry and provides no indication whether P_{out} is directly measured EX1001, FIG. 5; EX1017, ¶21; EX1018, 52:14-53:9 (“no explicit schematic is shown”). Dr. Woods confirms that the ’461 Patent is devoid of any description of circuitry for directly measuring power received by the secondary coil throughout the specification. EX1017, ¶23.

Powermat’s arguments are also incompatible with the specification’s characterization of “the total power P_2 drawn by the secondary coil L_2 ” in connection with FIGs. 2a-2b. EX1001, 9:26-37; EX1017, ¶¶24-25. FIG. 2b illustrates the secondary side of an inductive power transfer system in the ’461 Patent, which includes a secondary coil L_2 , an AC-DC converter 2270 (depicted as

a half-wave rectifier comprising diode 2272 and capacitor 2274), and a transmission circuit 2140. EX1001, FIG. 2b; *generally id.*, 8:60-12:7.

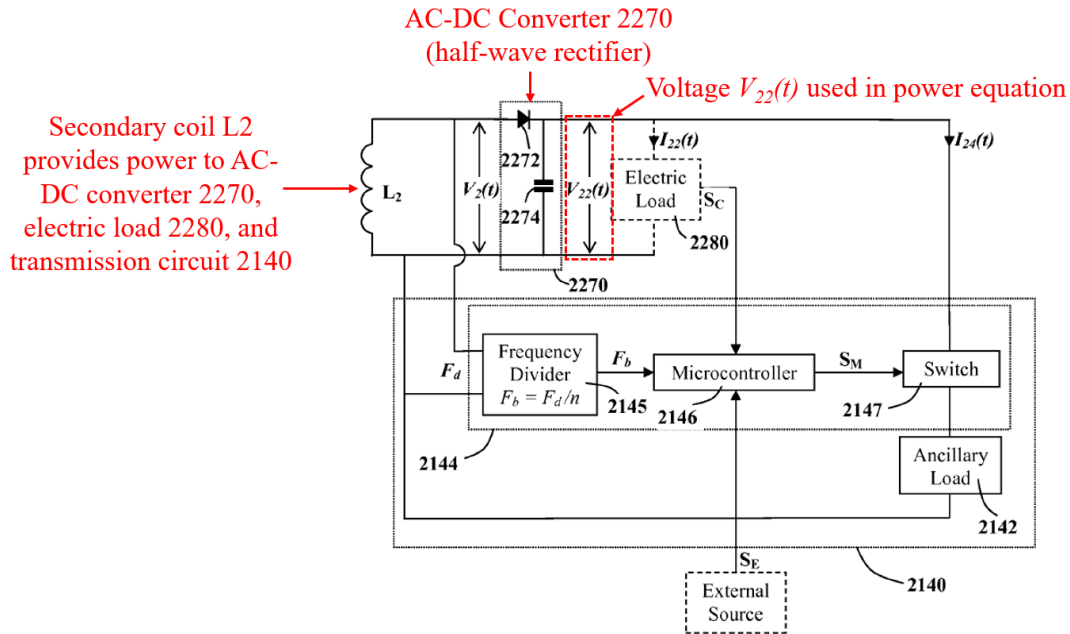


Fig. 2b

'461 Patent (EX1001), FIG. 2b (annotated)

The '461 Patent expressly equates the “total power....drawn by the secondary coil” $P_2(t)$ with the expression $V_{22}(t) \cdot [I_{22}(t) + I_{24}(t)]$, where $V_{22}(t)$ represents the converted DC voltage produced by AC-DC converter 2270. EX1001, 9:26-37, FIG. 2B. Significantly, *the voltage employed in this power equation is rectified voltage $V_{22}(t)$, which is not the same as the AC voltage $V_2(t)$ across the secondary coil L_2* . Not only is $V_{22}(t)$ rectified, there would also be a voltage drop across diode 2272 and significant power loss from the

rectification process.¹ EX1017, ¶26; EX1018, 34:2-111. Thus, the '461 Patent's own power out equation merely *approximates* the power received by the secondary coil L_2 based on a voltage $V_{22}(t)$ that bears a relationship to the true voltage across coil L_2 , but that is nonetheless not the true coil voltage. EX1017, ¶27. This demonstrates that the '461 Patent contemplates that a direct measurement is not required and the claimed "signals carrying data pertaining to output power received by the secondary coil" can be characterized by data that corresponds to and reasonably reflects the power received by the secondary coil. *See* EX1018, 46:24-47:25 (Dr. Mercier agreeing that "[i]f there are other things that are negligible, like they simply just don't matter to that power calculation, then, if they happen to be in there and they're negligible, yeah, I think that's fine").

III. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT OLSON ANTICIPATES CLAIMS 13-16 AND 18 (GROUND 1A)

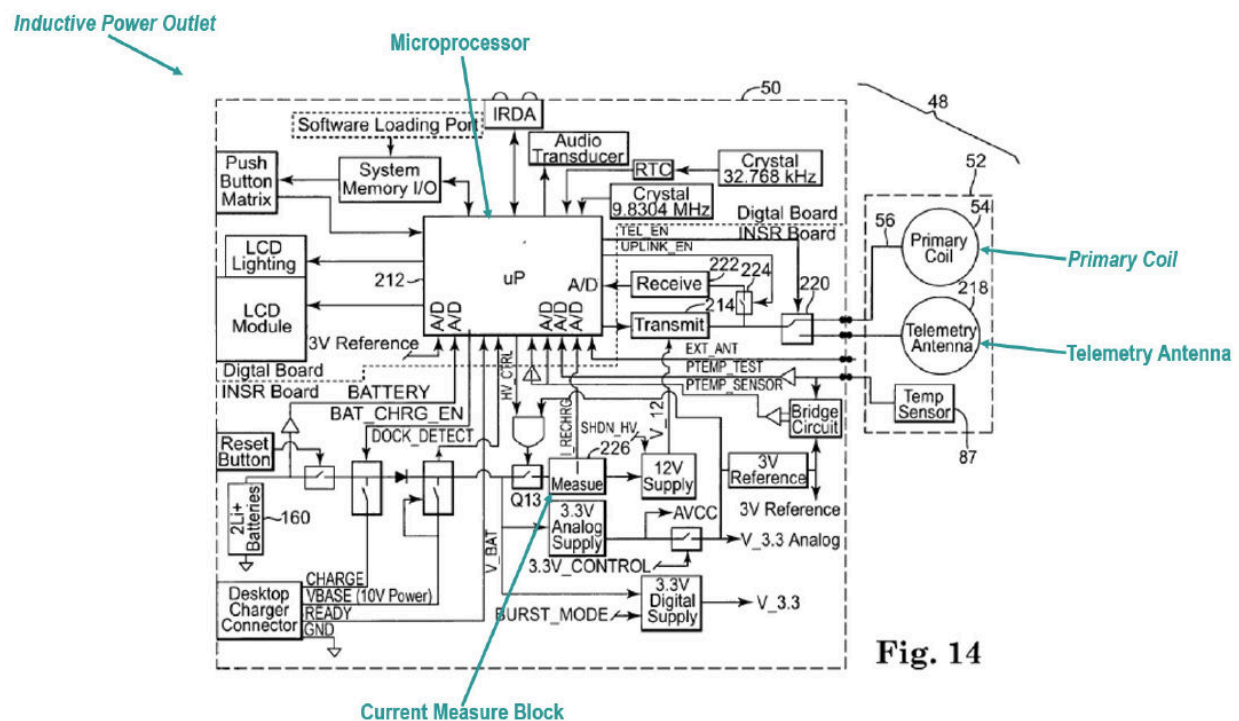
A. Olson Discloses Element [13.1]

¹ In fact, a half-wave rectifier like that disclosed in the '461 Patent is known to be especially inefficient, and the '461 Patent's equating the output of a half-wave rectifier with the total power drawn by the secondary coil L_2 demonstrates that even relatively large power losses can be deemed inconsequential. EX1017, ¶26; EX1024 ("rectifier efficiency is 40.6%").

Powermat’s argument that Olson fails to disclose Element [13.1] is predicated on its flawed assumption that a “measure of input power received by the primary coil” from the power supply requires a *direct* measurement of power received *only* by the primary coil. *See, e.g.*, POR, 18-24. As described above (*supra*, §II.A), the plain language of Element [13.1] does not recite such a restrictive scope, and Powermat’s implicit claim construction is contrary to the specification. The “measure of input power received by the primary coil” instead encompasses measurements that correspond to and reasonably reflect the input power received by the primary coil, consistent with descriptions of the same in the ’461 Patent. *Id.*; EX1017, ¶¶28-34.

Properly understood, Olson discloses Element [13.1] for each of the reasons detailed in the Petition. Pet., 15-17; EX1003, ¶¶42-44. The actual language of Element [13.1] does not forbid Olson’s measurement of input power in the FIG. 14 embodiment. It is immaterial whether Olson’s input power is based on direct measurements of the current received only by primary coil 54 and the voltage across primary coil 54. EX1017, ¶35. What matters is that Olson’s input power measurement still corresponds to and closely reflects the power received by the primary coil. And the evidence confirms this is true due to its calculation of input power using (1) a current measured by current measure block 226, and (2) the power supply voltage from batteries 160 or desktop charging device 162. EX1004,

[0071]-[0075]; Pet., 15-17; EX1003, ¶¶42-44. The product of the current measured by current measure block 226 and the voltage of batteries 160 or desktop charging device 162 represents the power received by the primary coil 54 from a source power supply (e.g., batteries 160 / charging device 162), less losses that a POSITA would have deemed negligible. EX1017, ¶36.



EX1003, ¶43.

Moreover, Olson's teaching reflects this ordinary understanding for the measure of input power received by the primary coil. Indeed, Olson's characterization of the "power in" measurement being used for the calculation of "efficiency of power transfer" is also significant and would have confirmed to a POSITA that the "power in" measurement corresponds to and closely reflects the

power received by the primary coil 54.² EX1017, ¶37; Pet. 15-16 and 19 (footnote 2); EX1003, ¶¶42-44.]. This is because “power transfer” in an inductively coupled system like Olson’s occurs by inductive transmission of electromagnetic energy from the primary coil to the secondary coil, and the efficiency of an inductive power transmission relates to how much power from the primary coil is received by the secondary coil. EX1004, [0057] (“achieve efficient inductive coupling between primary coil 54 ... and secondary coil 34”), [0077] (“[u]sing efficiency as a measure of effective coupling”); *see also id.*, [0002]-[0004], [0016], [0019], [0115]; EX1017, ¶37.

Even if Olson’s charging unit only indirectly measures “power in” to approximate the true power received by primary coil 54 in some embodiments, a POSITA would have understood this indirect “power in” measurement to correspond to and closely reflect the power received by the primary coil 54 since it

² Similarly, Olson’s characterization of the “power out” measurement being used for the calculation of “efficiency of power transfer” would have confirmed to a POSITA that Olson’s “power out” measurement corresponds to and closely reflects the power received by the secondary coil in the implantable device. Pet. 15-16 and 19 (footnote 2); EX1003, ¶44; EX1017, ¶37; *infra*, §III.B; Element [13.2].

is used in Olson’s power transfer efficiency calculation. EX1017, ¶38. Indeed, a POSITA would have understood Olson’s “power in” measurement to closely resemble the power received by the primary coil 54 because an accurate measurement of power provided to the primary coil 54 is critical to obtain an accurate and reliable calculation of the energy transfer efficiency. EX1004, [0047], [0077]; EX1017, ¶38. This ensures Olson achieves the objectives expressly articulated in paragraphs [0017] and [0115], including using reliable power transfer efficiency metrics to determine whether/how to regulate power provided to secondary device and avoid over-heating that risks harming the patient if too much power is delivered. EX1004, [0017] (“the efficiency at which energy is transcutaneously transferred is crucial”; “amount of heating of surrounding tissue, if excessive, can be deleterious”), [0115]. Olson would not have characterized its calculation as one of “power transfer efficiency” if its “power in” and “power out” measurements did not correspond to and closely reflect the power received by the primary and secondary coils, respectively. *Id.* This is confirmed by Dr. Woods’s further analysis of FIG. 14. EX1017, ¶39.

Next, even assuming the Board adopted Powermat’s implicit construction for Element [13.1] (to require direct measurement of the power received only by the primary coil), Powermat neglects the fact that Olson nevertheless discloses this feature. *Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 706-07 (Fed. Cir. 2020);

Alivecor, Inc. v. Apple Inc., 130 F.4th 1006, 1015 (Fed. Cir. 2025) (“To restrict each reference’s teachings to the particular way ... would improperly fail to read these references for all that they disclose”). For example, Olson expressly discloses that an efficiency of energy transfer can be determined based on a ratio of “the power received by secondary coil 34” to “the power transmitted by primary coil 54.” EX1004, [0112]. In the context of the ’461 Patent, the power “transmitted” by the primary coil 54 sufficiently corresponds to the input power “received” by the primary coil 54 since any internal power loss through the primary coil 54 is negligible. EX1017, ¶¶40-44. Indeed, Dr. Mercier conceded at his deposition that the description in the ’461 Patent that “[t]he input power monitor 4122 is configured to measure the input power **provided** by the primary coil 4220” is the same as the input power **received** by the primary coil as claimed. EX1018, 50:18-51:5. Therefore, it clear that an input power monitor of Olson’s external device performs a direct measurement of the input power received by the primary coil 54 in at least some embodiments. EX1017, ¶44.

Olson also explains in paragraph [0112] that “it is preferred” for “some embodiments of the present invention” to measure efficiency of energy transfer “coil-to-coil...from primary coil 54 to secondary coil 34.” EX1004, [0112]. Paragraph [0112] therefore explicitly provides an option for Olson’s input power monitor to **directly** measure “the power transmitted by primary coil 54” at the coil.

Id.; EX1017, ¶45. The direct nature of this measurement is evident from the last sentence of this paragraph in which Olson contrasts the direct “coil-to-coil” measurement with measurements taken “at other locations in external antenna 52 and/or implantable medical device 16.”³ EX1004, [0112].

B. Olson Discloses Element [13.2]

Powermat’s arguments that Olson somehow does not disclose Element [13.2] is based on its implicit claim construction that narrowly requires the signal detector to be configured to detect signals carrying data pertaining to a *direct* measure of output power received *only* by the secondary coil. *See, e.g.*, POR, 29-30 (“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.”), 30 (asserting that Olson “includes no detail of *how or where* either voltage or current measurement is performed”)); *supra*, §II.B. These arguments fail for

³ Even if Powermat argues that Olson’s paragraph [0112] disclosure does not represent a direct measurement and instead describes the specific circuitry as depicted in FIG. 14, Olson’s characterization of the circuit providing a “coil-to-coil” measurement would only underscore that the power measurements performed by the circuitry in FIG. 14 are measurements that correspond to and closely reflect the power received by each of the primary and secondary coils. EX1017, ¶45.

reasons similar to those addressed above with respect to Element [13.1]. *Supra*, §III.A; Pet. 17, EX1003, ¶45; EX1017, ¶46.

For example, Olson describes a “telemetry antenna 218” that provides a *signal detector*. EX1004, [0072]-[0075], FIG. 14; Pet. 17. Olson expressly discloses that an *output power* value represented by the “power induced in implantable medical device 16” is used to determine an efficiency of power transfer, and this value is “obtained by telemetry.” EX1004, [0074]-[0075]. In the power transfer system of Olson, current through a primary coil 54 of an external device *induces* current flowing in a secondary coil 34 within the implantable medical device 16. EX1004, [0050], [0052]-[0055], FIG. 3. A POSITA would have understood that the “power induced in implantable medical device 16” represents the output power received by the secondary coil 34, especially since the total power induced in the implantable medical device 16 is received by the secondary coil 34 due to its inductive couple with primary coil 54. EX1017, ¶47.

To the extent Powermat nonetheless contends that the “power induced in implantable medical device 16” is not the same as the output power received by the secondary coil 34 (which is false), any difference between the two would be negligible and immaterial to patentability. EX1017, ¶48. Indeed, as discussed above (*supra*, §II.B), the plain language of [13.2] recites a signal detector configured to receive data “*pertaining to*” output power received by the secondary

coil. The claim language does not mandate that the signal detector must receive data specifying a direct measure of the output power. *Id.* Here, the signal received by Olson’s telemetry antenna 218 carries data “*pertaining to*” the output power received by the secondary coil, especially considering that secondary coil 34 inductively draws power from primary coil 54 for the entire implantable device 16. EX1004, [0050], [0052]-[0055], FIG. 3. At a minimum, Olson’s signal carries data that corresponds to and closely reflects the input power received by the secondary coil 34. EX1004, [0016]-[0019], [0115].

If this were not enough, Olson’s description at paragraph [0112] further confirms that it contemplated the conventional option of determining the output power for its energy transfer efficiency calculation based on the power received by the secondary coil 34—and even based on a direct measure of this power. EX1004, [0112]; EX1017, ¶49.

C. Olson Discloses Elements [13.3]-[13.4]

Powermat asserts in the POR that “[b]ecause Olson fails to disclose ‘input power’ and ‘output power’ in the first place, Olson further fails to disclose” Elements [13.3]-[13.4]. POR, 31-39; EX2003, ¶¶95-102. Not so. Olson discloses the claimed “input power” and “output power” for at least the reasons discussed in the Petition and above in the analysis of Elements [13.1]-[13.2]. Pet., 15-17; EX1003, ¶¶42-45; EX1017, ¶50. Furthermore, as explained in the Petition, Olson

expressly discloses the claimed “at least one processor configured to receive data pertaining to the input power and the output power,” where the processor “determine[s] an index of power-loss” exactly as claimed. Pet., 17-20. For example, Olson describes a microprocessor (e.g., microprocessor 212) that receives input power and output power values and determines an efficiency of power transfer by “dividing” the power received by the secondary coil by the power received by the primary coil.⁴ EX1004, [0071]-[0078], [0112], FIG. 14.

A. Olson Discloses Element [14]

Powermat does not actually dispute that Olson discloses a “circuit breaker” as recited in claim 14. POR, 37-39. Dr. Mercier even skipped over this claim in his declaration such that, unlike every other claim challenged in the Petition, he

⁴ Olson explains that determining the efficiency of power transfer requires a “calculation.” EX1004, [0074]. FIG. 14 depicts microprocessor 212 receiving signals from current measure block 226 and receive block 222, which signals include measurements used in the determination of power in and power out. A POSITA would have understood from these disclosures that Olson’s microprocessor 212 performs the power transfer efficiency calculation. EX1017, ¶50; Decision, 27-28 (“Patent Owner does not suggest that there is another component ...”).

offered technical basis for contesting the Petition's showing that claim 14 is anticipated by Olson. *See* EX2003, pp. 43-44 (skipping from analysis of [13.4] to [15.2]). Dr. Woods' testimony establishing the relevance of Olson to claim 14 is thus entirely un rebutted in substance. EX1003, ¶¶50-52; Pet., 20-22.

Rather than address the merits, Powermat instead complains of alleged inconsistency between the Petition's mapping of Olson in the IPR and its non-infringement position in co-pending district court litigation. POR, 37-39. But Powermat has not established any inconsistency, and Petitioner disputes that any inconsistency exists, especially where the uncontroverted evidence confirms Olson's "electronically controllable switch 220" would encompass an ordinary mechanical switch to physically disconnect the primary antenna 52 from the power supply. EX1003, ¶51; EX1017, ¶51 (citing corroborating reference EX2021, 3-4). Implementing Olson's switch 220 in this conventional manner is entirely consistent with Anker's district court position.

Still, and even if there were any tension between Anker's non-infringement position and its mapping in the IPR (which there is not), Powermat has not explained why that is even relevant to *this* proceeding where the meaning of "circuit breaker" has not been disputed. To be clear, Powermat has never affirmatively argued for a narrower interpretation of "circuit breaker" that would exclude Olson's switch 220. On the contrary, Powermat's district court contentions

reveal its position that a “circuit breaker” *would* encompass a switch. The Board need not adopt a construction for claim 14 that Patent Owner refuses to formally proffer. It need only weigh the one-sided, overwhelming evidence as to why Olson’s “switch 220” acts as a conventional circuit breaker, and does so in a manner consistent with PO’s admission.

B. Olson Discloses Element [15.2]

Powermat next fails to refute the Petition’s showing that Olson discloses Element [15.2]. EX1017, ¶52. Powermat’s argument that Olson lacks sufficient detail about the location of current/voltage measurements in implantable medical device 16 is misguided because Olson explicitly describes that power transfer efficiency is determined based on “the power received by secondary coil 34” as part of a “coil-to-coil” measurement. EX1004, [0112]; Pet. 23-24 and 19 (footnote 2); EX1003, ¶54. Accordingly, a POSITA would have understood Olson’s implantable medical device to include an output power monitor that measures this “power received by secondary coil 34.” *Id.* Powermat’s arguments also fail because they erroneously imply a requirement for direct measurements of the secondary coil’s voltage and current, which is unsupported by and inconsistent with the ’461 Patent’s own disclosure. *Supra*, §II.B.

IV. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT THE OLSON-STEVEN'S COMBINATION RENDERS CLAIM 17 OBVIOUS (GROUND 1B)

Powermat asserted that “a POSITA would not be motivated to use Stevens’s dummy loads in Olson’s charging unit” because “Stevens is not directed to the efficiency of energy transfer as described in Olson, but instead towards the detection of unwanted parasitic loads.” POR, 43-45; EX2003, ¶¶111-116. This is a false charge, however, because Stevens’s detection of unwanted parasitic loads is not meaningfully different from Olson’s concern with power transfer efficiency. EX1017, ¶53; EX1003, ¶¶64-70. At a minimum, the concerns are compatible. Stevens in fact expressly discloses the option of using a calculation of power transfer efficiency based on a difference between the power transmitted by the primary unit and the power received by the secondary device(s) to detect unwanted parasitic loads. EX1005, 38:34-39:12 (“if the measured [primary] power ... exceeds the sum of the load measures”); *see also id.*, 25:25-31; 27:13-25, 32:12-30, 37:17-28, 39:8-12, FIGs. 4 and 12.

For example, Stevens explains that “each secondary device 600 comprises its own load measuring unit 610” that produces a “load measure” indicative of power delivered to a load of the secondary device. EX1005, 38:16-32, FIGs. 4, 12. According to one embodiment, this load measure comprises a “total load” including “the amount of power required by the actual load and any friendly

parasitic load of the secondary device/host object” including the “dummy load.”

EX1005, 39:8-12. The primary unit includes a “power measurement unit 730” that measures the power “drawn by the secondary devices from the primary unit” and a control unit 720 determines a difference between the power delivered by the primary unit and the power consumed by the total load on the secondary unit.

EX1005, 38:34-39:6. This “difference between the power delivered by the primary unit and the power consumed by the total load on the secondary unit” represents an index of power transfer efficiency consistent with both Olson and the ’461 Patent since it relates the power transferred by the primary unit to the power received by the secondary unit. EX1017, ¶54. This difference does not merely reveal the presence of a parasitic load as Powermat argues, because the total load value encompasses power consumed by the parasitic load. Stevens’s dummy load would also be obvious to implement and useful in Olson’s system to signal measurements or other information pertaining to the power received by the secondary coil of the implantable medical device 16 to the external charging device as an alternative to RFID or other signaling techniques. EX1005, 39:24-35 (“instead of RFID”); 30:34-31:6.

V. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT THE STEVENS-OLSON COMBINATION RENDERS CLAIMS 13-18 OBVIOUS (GROUND 2)

A. A POSITA Would Have Been Motivated to Combine Stevens and Olson

The Petition articulated multiple distinction motivations to combine Stevens in view of Olson, but the POR does not contest specifically contest any of them. These motivations stand unrebutted. Pet., 37-39; EX1003, ¶¶75-80; POR, 48-51. Powermat instead characterizes Stevens as being “directed to determination of whether a substantial parasitic load is present and restricting or stopping a power supply accordingly,” and characterizes Olson as being directed to “‘improving power transfer to an implanted medical device’ using positional or frequency adjustments,” and asserts that these goals are incompatible. POR, 48-51; EX2003, ¶¶127-136. Not so. Olson and Stevens both (1) contemplate situations where energy transfer must be stopped for safety reasons or to prevent damage, and (2) describe embodiments for determining an efficiency of energy transfer. EX1017, ¶55; EX1003, ¶75-80.

Olson expressly discloses that “it is preferable to limit the temperature of external antenna 52” during energy transfer to protect the circuitry of the implantable medical device and the safety of the patient. EX1004, [0017], [0085]. Olson explains that “external charging device 48 incorporates temperature sensor

87” that “can be used to determine the temperature of external antenna 52.”

EX1004, [0104]. Olson also explains that “as temperature sensor 87 approaches or reaches preset limits, control circuitry can take appropriate action such as limiting the amount of energy transferred.” EX1004, [0105].

Powermat asserts that a POSITA would not have implemented Stevens’s power transfer system with Olson’s efficiency calculation, because the “ratio format is less desirable for evaluating parasitic load” and “[p]arasitic loads are better evaluated as absolute values.” POR, 50-51; EX2003, ¶¶134-136. This is not the case. The evidence here confirms that a ratio of output power to input power is just as valuable as a difference between input power and output power, because when a parasitic load is present the ratio will be smaller and when a parasitic load is not present the ratio will be larger. EX1017, ¶57. A POSITA would have understood the selection of either a ratio or a difference to be obvious, but a quotient would still permit Stevens to compare a power transfer efficiency to a threshold to determine when to restrict or stop power transfer. *Id.*; Pet., 37-39; EX1003, ¶¶75-80; *supra*, §IV.

B. The Stevens-Olson Combination Provides Elements [13.1]-[13.4] and [15.2]

Powermat contests the Petition’s application of the Stevens-Olson combination to Elements [13.1]-[13.4] and [15.2], but these arguments are all

rooted in its erroneous claim interpretations that would require direct measurements. *Supra*, §§II.A-II.B. But the evidence here confirms that the input power and output power measurements performed in the combination closely correspond to and reflect the actual power received by the coils. EX1017, ¶58. Under any reasonable claim interpretation, The Stevens-Olson combination provides Elements [13.1]-[13.4] and [15.2]. *Id.*

VI. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT THE STEVENS-JIN COMBINATION RENDERS CLAIMS 13-18 OBVIOUS (GROUND 3)

A. A POSITA Would Have Been Motivated to Combine Stevens and Jin

Powermat's arguments that it would not have been obvious to combine Stevens and Jin are similar to its attacks on the Stevens-Olson and Olson-Stevens combinations in Grounds 1B and 2. POR, 66-69. But as described above, Stevens is not merely "concerned with determining parasitic loads." Stevens also describes embodiments for determining efficiency that incorporate parasitic loads. *Supra*, §§IV, V.A; EX1017, ¶59. Combining Stevens and Jin would have been obvious for each of the multiple reasons described in the Petition. Pet., 56-57; EX1003, ¶¶104-108.

B. The Stevens-Jin Combination Provides Elements [13.1]-[13.4], [15.2]

As with the preceding grounds, Powermat seeks to distinguish the Stevens-Jin combination from the conventional features recited in Elements [13.1]-[13.4] based on its overly narrow claim interpretations. *Supra*, §§II.A-II.B. But these interpretations are unsupported and the evidence here confirms that the input and output power measurements closely correspond to and reflect the true power received by the coils. EX1017, ¶60. Under any reasonable claim interpretation, the Stevens-Jin combination provides these elements. *Id.*

VII. CONCLUSION

For the reasons discussed above and in the Petition, Petitioner submits that all the Challenged Claims are unpatentable.

Respectfully submitted,

Dated 08/20/2025

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CERTIFICATION UNDER 37 CFR §42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response totals 5,575 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(4).

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on August 20, 2025, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response and associated exhibits, were provided via email, to the Patent Owner by serving the email correspondence addresses of record as follows:

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