

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ANKER INNOVATIONS LTD.,
Petitioner,

v.

POWERMAT TECHNOLOGIES LTD.,
Patent Owner

Case: IPR2024-00994

U.S. Patent No. 9,048,696

PATENT OWNER'S SUR-REPLY

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Patent Trial and Appeal Board
U.S. Patent and Trademark Office
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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Expert Declaration of Patrick P. Mercier, Ph.D., Sep. 13, 2024
2002	U.S. Pub. No. 2009/0174263 ("Baarman263")
2003	Defendant's First Amended Invalidity Contentions of U.S. Patent No. 9,048,696 in view of US2008/0079392A1, <i>Powermat Technologies Ltd. v. Anker Innovations Ltd.</i> , Case No. 5-23-cv-00052 (E.D. Tex.), Apr. 18, 2024.
2004	Defendant's First Amended Invalidity Contentions of U.S. Patent No. 9,048,696 in view of US2008/0079392A1, <i>Powermat Technologies Ltd. v. Anker Innovations Ltd.</i> , Case No. 5-23-cv-00052 (E.D. Tex.), Apr. 18, 2024.
2005	U.S. Patent No. 5,455,467 ("Young")
2006	Expert Declaration of Patrick P. Mercier, Ph.D., Mar. 4, 2025
2007	Deposition Transcript of Gary L. Woods, Ph.D., Feb. 20, 2025
2008	The American Heritage Dictionary of the English Language (Houghton Mifflin Co., 4th ed. 2002)
2009	Webster's II Dictionary (Houghton Mifflin Co., 3rd ed. 2005)

I. INTRODUCTION

Petitioner's Reply arguments avoid the Petition's clear deficiencies that: (1) the five cited references alone or in combination fail to disclose or suggest a driving circuit that is configured and operable to produce an oscillating driving voltage at a transmission frequency substantially different from the characteristic resonant frequency of an inductive couple; and (2) a person of skill would not have been motivated to combine the teaching of the cited references with a reasonable expectation of success.

Accordingly, Petitioner's challenge to the patentability of claims 1-7 and 9-14 (the "challenged claims") of U.S. Patent No. 9,048,696 ("the '696 Patent") should be rejected.

II. CLAIM CONSTRUCTION

A. A POSITA would have interpreted the "substantially different" term as encompassing frequencies that lie within the near-linear regions of a frequency-amplitude graph.

The Parties do not dispute the Board's construction that requires the "substantially different" term to "encompass[] frequencies that lie within one of the near-linear regions of a frequency-amplitude graph." See Paper 7 at 22; PR at 1-2; POR at 24.

B. A POSITA would have further interpreted the “substantially different” term as allowing for some incremental change (increase or decrease) in frequency while remaining in the near-linear regions of the frequency-amplitude graph.

The Parties dispute further limiting the “substantially different” term to require an allowance for some incremental change (increase or decrease) in frequency while remaining in the near-linear regions of the frequency-amplitude graph. PR at 2. As explained in the POR, this construction should be adopted. POR at 25–29.

To begin, Petitioner mischaracterizes the Board's decision to defer deciding whether a need exists for determining the “outer bounds of the scope of ‘substantially different’” (Paper 7 at 22) as an outright rejection of the construction. PR at 2. The Board never reached a final decision on the entirety of Patent Owner's proposed construction but rather left it as an open issue that may be decided at a later date.

Next, Petitioner attempts to improperly discredit Patent Owner's proposed construction as being inconsistent with the claims, specification, and file history. Petitioner is incorrect. For example, the '696 Patent expressly teaches the incremental increase/decrease of the transmission frequency in response to feedback signals received by the driver. Ex. 1001 at 22:59-64 (“(e) A feedback signal is received by the driver 6230; (f) If the received feedback signal is of the first type S_a ,

then the transmission frequency is increased by an incremental value $+\delta f_1$. If the received feedback signal is of the second type S_b , then the transmission frequency is decreased by an incremental value $-\delta f_1$.”). This teaching is further illustrated by Figure 6b which “show[s] how the amplitude of the operational voltage varies according to the transmission frequency.” *Id.* at 21:1-3. Specifically, Figure 6b depicts an incremental decrease in the induced voltage by incrementally increasing the transmission frequency. *Id.* at 21:63-65 (“[A]n increase in transmission frequency of δf produces a decrease in induced voltage of δV .”); *id.* at 22:60-64 (explaining that “ δf ” represents an “incremental value”).

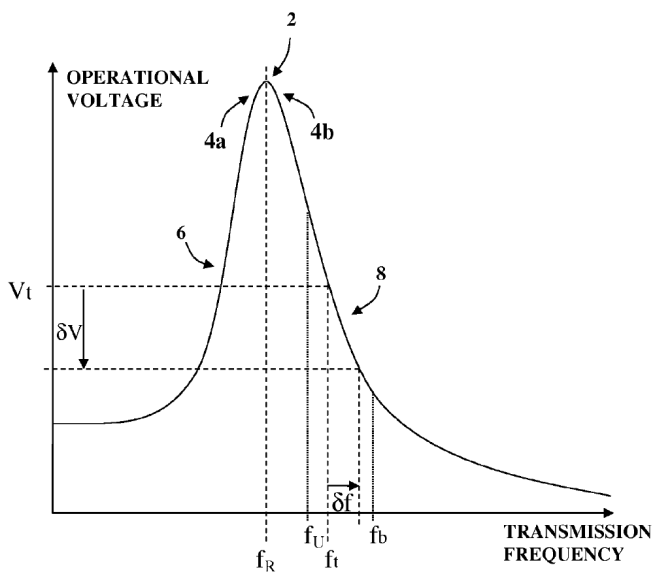


Fig. 6b

Id. at Fig. 6b.

Moreover, Dr. Woods opines that “even if claim 2 did require linear control or PO’s construction, such a limitation would not be required for independent claim 1.” Ex. 1101 at ¶ 12. This argument, however, is contrary to established case law that requires a POSITA to read claim terms “not only in the context of [a] particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). Furthermore, claims “do not stand alone,” rather they ““must be read in view of the specification, of which they are a part.”” *Id.* at 1315 (citation omitted). Dr. Woods’s and Petitioner’s arguments ignore these basic claim construction principles and should be rejected.

In short, nothing is improper about Patent Owner’s proposed construction of the term. Rather, contrary to Petitioner’s arguments, Patent Owner’s construction is based on the claims, specification, and file history as understood by a POSITA. *See* Ex. 2006 at ¶¶ 96–109. Thus, the Board should further construe the term as allowing for some incremental change (increase or decrease) in frequency while remaining in one of the near-linear regions of a frequency-amplitude graph.

III. ARGUMENT

A. Ground 1A: Petitioner Fails to Establish that Claims 1-7 and 9-14 are Rendered Obvious by Onishi in View of Flowerdew

1. The Combination of Onishi and Flowerdew Fails to Disclose Limitation [1.4]

In an attempt to save its case, Petitioner inadvertently highlights some of the inconsistencies in Onishi that render it ambiguous and unacceptably vague. See *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (“[I]t has long been understood that ambiguous references do not, as a matter of law, anticipate a claim”); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983) (refusing to find claims anticipated when the prior art references were “unacceptably vague”). For example, Petitioner asserts that “PO’s argument is [allegedly] premised entirely on a strained reading of a single sentence in paragraph [0180] of Onishi, but that reading is divorced of context and contradicted by the **next sentence** of Onishi’s disclosure.” PR at 3 (emphasis in original). This contradiction is one of many ambiguities in Onishi that render it insufficient for establishing unpatentability of the challenged claims.

Specifically, paragraphs [0180] of Onishi state:

FIG. 4 is a view showing **the resonance characteristics of the induction coil** and applications of frequencies. The **resonance**

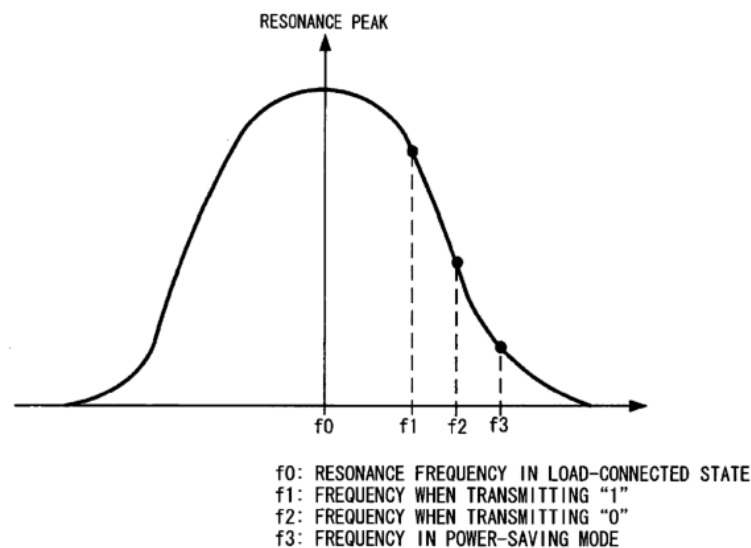
characteristics of the primary coil L1 and the secondary coil L2 when the portable telephone 510 is placed on the charger 500 (cradle) (i.e., when load exists with respect to the power transmission device 10) (see FIG. 1A) have a symmetrical and broad mountain shape, as shown in FIG. 4, for example.

Ex. 1004 at [0180] (emphasis added). Here, the first sentence establishes that Figure 4 pertains to the resonance characteristics of an induction coil—not a pair of inductively coupled coils—and the second sentence refers to the resonance characteristics of independent coils (*i.e.*, the primary or secondary coil). Ex. 2006 (Mercier Dec.) at ¶ 117. At best—as acknowledged by Petitioner—these sentences contradict one another (*see* PR at 3) resulting in a nonsensical structure that renders Onishi ambiguous and vague. Accordingly, any teachings in Onishi that allegedly relate to an “inductive couple having a characteristic resonant frequency” are meaningless without additional context or disclosure.

Petitioner conveniently disregards the first sentence of paragraph [0180] to argue that Figure 4 of Onishi “does not illustrate the frequency-response of a single coil in isolation . . . , but instead illustrates the ‘resonance characteristics of the primary coil L1 **and** the secondary coil L2’ when the coils are brought in electromagnetic proximity of each other for charging—i.e., in an **inductively**

coupled state.” PR at 5 (emphasis in original). However, nothing in Onishi supports this manufactured interpretation.

FIG. 4



Onishi at FIG. 4.

Petitioner next points to the text of Figure 4 which “labels frequency f0 as the ‘RESONANCE FREQUENCY IN LOAD-CONNECTED STATE’” to argue that Figure 4 represents a coupled system. PR at 4–5 (quoting Ex. 1004, FIG. 4). Yet, the ambiguity and vagueness in Figure 4 render any interpretation as speculative. For example, during cross-examination Dr. Mercier explained that the vertical axis is unclear:

Q. And this curve depicts the frequency response in the load-connected state, correct?

A. Yeah. Again, my reading of Onishi is, at best, I feel that Onishi is very unclear about what it's depicting in Figure 4. It's really not clear to me what the vertical axis is and under what exact operating conditions it's being represented.

Ex. 1102, 50:14–20. Thus, no actual meaning can be derived from Figure 4 of Onishi without necessary additional information. Neither the Petition nor Dr. Woods provides any of this additional information.

Moreover, the resonant frequency of an inductive couple may be different from (1) the characteristic resonant frequency of the individual coupled primary and secondary coils, and (2) the characteristic resonant frequency of the isolated primary and secondary coils. For example, Dr. Mercier explained:

Q. Could the characteristic resonant frequency of the inductive couple be different from the resonant frequency of the primary inductor?

A. It could – it could be, yes. And, in fact, I'll refer you to Dr. Woods who actually answered this question as well in his deposition where he mentioned that each coil has a separate resonant standalone frequency, and when you put them

together, there will be a resonance that is the mean – usually, approximately the mean between them.

Q. . . . When the primary coil and the secondary coil are coupled, do they share a characteristic resonant frequency?

A. So the primary coil could have its own resonant frequency. The secondary coil could have its own resonant frequency. That may be the same or most likely will be a little different. And when you bring them together, you can measure the characteristic resonant frequency of the inductive couple that could be different from the characteristic resonant frequency of either coil in isolation.

Ex. 1102, 34:7–35:3; *see also* Ex. 2007, 9:10–21 (Dr. Woods testifying that “each [coil] has a separate resonant frequency”); 14:5–15 (“Q. . . . When combining those resonant frequencies, is the resulting combined frequency a simple sum or is it different? A. It’s not a simple sum. Q. So how would you go about – A. Rule of thumb to first order, the resonance frequency of the coupled system is, roughly speaking, the geometric mean of the two individual resonance frequencies.”). Thus, contrary to Petitioner’s assertion, the resonant frequency of a single coupled coil is not necessarily “the same as/indistinct from the resonant frequency of the inductive

couple.” PR at 5.¹

In short, Petitioner has not shown by a preponderance of the evidence that Onishi in view of Flowerdew renders obvious limitation [1.4] of the '696 Patent.

2. The Combination of Onishi and Flowerdew Fails to Disclose Limitation [1.7]

The basis of Petitioner's Reply argument regarding limitation [1.7]—specifically the requirement of a transmission frequency “substantially different” from “the characteristic resonant frequency of said inductive couple”—rests entirely

¹ Petitioner asserts that “FIG. 6B of the '696 Patent is identified as a frequency-amplitude graph of induced voltage in a *single* coil of a coupled system.” PR at 5–6 (emphasis in original). This argument, however, is based on a mischaracterization of Dr. Mercier's testimony when he explained that the voltage depicted in Figure 6b is “the voltage at the output of the secondary inductor when it's coupled to the primary inductor.” Ex. 1102, 20:13–19.

on a visual interpretation of Figure 4 of Onishi.² Despite any visual similarities that may exist between Figure 4 of Onishi and Figure 6b of the '696 Patent, Onishi lacks the specificity required by limitation [1.7]. To distract from these clear evidentiary holes, Petitioner improperly attempts to limit the scope of the '696 Patent to Figure

² See, e.g., PR at 9 (“As Dr Woods observed in his first declaration, ‘the strikingly similar positions of Onishi’s frequencies f_1 , f_2 , and f_3 [as illustrated in Figure 4] in the frequency-response curve as the transmission frequency (e.g., f_t in FIG. 6B) identified as ‘substantially different’ in the '696 specification confirms that . . .” (citation omitted)); *id.* at 10–11 (“PO’s contention that f_1 and f_2 are necessarily at or near resonance merely because f_3 is even farther from resonance is illogical and contrary to the clear disclosure in FIG. 4, which shows f_1 and f_2 set significantly apart from f_0 .”); *id.* at 11 (“The substantial separation between the frequencies f_0 , f_1 , and f_2 [as illustrated in Figure 4] would have been understood by a POSITA as a clear indication that f_1 and f_2 are substantially different from the resonant frequency f_0 .”); *id.* (“PO’s related criticism of the ‘broad mountain shape’ of Onishi’s graph are also baseless since, as shown in FIG. 4, . . .”); *id.* at 12 (“As shown in FIG. 4, frequency f_3 is ‘substantially different’ from resonant frequency f_0 under any reasonable understanding of Onishi’s figure Onishi’s frequency f_3 is also not located far out on the tail of the graph instead lies to the side of the peak in a similar position to frequencies near the boundary f_b in FIG. 6b of the '696 Patent.”); *id.* at 13 (“Noticeably, Onishi’s frequencies are positioned nearly identically to the transmission frequencies shown in the '696 Patent.”).

6b as opposed to the actual claim language of the challenged claims.

a. Figure 4 of Onishi and its related disclosure is inconsistent and lacks the specificity required by limitation [1.7]

Petitioner's own argument undermines its assertion that a POSITA would have understood Figure 4 of Onishi and highlights Petitioner's attempts to fit a square peg into a round hole.

First, Onishi fails to expressly disclose a frequency that lies within one of the near-linear regions of a frequency-amplitude graph. Petitioner asserts that "Onishi is not silent on the position of the frequencies f1, f2, f3 relative to the frequency amplitude graph." PR at 15 (citing Ex. 1004, [0134], [0162], [0181], [0211]–[0212], [0226], FIG. 5). However—with the exception of paragraph [0181]—Petitioner only cites to portions of Onishi that generally discuss the use of frequency f1 when transmitting data "1" and the use of frequency f2 when transmitting data "0" (see *id.*). Petitioner fails to identify any portion of Onishi that discusses the positions of frequencies f1, f2, and f3.

The sparse disclosure in Onishi that possibly relates to the relative positions of frequencies f1, f2, and f3 explains that the normal power transmission frequencies (*i.e.*, frequencies f1 and f2) ***are indistinguishable from the resonance frequency*** and that the power-saving mode frequency (*i.e.*, frequency f3) ***is set apart from the***

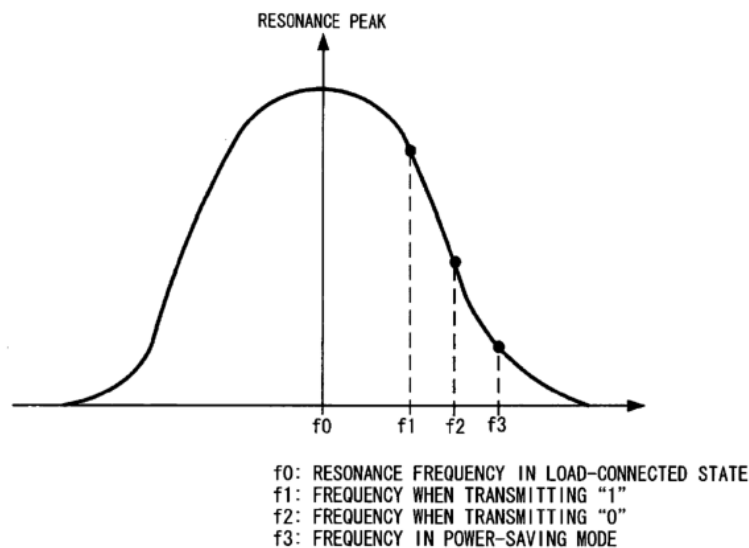
resonance frequency such that only a small amount of power is transmitted.³ Being indistinguishable from the resonance frequency means that frequencies f1 and f2 fall near the peak of the curve within the non-linear region of a frequency-amplitude graph. *See, e.g.*, Ex. 2006, ¶¶124, 131. Similarly, being apart from the resonance frequency at a point where only a small amount of power is transmitted means that frequency f3 is located near the bottom of a frequency-amplitude graph in the non-

³ *See* Ex. 1004, [0053] (“Note that power-saving power transmission only a small amount of power which merely maintains the battery charge management function of the load. . . . The transmission frequency during power-saving power transmission is set at a frequency apart from the resonance frequency (resonance peak) as compared with the frequency during normal power transmission . . .”); PR at 10 (“[Paragraph [0053] only addresses the **relative** positions of the transmission frequencies during normal power transmission (f1, f2) and during power-saving power transmission (f3).” (emphasis in original)); Ex. 2007, 17:7–23 (“Q. Onishi describes, ‘The power saving transmission frequency as set at a frequency apart from the resonance frequency (resonance peak) as compared to with the frequency during normal power transmission.’ Do you see that? A. Yes, I see that. Q. What does the word ‘apart’ mean to you in the context of paragraph 53 of Onishi? A. I guess you would say – I guess Onishi would say distinguishable from. I think that’s a fair word a POSITA might have used at the time. Q. What’s an antonym for ‘distinguishable from’? A. Indistinguishable from.”).

linear region. *Id.* Accordingly, frequencies f_1 , f_2 , and f_3 —at least as described in Onishi—fall outside the near-linear region of a frequency-amplitude graph as required by limitation [1.7].

Second, FIG. 4 is entirely unclear. Onishi explains that “[i]n FIG. 4, the horizontal axis indicates the frequency, and the vertical axis indicates the resonance peak value. . . . As is clear from FIG. 4, the relationship ‘ $f_1 > f_2 > f_3$ ’ is satisfied.” Ex. 1004, [0180]–[0181]. Yet, the purpose of this relationship is unclear as Figure 4 illustrates the opposite (i.e., $f_3 > f_2 > f_1$).

FIG. 4



Onishi at FIG. 4. While Dr. Woods testified that Onishi's horizontal axis is frequency

and the vertical axis indicates resonance peak value (Ex. 2007, at 13:7-15), Dr. Mercier testified that “Onishi is very unclear about what it’s depicting in Figure 4. It’s really not clear to me what the vertical axis is and under what exact operating conditions it’s being represented.” Ex. 1102, at 51:17-20; 52:8-53:23 (“Is this voltage? Is this power? Is this impedance? Is this efficiency? Is this resistance? Is it inductance? I don’t know. It’s not specified in Onishi. And, furthermore, it’s unclear, especially due to the language employed here, if this is the resonant characteristics of just primary coil L1, just primary, or just secondary coil L2, or both of them in an inductive-coupled system.”

Finally, even assuming *arguendo* that Onishi intended to have at least one of frequencies f_1 , f_2 , or f_3 fall within the near-linear region of a frequency-amplitude graph, Onishi fails to provide any instruction or guidance on how to calculate the frequencies. While Patent Owner does not dispute that “these frequencies correspond to actual frequencies used by the system in operation” (PR at 13), the lack of dimensions, axis labels, quantitative values, or clear direction from the specification, renders any analysis of Figure 4 and any alleged similarities with the ’696 Patent as entirely speculative and driven by hindsight.

Petitioner attempts to circumvent this issue by arguing that Figure 4 on its own, and without regard to Onishi's written disclosure, is sufficient to show obviousness. PR at 14–15 (citing *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972)). However, in this case, limitation [1.7] requires that the transmission frequency be “substantially different from said characteristic resonant frequency of said inductive coil,” which has been construed as encompassing frequencies that lie within one of the near-linear regions of a frequency-amplitude graph. An illustration of three points on a graph that lacks sufficient labels and values, and is inconsistent with its corresponding written disclosure cannot “clearly” show obviousness. *Compare In re Mraz*, 455 F.2d at 1072 (that which “patent drawings show clearly” should not be “disregarded”) with *W.L. Gore*, 721 F.2d at 1554 (refusing to find claims anticipated when the prior art references were “unacceptably vague”).

Accordingly, Petitioner's continued reliance on Figure 4 of Onishi is improper. Petitioner has failed to establish that Onishi discloses or suggests limitation [1.7].

b. Petitioner improperly attempts to limit the scope of the claimed invention to the specification as opposed to the claims.

Petitioner attempts to remedy the shortcomings of Onishi by relying on the written description and figures of the '696 Patent, as opposed to the '696 Patent's

challenged claims. For example, Petitioner asserts that “Onishi . . . discloses three transmission frequencies (f_1 , f_2 , f_3) that each lie within substantially the same region of the frequency-amplitude graph as the region [bounded by f_U and f_b] in FIG. 6b of the '696 Patent.” PR at 8–9. With no support, Petitioner asks this Board to accept that Figure 4 of Onishi and Figure 6b of the '696 Patent are materially similar—which they are not.

To begin, Petitioner argues that “Onishi and the '696 Patent both describe transmission frequencies in essentially the same region of a frequency-amplitude graph,” (PR at 8 (citing Ex. 1101, ¶¶ 22–29)), but fails to point to any actual disclosures in Onishi that expressly describe the transmission frequency as falling within the near-linear region of a frequency-amplitude graph. Rather, Petitioner relies on an analysis performed by Dr. Woods that attempts to reconcile the teachings of Onishi and the '696 Patent with improper hindsight. *See id.* This analysis, however, is based entirely on a cursory visual inspection of Onishi's Figure 4—which, as explained above, is vague and ambiguous as to what it actually depicts.

For example, Dr. Woods opines that “it would have been obvious to a POSITA to position the power transmission frequencies f_1 and f_2 in the near-linear region to avoid operating in a region where a variation in resonance would cause a

large unwanted change in the voltage induced at Onishi's secondary coil." Ex. 1101, ¶ 25. This opinion, however, is directly contrary to the teachings of Onishi that require frequencies f_1 and f_2 to be indistinguishable from the resonance. Ex. 1004, [0053]; PR at 10 (acknowledging that "[f]requencies f_1 and f_2 are [] positioned closer to resonance than f_3 "); Ex. 2007, 17:7–23.

Next, Petitioner faults Patent Owner's reliance on paragraph [0053] of Onishi and argues that "this sentence only addresses the *relative* positions of the transmission frequencies during normal power transmission (f_1 , f_2) and during power-saving power transmission (f_3)." PR at 10. This argument, however, highlights one of the primary deficiencies Onishi (*i.e.*, Onishi only describes the relative positions of frequencies f_1 , f_2 , and f_3 but provides little to no information regarding the actual values or positions of the frequencies). Notwithstanding, Petitioner attempts to argue that Figure 4 of Onishi illustrates more than just the relative positions of frequencies f_1 , f_2 , and f_3 but fails to point to any case law or discussions in Onishi that support its position.

In contrast to Figure 4 of Onishi, Figure 6b of the '696 Patent is a detailed illustration of "how the amplitude of the operational voltage varies according to the transmission frequency" and provides a detailed description regarding how a

POSITA would determine the upper and lower frequency limits for a transmission frequency. Ex. 1001, 21:1–3, 56–65.

Again, as explained above, Petitioner attempts to preserve its arguments by ignoring Onishi as a whole—including all of its inconsistencies—and cherry picking excerpts and illustrations that allegedly appear to share similarities with the '696 Patent's disclosure. These tactics should be rejected.

In conclusion, Petitioner has not shown by a preponderance of the evidence that Onishi in view of Flowerdew renders obvious limitation [1.7] of the '696 Patent.

3. The Combination of Onishi and Flowerdew Fails to Disclose Limitations [2.1] and [2.2]

Petitioner attempts to adopt an interpretation of the claims that is divorced from the clear teachings of the '696 Patent. Specifically, Petitioner argues that “claim 2 never recites that the transmission frequency *after* the increase/decrease must also be substantially different from the resonant frequency of the inductive couple, or that the transmission frequency must remain in the linear/near-linear region of the graph.” PR at 16 (emphasis in original). However, this argument ignores that one of the primary aims of the '696 Patent is to allow for the selection of a “transmission frequency [that] lies within a range in which induced voltage varies approximately linearly with the frequency.” Ex. 1001, 4:14–16.

Petitioner further asserts that “Onishi would still meet these features even if claim 2 was narrowly interpreted to require them, especially since f_1 , f_2 , and f_3 all lie in the linear/near-linear region of the graph.” PR at 16. However, as explained above, Onishi only discloses the relative positions of the frequencies and not the actual positions.

Accordingly, Petitioner has not shown by a preponderance of the evidence that Onishi in view of Flowerdew renders obvious limitations [2.1] and [2.2] of the '696 Patent.

4. There is No Motivation to Combine Onishi and Flowerdew

Petitioner offers no rebuttal to Patent Owner's argument regarding the lack of a motivation to combine Onishi and Flowerdew, but rather dismisses it as being contrary to “what the law requires.” PR at 17. Petitioner further asserts that it “properly addressed the obviousness of applying Flowerdew's suggestion for a conventional alignment mechanism in Onishi's charger—without ever proposing bodily incorporation of a specific coil configuration or alignment mechanism that would not be equally suitable to Onishi's charger.” *Id.* Petitioner, however, continues to ignore that Flowerdew's “conventional alignment mechanism” is specifically designed to facilitate inductive coupling with a secondary coil shaped as a long solenoidal coil. Ex. 2006, ¶ 145; see Ex 1005, 4:49–59 (“In an embodiment

of the invention, the charger takes the form of a shallow concave (herein also referred to as 'dished' or a 'dish') or similarly shaped upper charging surface By developing an angled field that is substantially horizontal, it is possible to couple energy to a receiver coil comprising a long solenoid, lying horizontally on the upper surface of the charger.”). Accordingly, Petitioner has failed to show how to modify Onishi in view of Flowerdew.

B. Ground 1B: Petitioner Fails to Establish that Claims 11-13 are Rendered Obvious by Onishi in View of Flowerdew and Partovi

1. There is No Motivation to Combine Onishi and Partovi

Petitioner has failed to demonstrate an expectation of success in combining the teachings of Partovi with Onishi to achieve a system that operates “at a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple.” Ex. 2006, ¶ 147. While Partovi discloses that “the frequency of the switch can be changed to move the circuit into, and out of, resonance to create the appropriate voltage in the receiver” (Ex. 1007, [0078]), such only applies to “the power emitted by the mobile device charger” and not the receiver. *Id.*, [0077]. In other words, Partovi describes changing the frequency of the switch in the mobile device charger to facilitate operation with the receiver at resonance as a coupled pair. Despite Petitioner's arguments, the Onishi-Partovi

system is still incompatible.

C. Ground 2A: Petitioner Fails to Establish that Claims 1, 3-5, 7, and 9-14 are Rendered Obvious by Baarman392 in View of Partovi

1. The Combination of Baarman392 and Partovi Fails to Disclose Limitation [1.7]

In yet another example of an attempt to adopt an interpretation of the claims that is divorced from the clear teachings of the '696 Patent, Petitioner attempts to argue that Baarman392's inclusion of frequencies that fall outside the near-linear region of the resonance curve is permissible because "a POSITA would have understood and found [] it obvious to linearize the entire frequency range in Baarman392's system between A and B—especially if the range of operating frequencies between A and B included but extended beyond the linear/near-linear region of the curve." PR at 22. However, as explained above, this argument ignores that one of the primary aims of the '696 Patent is to allow for the selection of a "transmission frequency [that] lies within a range in which induced voltage varies approximately linearly with the frequency." Ex. 1001, 4:14–16. Baarman392's inclusion of frequencies that extend beyond the near-linear region of the curve would result in unpredictability and fluctuations in power, problems the '696 Patent expressly sets out to address. Ex. 2006, ¶ 156.

In fact, Dr. Mercier explained that “a POSITA would understand that piece-wise linearization is only used if the curve being approximated is non-linear (if the curve were linear, a piece-wise approximation would be unnecessary).” Ex. 2006, ¶155. Thus, contrary to Petitioner’s argument, a POSITA would not piecewise linearize a near-linear curve *See* PR at 22.

Accordingly, Petitioner has not shown by a preponderance of the evidence that Baarman392 in view of Partovi renders obvious limitation [1.7] of the '696 Patent.

2. There is No Motivation to Combine Baarman392 and Partovi

Petitioner’s Reply arguments fall short of curing the deficiencies raised in the POR. For example, in the POR, Patent Owner explained that “Petitioner appears to mix embodiments of Baarman in its citation to [0015]–[0019] and [0055]–[0057] without explanation as to why [a] POSITA would do so.” POR at 63. Rather than offer an explanation as to why a POSITA would be motivated to mix embodiments, Petitioner merely quotes the section headings of Baarman392. Accordingly, Petitioner has not shown by a preponderance of the evidence that a POSITA would be motivated to combine Baarman392 with Partovi.

D. Ground 2B: Petitioner Fails to Establish that Claims 2 and 6 are Rendered Obvious by Baarman392 in View of Partovi and Tocci

1. The Combination of Baarman392, Partovi, and Tocci Fails to Disclose Limitations [2.1] and [2.2]

Rather than address the deficiencies raised in the POR regarding Baarman392's general operation of its inverter in the range between frequency A and frequency B, where frequency B "is somewhat less than the resonant frequency" (Ex. 1008 at [0038]), and clearly not substantially different from the resonant frequency, as required by the '696 Patent. Petitioner argues that "Baarman392's teachings that modify[] the frequency between A and B results in a 'generally predictable' change in power." PR at 24 (quoting Ex. 1008, [0038]). This argument, however, ignores that Baarman392 relies on "piece-wise lineariza[tion] by a software lookup table" (Ex. 1008, [0037]), which, as explained above, is only used if the curve being approximated is non-linear. Ex. 2006, ¶155. Thus, Petitioner has not shown by a preponderance of the evidence that Baarman392 in view of Partovi and Tocci renders obvious limitations [2.1] and [2.2] of the '696 Patent.

IV. 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 IPR2024-00994
Patent No. 9,048,696
Patent Owner's Sur-Reply

Dated: July 8, 2025

Respectfully submitted,

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Case IPR2024-00994
Patent No. 9,048,696
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CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of July, 2025, a copy of the attached **PATENT OWNER'S SUR-REPLY** was served by electronic mail to the attorneys of record, at the following addresses:

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Case IPR2024-00994
Patent No. 9,048,696
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CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)

Pursuant 37 CFR 42.24(d), the undersigned certifies that this Sur-Reply 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 Sur-Reply indicates that the Sur-Reply contains 4,828 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

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