

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

ANKER INNOVATIONS LTD.,  
Petitioner

v.

POWERMAT TECHNOLOGIES LTD.,  
Patent Owner.

---

IPR2024-00994  
Patent 9,048,696 B2

---

Record of Oral Hearing  
Held: September 16, 2025

---

Before KEN B. BARRETT, KARA L. SZPONDOWSKI, and RYAN H.  
FLAX, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

MICHAEL HAWKINS, ESQ.  
NICHOLAS STEPHENS, ESQ.  
Fish & Richardson, P.C.  
60 South Sixth Street, Suite 3200  
Minneapolis, MN 55402  
612-337-2569 (Hawkins)  
hawkins@fr.com  
nstephens@fr.com

ON BEHALF OF THE PATENT OWNER:

ROBERT PLUTA, ESQ.  
BRADY NASH, ESQ.  
Mayer Brown LLP  
71 South Wacker Drive  
Chicago, Illinois 60606  
312-701-8641 (Pluta)  
rpluta@mayerbrown.com  
bnash@mayerbrown.com

The above-entitled matter came on for hearing Tuesday, September 16, 2025, commencing at 1:00 p.m. EDT, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P-R-O-C-E-E-D-I-N-G-S

(1:00 p.m.)

JUDGE BARRETT: Good afternoon, everyone. We are on the record in IPR2024-00994, Anker Innovations, Limited v. Powermat Technologies, Limited. I am Judge Barrett, and with me today are Judges Szpondowski and Flax. Let us start with appearances.

Who do we have for Petitioner today?

MR. STEPHENS: Nicholas Stephens on behalf of Petitioner. Here with lead counsel, Michael Hawkins.

JUDGE BARRETT: Well, welcome.

And for Patent Owner?

MR. PLUTA: Good afternoon, Your Honor. Robert Pluta on behalf of Powermat. With me is backup counsel, Brady Nash.

JUDGE BARRETT: Welcome.

All right. We set forth the procedure for the hearing in our oral argument order. But just to remind everybody, Petitioner will have 45 minutes total time to present arguments, and Patent Owner also will have 45 minutes total. Petitioner will go first and may reserve time for rebuttal. Then Patent Owner will go and may reserve some time for a surrebuttal. Then Petitioner. Then Patent Owner will close this out with its surrebuttal arguments.

We do have your demonstrative exhibits pulled up and we have access to the record. For clarity of the transcript and to assist us in following along, please refer to the demonstrative exhibit. Read off the slide number if you would. Or if you're going to go outside your demonstratives into the record,

1 give us a clear identification of what you're talking about. That especially  
2 makes it much easier when we are reviewing the transcript later.

3 These hearings are open to the public, and there is an open line that  
4 will allow the public to view today's hearing. I don't expect any confidential  
5 information, but if you foresee something along those lines, just pause,  
6 speak up, and we'll figure out how to deal with that. And unless there's any  
7 questions or concerns, we can get started.

8 Petitioner? And as you approach, if you could, tell me how much  
9 time you would like to reserve.

10 MR. STEPHENS: Thank you, Your Honor. We'd like to reserve ten  
11 minutes for rebuttal.

12 JUDGE BARRETT: All right. So that leaves you with 35, right?

13 MR. STEPHENS: Yes.

14 JUDGE BARRETT: All right. Whenever you're ready.

15 MR. STEPHENS: May it please the Board. My name is Nicholas  
16 Stephens. I'm presenting today on behalf of the petitioner, Anker  
17 Innovations, Limited, and I'm joined by lead counsel for Anker, Michael  
18 Hawkins.

19 JUDGE BARRETT: Could you please speak into the microphone?

20 MR. STEPHENS: Is this better, Your Honor? Testing?

21 JUDGE BARRETT: Judge Szpondowski, are you -- can you hear  
22 okay?

23 JUDGE SZPONDOWSKI: Could you just say one more thing?

24 MR. STEPHENS: Testing? Is this better?

25 JUDGE SZPONDOWSKI: Yes.

26 MR. STEPHENS: Okay.

1 JUDGE SZPONDOWSKI: It's much better. Thank you.

2 MR. STEPHENS: All right. Thank you.

3 JUDGE SZPONDOWSKI: Thank you.

4 MR. STEPHENS: I'd like to forward to slide 7 of Petitioner's  
5 demonstratives, please.

6 And on this slide, we outlined the grounds on which this proceeding  
7 was instituted. You can see we have got two sets of grounds, the first being  
8 based on the primary reference of Onishi and the second based on the  
9 primary reference, Baarman392.

10 We also submitted various additional evidence, including the expert  
11 declarations of Dr. Gary Woods, a professor of applied physics and electrical  
12 and computer engineering at Rice University, in support of the Petition  
13 grounds. And Dr. Woods, in fact, submitted two declarations in this  
14 proceeding. The first is Exhibit 1003 submitted with the Petition. And the  
15 second being Exhibit 1101 submitted with our Petitioner's reply.

16 I just note that Dr. Woods's second declaration responded to many of  
17 the objections that Patent Owner raised and Patent Owner's response and to  
18 the objections raised by Patent Owner's expert, Dr. Mercier. As you'll note  
19 on the slides, bear in mind that Patent Owner elected not to cross examine  
20 Dr. Woods on his reply declaration.

21 Turn to slide 8, please.

22 After Anker filed its petition in the case, Patent Owner filed a  
23 preliminary response urging denial of institution based on both discretionary  
24 and merits based reasons. The Board considered those arguments, but  
25 determined that the petition had sufficiently demonstrated a reasonable  
26 likelihood that the challenge claims were obvious. Trial was accordingly

1 instituted. And since institution, Patent Owners briefing has focused on just  
2 a handful of issues, which we've outlined on slide 8.

3 For example, with respect to claim element 1.7, this claim refers to a  
4 driving circuit configured and operable to produce an oscillating voltage at a  
5 transmission frequency that is quote, "substantially different from a  
6 characteristic resonant frequency of the inductive couple." Patent Owner  
7 disputes Onishi's environment's disclosure of this limitation. But as we'll  
8 see, Patent Owner's arguments rest on an erroneously narrow construction of  
9 the substantially different limitation, which in fact fails to distinguish the  
10 prior art any event.

11 Patent Owner also challenges the combined ability of the prior art  
12 references, the prior art satisfaction of dependent claim two in each ground.  
13 And with respect to the Onishi ground, the prior art satisfaction of element  
14 1.4, which refers to an inductive coupling having a characteristic resonant  
15 frequency.

16 During the time on direct, I hope to address each of these issues. And  
17 I'll start by addressing the construction of the substantially different from  
18 limitation recited in element 1.7. After the construction, I'll plan to address  
19 first, the Baarman392 grounds before turning to Onishi. While this is the  
20 opposite order as presented in the Petition, there's been fewer objections  
21 raised to the Baarman392 grounds.

22 Slide 10, please.

23 So as noted, a key issue that's been debated in this proceeding is the  
24 scope of the limitation recited in element 1.7. The claim language is shown  
25 here at the top of slide 10, which refers to a driving circuit configured and  
26 operable to produce said oscillating voltage at a transmission frequency

1 substantially different from said characteristic resonant frequency of the  
2 inductive couple. The meaning of a transmission frequency that's  
3 substantially different from an inductive couple isn't evident from the claim  
4 language itself. So we must instead look to the intrinsic evidence and  
5 particularly the file history to better understand the meaning of this claim  
6 phrase.

7 JUDGE FLAX: Counsel, one question about this clause. What would  
8 be structurally different in a driving circuit configured to do this? I mean,  
9 what -- how does it have to be configured to run this but be substantially  
10 different from a characteristic resonant frequency?

11 MR. STEPHENS: That's a great question, Your Honor. I think there  
12 are kind of two ways that you could look at this limitation. Either the  
13 driving circuit has to be capable of producing a -- an oscillating driving  
14 voltage that's substantially different from the characteristic resonant  
15 frequency. Or structurally the in operation, the driving circuit, would  
16 actually have to produce a driving voltage that's substantially different.

17 And we don't think Your Honors have to resolve that question because  
18 the way that we've mapped the prior art and what the prior art discloses, that  
19 even under, I think, the narrowest construction of what configured and  
20 operable to would mean, it, in operation, does select and produce a driving  
21 voltage that's substantially different from the characteristic resonant  
22 frequency.

23 JUDGE FLAX: I guess my question is this: What would prevent, you  
24 know, any inductive charging device that was in existence, having a normal  
25 structure, from doing this, but just operated to do that?

1 MR. STEPHENS: Well, I -- for example, there was a reference  
2 applied during prosecution, the Malpas reference, which is, I think a -- an  
3 example of a driving circuit that drove the operating frequency at resonance.  
4 So you were trying to maintain the transmission frequency at the resonant  
5 frequency of the circuit itself, and you might tune that circuit, but you're  
6 always trying to maintain the frequency at resonance.

7 I think what the claim language here is getting at is that the driving  
8 circuit operates off resonance, specifically substantially different from -- at a  
9 transmission frequency that's substantially different from the characteristic  
10 resonant frequency.

11 JUDGE FLAX: Okay.

12 JUDGE BARRETT: Maybe what Judge Flax may be going for is --  
13 and I can't remember exactly how Malpas was configured, but even if it was  
14 always desired to operate at near resonance --

15 MR. STEPHENS: Yes.

16 JUDGE BARRETT: -- if it could vary the frequency throughout the  
17 curve, would that satisfy the claim in your view?

18 MR. STEPHENS: It would certainly satisfy the claim if the driving  
19 circuit were to drive at a frequency that were -- was off resonance  
20 substantially different from the characteristic resonant frequency. We think  
21 the prior art in the petition is differentiated from Malpas in that respect. It's  
22 not driving at resonance. Specifically, it's driving at the off resonant  
23 frequencies.

24 JUDGE BARRETT: Okay. Thank you.

25 MR. STEPHENS: Referring to the prosecution history on slide 10,  
26 we can see that the applicant made remarks at the time of an amendment in

1 which they introduced this limitation. And the applicant explained that one  
2 having ordinary skill in the art, one would appreciate that the term  
3 substantially different from set characteristic resonant frequency should be  
4 interpreted to mean that the frequency of the driving voltage is selected so as  
5 to lie within one of the near linear regions of a frequency amplitude graph  
6 associated with the inductive couple.

7 Noticeably, that's all that the applicant mentioned in the prosecution  
8 history. And so as the Petition and Dr. Woods explained, regardless of the  
9 outermost bounds of this claim scope, the specification plainly establishes  
10 that it must at least encompass the frequencies within one of the near linear  
11 regions.

12 Slide 11.

13 And Your Honor has addressed this construction in the institution  
14 decision, agreeing that the claim phrase encompasses frequencies within the  
15 near linear region eight or as indicated in the file history.

16 Slide 12, please.

17 Now I'd just like to briefly touch on the Patent Owner's construction  
18 and first looking at how their position has shifted over time. So in 2015 is  
19 when they made the amendment and submitted the remarks to the examiner  
20 in which they said that this claim phrase should be interpreted to mean that  
21 the frequency of the driving voltage is selected so as to lie within the near  
22 linear region. And that's all that was said about this limitation at the time.

23 Fast-forward nine years to 2024, and in their preliminary response,  
24 after this petition was filed, the Patent Owner pointed to not just the  
25 requirement for operating in the near linear region, which is what they had  
26 represented to the examiner and during prosecution, they specifically also

1 added a requirement that the substantially different frequency allow for  
2 some incremental change in frequency law remaining in the near linear  
3 regions.

4 And then if we go to the next slide, please, slide 13.

5 After institution, the Patent Owner adjusted its articulation of the  
6 construction once again. And so in the Patent Owner's response, this is an  
7 excerpt from Page 29 of the POR, we can see that the Patent Owner is, it  
8 seems to be, attempting to import two limitations. One is that the  
9 substantially different frequency will enable a linear control technique. And  
10 then the second, what they had articulated earlier in the POPR, that the  
11 construction -- or that the substantially different frequency would allow for  
12 some incremental change.

13 Slide 13, please. Slide 14. I'm sorry.

14 Now Patent Owner's construction in our view is legally improper  
15 under established Federal Circuit precedent, because it attempts to import  
16 unclaimed limitations for mere examples or preferred embodiments in the  
17 specification. Dr. Woods explained at Paragraphs 10 to 11 of his reply  
18 declaration that none of the descriptions were substantially different in the  
19 specification itself include the exact substance of Patent Owner's  
20 construction. And in fact, there's no description of the invention  
21 lexicography or anything else in the specification that would mandate that  
22 either linear control or an incremental change in frequency are essential  
23 elements of the invention.

24 In absence of such description, the law is clear that we can't read those  
25 limitations from the specification into the claims. We've cited some of the  
26 case -- some case law here in slide 14 that's also in our Petitioner's reply.

1 Slide 15, please.

2 So to illustrate how this specification lacks any basis for reading in  
3 these additional limitations, we've excerpted representative samples of  
4 disclosures from the '696 patent on this slide. And importantly, I'd point out  
5 that these are some of the same disclosures that the patent owner itself cites  
6 in the patent owner's response in support of its construction. But as we can  
7 see, the specification disclosure provides no lexicography or the like. Patent  
8 Owner instead cites to merely preferred or exemplary or optional features.

9 For example, at the left of slide 15, from column 4 of the '696 patent,  
10 the first sentence reads, "Preferably, the transmission frequency lies within a  
11 range in which induced voltage varies approximately linearly with  
12 frequency." The next sentence begins with, "Optionally." And importantly,  
13 I'll point to the excerpt on the right side of the slide, at the bottom, from  
14 column 21, Patent Owner supports its construction by pointing to portions of  
15 the specification that describe the use of feedback signals received by the  
16 wireless that caused the charger to incrementally increase or decrease the  
17 transmission frequency.

18 And the disclosure corresponding to incremental increases or  
19 decreases, as shown in this excerpt from column 21. So I'll read the last two  
20 sentences here from the bottom excerpt: "The induced voltage can be  
21 increased by reducing the transmission frequency and can be reduced by  
22 increasing the transmission frequency. For example, an increase in  
23 transmission frequency of  $\Delta F$  produces a decrease in induced voltage of  
24  $\Delta V$ ." But notice the last sentence begins with the two words, "for  
25 example." Patent Owner's entire attempt to import a requirement for linear  
26 control and for incremental frequency changes is derived almost entirely

1 from this disclosure of the "for example" sentence and figure 6b, but relying  
2 on an -- a mere example to read in limitations into the claim is improper.

3 Slide 16, please.

4 And finally, I just point back to the prosecution history. On this slide,  
5 we've reproduced a longer excerpt of what the applicant's remarks were from  
6 the office action response that explained, at the time, the meaning of  
7 substantially different. And again, we see no other requirement here for a  
8 substantially different frequency to be anything other than a frequency that  
9 lies in the near linear region.

10 Next slide, please.

11 So I'll turn to -- next to the Baarman<sup>392</sup> grounds. But I'll pause for a  
12 moment if there's any questions regarding the construction from Your  
13 Honors.

14 JUDGE BARRETT: I don't know if we'll need to decide this but is  
15 "substantially" quantitative or qualitative?

16 MR. STEPHENS: I think what we can look at is the specification of  
17 the '696 patent, because I think that's the best guide that we have. We know  
18 from the prosecution history that the patent owner has -- or the applicant has  
19 told us that it must lie in the near linear region. The near linear region, I  
20 think, is going to depend on the context and the application. You know,  
21 what is -- what suffices as to be sufficiently linear might vary depending on  
22 the context. So from that sense, I think it's qualitative. There's no --  
23 certainly no numerical bounds or quantitative guidance given the  
24 specification as to what near linear means.

25 JUDGE BARRETT: Well, I'll make some statements and then -- and  
26 you can react and Patent Owner can react. I was looking at the prosecution

1 history and how the applicant distinguished Malpas seemed to be  
2 quantitative -- or quantitative saying things like, Malpas describes systems  
3 of which the transmission frequency is selected to be as close as possible to  
4 the natural frequency as opposed to the -- and I'm paraphrasing -- as opposed  
5 to the claimed invention in which the transmission frequency is selected to  
6 be substantially different. That feels quantitative. And I think there's other  
7 places in the prosecution history. So that's just me talking. But if you have  
8 any reaction, I'd appreciate it.

9 MR. STEPHENS: I think what we know from the specification is that  
10 at the resonant frequency, the specification talks about the slope of the graph  
11 being the most steep or maybe the second derivative, perhaps of the graph,  
12 being highest at that point. And so at some point, that's going to decrease  
13 and become substantially linear. So from that respect, I think you could say  
14 it's quantitative, but again, there's no specific description of any numerical  
15 kind of guidance in the specification as to when do you transition from the  
16 resonance peak to the near linear region? It's kind of more qualitatively  
17 described is the way we've seen it from the specification.

18 JUDGE BARRETT: Okay. Thank you.

19 MR. STEPHENS: I'll turn next to the second issue on the  
20 Baarman<sup>392</sup> grounds and its satisfaction of the substantially different from  
21 limitation. On slide 18, we've reproduced figure 3 from Baarman, along  
22 with Paragraph 38, the description of figure 3. And what Baarman shows  
23 here is its frequency curve versus power transfer efficiency. As you can see,  
24 just like figure 6b and the '696 patent at the characteristic resonant  
25 frequency, the power transfer efficiency is highest at its peak. Then there's  
26 two other frequencies labeled on this graph, frequency B and frequency A.

1 And Baarman explains in Paragraph 38 that the inverter 10 is operated  
2 between frequency A and frequency B. So it's not merely selecting between  
3 just operating at frequency B and operating at frequency A. Baarman is  
4 applying a control algorithm in which it gradually moves up the slope of the  
5 curve in figure 3 and gradually moves down depending on feedback signals  
6 received from the device that's being charged. So as a result, you can see  
7 between A and B, this is the same region that corresponds to the near linear  
8 region in the -- in figure 6b of '696 patent and by moving incrementally up  
9 from frequency A, frequency B, and downward. The driving circuit is  
10 operating at substantially different frequencies, frequencies that are  
11 substantially different from the characteristic resonant frequency.

12 Slide 19, please.

13 On this slide, we show Baarman's frequency amplitude graph from  
14 figure 3, alongside the graph from figure 6b of the '696 patent. Again, it's  
15 difficult not to notice the overlap here between these two figures. To this  
16 point, Dr. Woods testified in his first declaration that the strikingly similar  
17 positions of Baarman392's transmission frequencies between A and B and  
18 Baarman are -- excuse me -- are substantially identical to the frequencies  
19 shown in figure 6b of the '696 patent.

20 Slide 20, please.

21 And Dr. Woods's analysis is confirmed and corroborated by reason  
22 and the admission of Patent Owner's own expert, Dr. Mercier. So at his  
23 deposition, Dr. Mercier characterized the frequency curves in Baarman392  
24 and figures 6b of the '696 patent as having a generally parabolic shape. We  
25 asked Dr. Mercier do all parabolic frequency curves for an inductive power  
26 transfer -- transmission system have an approximately linear region? After

1 thinking for some time, he -- his response was, I can't think of a counter  
2 example at the moment. That's in the deposition transcript at Exhibit 1102 at  
3 Page 29, Line 7 through 15. So we know that there is a -- an -- a near linear  
4 region between the frequencies A and B. And then if we look at the control  
5 algorithm that's represented in the flow chart in figure 7 on slide 20, by  
6 virtue of Baarman's incremental increases and decreases in frequencies in  
7 that operating range from A to B, it's traversing the near linear region,  
8 selecting frequencies for driving the charging circuit in the near linear  
9 region.

10 Slide 21, please.

11 Now, Patent Owners generally raised three objections to Baarman's  
12 satisfaction development 1.7. I'd like to address each briefly in turn. As  
13 shown in slide 21, Patent Owner first notes that Paragraph 38 of Baarman  
14 describes frequency B as "somewhat less than the resonant frequency," and  
15 Patent Owner contends that "somewhat less" is not substantially different.  
16 We disagree for two reasons. First, frequency B is only a single frequency  
17 at the very edge of the operating range in Baarman's graph. Claim 1 is  
18 satisfied if any transmission frequency in the range from A to B is in the  
19 near linear region, which is certainly the case for the reason that we've just  
20 reviewed. So we can't look at just frequency B, but we look at that entire  
21 range from A to B.

22 Turn to slide 23, please.

23 And Patent Owner's second objection is that Baarman<sup>392</sup> explains in  
24 Paragraph 38 that between frequency A and frequency B, the power transfer  
25 curve can be piece-wise linearized by a software lookup table located in the  
26 controller 20.

1 JUDGE FLAX: Counsel, can I ask you a question about this  
2 reference? I would agree with you that the lines on its figure 3 and the  
3 patent's figure 6b have a similar shape. What is the power transfer  
4 efficiency and how does that relate to operational voltage? So in the  
5 reference, the graph is showing on the Y-axis, right? The power transfer  
6 efficiency and the respective axis in the patent is operational voltage. So are  
7 those equivalent? Are they the same thing? How do they relate?

8 MR. STEPHENS: Great question, Your Honor. They are not exactly  
9 the same thing. Power transfer efficiency, as you noted, is what's plotted in  
10 Baarman at figure 6b. That's the induced voltage and the secondary coil in  
11 the '696 patent. However, the distinction is really a distinction without a  
12 difference in terms of the shape of the power transfer curve and where the  
13 frequencies in the near linear region would appear. I note that this has not  
14 been an issue that's been raised at all by -- in the briefing by the patent  
15 owner. But nonetheless, in Dr. Woods' reply declaration, he's spoken about  
16 how regardless of whether you're plotting power, voltage, or current, the  
17 frequency amplitude graph would have the same shape. And you would see  
18 the same near linear region in each curve. That testimony was in the context  
19 of Onishi when he was responding to objections that the patent owner had  
20 raised on Onishi's curve. But I think the same principle holds true also for  
21 Baarman.

22 JUDGE FLAX: So if you're operating a device, according to these  
23 curves, you would be manipulating it in the same way; is that correct?

24 MR. STEPHENS: Yes.

25 JUDGE FLAX: Okay. Thank you.

1 JUDGE BARRETT: So you just -- if I understood you correctly, you  
2 said Dr. Woods testified regarding how Onishi's curve would be similar to  
3 the curve in the challenge patent. I take it from that that we don't have the  
4 same testimony for Baarman?

5 MR. STEPHENS: Well, I think the -- and I can get you specific  
6 citations to his reply testimony. He was talking as a general matter. So it's -  
7 - I think his testimony there is applicable to both Onishi grounds and  
8 Baarman.

9 JUDGE BARRETT: Okay. Thank you.

10 MR. STEPHENS: The other thing I point out there is that that  
11 testimony is completely uncontested in the record. Again, the Patent Owner  
12 elected not to cross-examine Dr. Woods on that reply testimony. And even  
13 if you look at the sur-reply after we submitted the reply and that testimony,  
14 this issue was never raised in the patent owner's response, but again, never  
15 raised in the sur-reply.

16 Again on slide 23, the second objection they raise is that for the range  
17 between frequency A and frequency B, this range can be piecewise  
18 linearized. And we believe this objection also lacks merit. Dr. Woods has  
19 explained that there's nothing inconsistent about operating in the near linear  
20 region and performing piecewise linearization as described in Baarman.  
21 Again, we're talking about near linear regions, not completely linear regions.  
22 Even in figure 6b, that's a generally parabolic shape. So you'll not find a  
23 completely linear region. It's always possible to further linearize. Dr.  
24 Woods said there's a variety of reasons that you might want to do that for  
25 tighter control, you know, more predictable behavior.

26 Slide 24, please.

1           And finally Patent Owner's third objection is that the portion between  
2 frequency B and the beginning of the near linear region is performed non-  
3 linearly. And again, this is based on their flawed assumption that, A, the  
4 claim requires a linear control technique. It does not, as we've just  
5 described, but even if it did, Baarman392 operates just like figure 6b in the  
6 '696 patent. It's incrementally increasing and decreasing frequencies along  
7 the side of the curve that is where the near linear region is. So it's operating  
8 linearly.

9           Slide 25, please.

10           I'll briefly just touch on a couple items and the motivations to combine  
11 Baarman392 with Partovi. So slide 26, the Petition relied on Partovi for its  
12 teaching of an alignment mechanism that's configured to facilitate alignment  
13 between the primary inductive outlet and the power receiver. That's claim  
14 element -- for claim element 1.3 specifically and Partovi described the use of  
15 magnets and mechanical elements and the like to basically help a user  
16 properly position the charging -- the mobile phone on a wireless charger.

17           And the Petition explained that it would've been obvious for a  
18 POSITA to combine these references to incorporate an alignment  
19 mechanism as taught in Partovi in to Baarman392's device. And as shown  
20 on slide 26, we identified multiple reasons to combine. Some of these relate  
21 to the efficiency of the inductive couple to more conveniently allow a user to  
22 rapidly place the device on the charging platform and to help populations  
23 that have -- may have hearing or visual impairments to properly place the  
24 device on the charger. Noticeably, though, Patent Owner has never  
25 addressed the Petition's second or third motivations. So even though they do  
26 raise an objection that relates to the tight coupling that would -- they alleged

1 would result from the combination, these other motivations stand as  
2 independent reasons to combine.

3 Next slide, please.

4 As to their objection, I'll just briefly mention that there's no  
5 incompatibility between these two references. Patent Owner points to  
6 disclosure of Paragraph 38 of Baarman that describes a loose coupling.  
7 Nonetheless, Baarman says nothing about requiring loose coupling. And  
8 even if loose coupling were, kind of, your target, an alignment mechanism,  
9 as described in Partovi, would still be useful to achieve even loose coupling  
10 because you don't want the coils of your charger and the, say, your mobile  
11 phone to be so far apart that there would be no, you know, practical  
12 inductive coupling between them. And Dr. Woods has explained this in his  
13 reply declaration.

14 Slide 31, please.

15 Finally, I'd just like to touch on dependent claim 2 in the Baarman  
16 grounds.

17 Next, slide 32.

18 Claim 2 depends from claim 1 and adds that the driver's further  
19 configured to increase the transmission frequency when said first signal is  
20 detected or decrease the transmission frequency when a second signal is  
21 detected by the detector. And again, figure 7 of Baarman392, if you look at  
22 that control algorithm, it's doing exactly what's described in the '696 patent;  
23 incrementally increasing the transmission frequency to decrease the supply  
24 power and decreasing the transmission frequency toward resonance when --  
25 incrementally when you want to increase power. And that's illustrated, for

1 example, by the blocks that we've highlighted on the slide in figure 7, 116  
2 and 118, I believe.

3 Slide 34, please.

4 In the Onishi grounds, Patent Owner has contested Onishi satisfaction  
5 of element 1.4, which refers to an inductive coupling having a characteristic  
6 resonant frequency.

7 Slide 35.

8 And for this, I would note, as we reproduced on slide 35, figure 4  
9 shows the frequency amplitude graph from Onishi.

10 On the X-axis is frequency, and we can see four frequencies labeled;  
11 F0, F1, F2, and F3. F0 is the characteristic resonant frequency, and we can  
12 see that as the peak of the curve.

13 Noticeably, and this is the label from Onishi in figure 4. F0 is  
14 identified as the resonance frequency in load connected state. So Patent  
15 Owner has argued that what's shown in figure 4 is somehow not the  
16 characteristic resonant frequency of the inductive couple, but rather  
17 characteristic resonant frequency of a single coil in isolation. But they're  
18 essentially trying to rewrite what's shown in figure 4 which is a resonance  
19 frequency in the load connected state. And there's additional context that  
20 shows that what's shown in figure 4 is the curve for the inductive couple.

21 So Paragraph 137 shows that -- Onishi has described the primary coil  
22 L1 is electromagnetically coupled with the secondary coil L2 when the  
23 telephone 510 is placed on the charger 500. And then Paragraph 180  
24 specifically described figure 4, and it says, what's shown in figure 4 are the  
25 resonance characteristics of the primary coil L1 and the secondary coil L2  
26 when the portable telephone 510 is placed on the charger 500.

1 Slide 38, please.

2 As to Onishi's satisfaction of element 1.7 and the substantially  
3 different from limitation --

4 Turn to slide 39.

5 As we discussed earlier, this limitation refers to the frequency -- the  
6 transmission frequency being in the near linear region of the frequency  
7 amplitude graph.

8 Slide 40.

9 And there are three operating frequencies that are given in Onishi,  
10 each of which qualifies as a transmission frequency that's substantially  
11 different from the characteristic resonant frequency because they all lie  
12 within the near linear region. And Dr. Woods explained this in his initial  
13 declaration submitted with the Petition.

14 So just comparing the graphs that are shown in figure 4 of Onishi  
15 against the graph -- figure 6b in the '696 patent, we can see that F1, F2, and  
16 F3 all lie at the side of the slope in that near linear region between the  
17 resonance peak and the tail end of the curve, the same region of the graph in  
18 which the near linear region is set to B in figure 6b.

19 Next slide, please.

20 Patent Owner raised various, kind of, objections to whether F1, F2,  
21 and F3 are actually in the near linear region. We've developed substantial  
22 resonance in -- evidence, I'm sorry, in the record, especially in Dr. Woods's  
23 reply declaration.

24 I won't review that all here, unless Your Honors have questions, but I  
25 would like to touch on slide 44 -- I'm sorry, 43. The Patent Owner's

1 contention that the Petition's reliance on Onishi's figure 4 is improper  
2 because it's allegedly not drawn to scale and it lacks vertical axis labels.

3 And this gets to your question earlier, Judge Flax. In Onishi, Onishi  
4 doesn't specifically tell us what's on the Y-axis, but Paragraph 43 in Dr.  
5 Woods' reply declaration, he addresses this and he says that a POSITA  
6 would've readily known that the Y-axis relates to a measurement, a voltage,  
7 current, or power in the system indicative of power transfer, and that's  
8 sufficient for a POSITA to determine that frequencies F1, F2, and F3 are in  
9 the -- are in the near linear region. There's more detail in the declaration as  
10 to that issue as well.

11 But I'd also note that as to it being drawn to scale or not, we know that  
12 figure 6b in the '696 patent itself is not drawn to scale because at column 9,  
13 Lines 3 to 8 of the '696 patent, the specification explains that the figures are  
14 not necessarily to scale. "Some features may be exaggerated or minimized  
15 to show details of particular components. Therefore, specific structural and  
16 functional details disclosed herein are not to be interpreted as limiting, but  
17 merely as a representative basis for teaching one skilled in the art to  
18 variously employ the present invention."

19 So we can see, kind of, two standards, I think, being applied to a  
20 POSITA in their review of the '696 specification versus their review of the  
21 prior art. In the '696 patent, the patent owner and the applicant tells us that a  
22 POSITA would know how to interpret these graphs and know when the  
23 frequencies lie in the near linear region. I don't give any further detail in that  
24 regard, and there's no guarantee that the figures are even drawn to scale.  
25 And yet, when we look at Baarman or we look at Onishi, they, you know,  
26 raise all these questions about what's shown in these figures and question

1 whether it -- you treat a POSITA as an automaton. They're not. They come  
2 to bear with the knowledge of one of skilled in the art in this field, and we  
3 submit that Onishi and Baarman both submit at least -- both disclose at least  
4 the same level of disclosure as the '696 patent. And so a POSITA would  
5 understand that the frequencies that are disclosed in Onishi are in the near  
6 linear region.

7 Slide 47, please.

8 JUDGE BARRETT: Counsel, I'm sure you see your time is up. You  
9 may continue going, of course.

10 MR. STEPHENS: Thank you. I see. Is that one minute until the end  
11 of --

12 JUDGE BARRETT: You're cutting into your ten minutes.

13 MR. STEPHENS: 10 minutes, okay.

14 I'd look -- I note just on the Onishi grounds' motivation to combine  
15 arguments. As with the motivation to combine issues on Baarman, the  
16 petition addressed advanced multiple motivations to combine. Most of those  
17 motivations are not object -- not contested in the patent owner's response or  
18 the sort of reply.

19 And then as to dependent claim 2, next slide, please.

20 Yeah.

21 And as to dependent claim 2, the objection is that Onishi operates  
22 nonlinearly. That is again based on their erroneous interpretation of 1.7 as  
23 requiring linear control. But regardless, we know that since F1, F2, and F3  
24 in Onishi all lie in the near linear region, if you're transitioning from F1 to  
25 F3 or vice versa, that would be a linear control technique.

1           If there are no further questions, I'll reserve the balance of the time for  
2 rebuttal.

3           JUDGE BARRETT: Okay. Thank you.

4           MR. STEPHENS: Thank you.

5           JUDGE BARRETT: How all you getting set up, Counselor? How  
6 much time would you like to reserve?

7           MR. PLUTA: Fifteen minutes, Your Honor.

8           JUDGE BARRETT: Fifteen.

9           Whenever you're ready.

10          MR. PLUTA: All right. Good afternoon. May it please the Board.

11          I'm on slide 5 of our demonstratives. The '696 patent is directed to an  
12 inductive power transmission system. For example, an inductive power  
13 outlet may include a primary inductive coil connected to a power supply and  
14 a driver configured to apply an oscillating voltage across the primary coil.

15          The '696 patent discloses the selection of a transmission frequency  $F$   
16 sub  $t$  within linear or near linear regions of a frequency amplitude graph,  
17 relative to the resonance frequency,  $F$  sub  $3$ ,  $F$  sub  $R$  of the inductive couple.  
18 And this is best exemplified in figure 6 of -- 6b of the '696 patent, which  
19 shows voltage on the Y-axis and transmission frequency on the X-axis.

20          And the '696 patent explains that the voltage is at its highest when the  
21 transmission frequency is equal to the resonance frequency  $F$  sub  $R$ . And it  
22 further explains that this means that the slope of the frequency voltage graph  
23 is steepest in the region's 4a and 4b to either side of the resonance peak.

24          JUDGE BARRETT: Is that correct, Counselor? It -- I may be  
25 misunderstanding it, but it seems like the linear regions are steeper than 4a  
26 and 4b.

1           MR. PLUTA: The patent describes the region's 4a and 4b as in the  
2 steep regions just off the resonance peak, Your Honor.

3           JUDGE BARRETT: Okay.

4           MR. PLUTA: And I think that's consistent with the -- with drawing  
5 and with the specifications. So small variations in frequency result in a large  
6 change in induced voltage, particularly at the top of the peak there, and  
7 linear operation then is achieved by transmitting a driving voltage which  
8 oscillates at a transmission frequency substantially different from the  
9 resonance frequency of the inductive couple.

10           The '696 patent therefore teaches a linear control technique for  
11 regulating power transfer. For example, column 21, Line 61 through 63,  
12 "induced voltage can be increased by reducing the transmission frequency  
13 and be reduced by increasing the transmission frequency."

14           I'd like to go to slide 13 and address the party's claim construction  
15 dispute. And the party's dispute, as my friend acknowledged, centers around  
16 claim element 1.7 which states, "wherein said driving circuit is configured  
17 and operable to produce said oscillating driving voltage at a transmission  
18 frequency substantially different from said characteristic presence and  
19 frequency of said inductive couple." Our expert, Dr. Mercier explained that  
20 a person of ordinary skill in the art would interpret this claim element to  
21 mean, one, that frequencies lie within the linear or near linear regions of a  
22 frequency amplitude graph, and two, which is the point of dispute here,  
23 allow for some incremental change, increase or decrease, in frequency while  
24 remaining in the near linear or linear regions of the frequency amplitude  
25 graph.

1 JUDGE FLAX: So, Counsel, on claim construction, there's been a  
2 flurry of cases out of the Federal Circuit as of late that are instructing us to  
3 pay very, very close attention to the prosecution history. And in the petition,  
4 they pointed out a pretty clear statement from Patent Owner during  
5 prosecution as to what this language means: "The frequency" -- I'll quote it  
6 from the petition: "The frequency of the driving voltage is selected so as to  
7 lie within one of the near linear regions of a frequency amplitude graph  
8 associated with the inductive couple." And Patent Owner said that's how it  
9 should be interpreted. So why would we do anything other than that?

10 MR. PLUTA: Sure, Your Honor, and we don't disagree that that's part  
11 of the interpretation of this claim. It's set forth in the prosecution history. I -  
12 - the party's disagreement don't -- doesn't lie there. I think the second part of  
13 the construction, and that gets to your question, Judge Flax, to Petitioners as  
14 far as the structure of the driving circuit. The driving -- the claim language  
15 says, "It's operable to produce an oscillating driving voltage," et cetera, et  
16 cetera.

17 How does it do that? We have some -- we certainly have support in  
18 the specification as to how it explains it does that. We also have claims 2  
19 and 3 and several other claims that talk about an alteration or an incremental  
20 change in the frequency, applying, for example, signal detectors, which are  
21 in claim 2.

22 So our position is that explaining the claim by saying it allows for  
23 some incremental change encompasses exactly the structural features of how  
24 the driving circuit gets that done. And that's clear from the subsequent  
25 claims. We're not suggesting we need to specify as to the -- whether it's a  
26 signal detector or some other type of component that's going to affect that

1 change, just that it allows for that change. So you have to be in this  
2 particular region and it has to allow for this incremental change when you're  
3 within that region to affect the purposes of the claim.

4 JUDGE BARRETT: The part about an incremental change seems to  
5 require two points, where you start and where you end. I'm reading claim  
6 limitation 1.7 as only directed to one single point. It just has to be a circuit  
7 configured to be at that one particular frequency. So I'm struggling to see  
8 why we would talk about incremental, which, again, it from my view would  
9 require two different points.

10 MR. PLUTA: I think, Your Honor, the claim limitation 1.7 is in  
11 reference to the characteristic resonant frequency, so I would suggest  
12 respectfully that that is the reference to which you need to be changing it  
13 with respect to within that near-linear region. So when you do an  
14 incremental change, for example, if for some reason the first frequency is  
15 not providing the voltage that is proper for whatever application is going on,  
16 that incremental change can move from point, you know, A1 to A2 relative  
17 to the characteristic resonance frequency to achieve the voltage that is  
18 desired for whatever particular application that is being sought.

19 JUDGE BARRETT: So let me think through this hypothetical. If we  
20 -- our starting point is, say, way out on the tail of the curve where everybody  
21 would agree that's not in the near-linear region, and I move an incremental  
22 amount and now I'm in what everybody would agree is the near-linear  
23 region, are you saying that would not be satisfied because it's not moving  
24 linearly?

25 MR. PLUTA: Just to understand your -- I think you are, but just -- so  
26 we're in the near-linear region; is that --

1 JUDGE BARRETT: We can strike my inarticulate question and  
2 move on. But I was thinking if you're moving from the -- what is outside of  
3 whatever is substantially different into -- now I'm getting all confused.

4 If you're moving into the near-linear region, that's an incremental  
5 change, but both the points were not in the near-linear region?

6 MR. PLUTA: Right. And you could be -- if I understand the  
7 question, I -- you could certainly be in the flat clearly nonlinear region and  
8 decide you need to be in the near-linear region. And -- but to -- and the '696  
9 patent talks about why you want to be in that near-linear region, and that's to  
10 tune the particular voltage and the amplitude, whatever it is, relative to the  
11 frequency. And figure 6d, for example, shows the power monitor monitors  
12 the power received by the electrical load and uses the signal -- the power  
13 received by the electrical load and uses the signal in a feedback loop to  
14 adjust the operational frequency by incremental amounts.

15 If we go to slide 16, the specification touches on this at column 22,  
16 Line 60 through 64. It states, "If the received feedback signal is of the first  
17 type,  $S_{\text{sub } a}$ , then the transmission frequency is increased by an incremental  
18 value, positive  $\Delta F_{\text{sub } 1}$ . If the received feedback is of a second type,  $S_{\text{sub } b}$ ,  
19 then the transmission frequency is decreased by an incremental value,  
20 negative  $\Delta F_{\text{sub } 2}$ . Now, this talks specifically about particular feedback  
21 signals. But I think what that conveys to one skilled in the art with respect  
22 to element 1.7 in claim 1 is that it needs to for some type of incremental  
23 change however that's being perceived by the system, whether it's by a  
24 signal detector as in claim 2 or otherwise.

1 JUDGE FLAX: If we disagree with this position on claim  
2 construction, your point being that this driving circuit has to be able to  
3 adjust, right? That's your point?

4 MR. PLUTA: Yes.

5 JUDGE FLAX: If we disagree with that, and we say that the  
6 interpretation of this 'substantially different' is what you said during  
7 prosecution, where does your case lie?

8 MR. PLUTA: It honestly doesn't affect the case with respect to the  
9 prior art issue in this petition, Your Honor. Because, as we'll get to,  
10 Petitioner hasn't shown the other particular limitations, particularly  
11 limitation 1.4 and 1.7, in their prior art references with respect to an  
12 inductive couple, and also that the references lie within that near-linear  
13 region as agreed and construed by the Board in the institution decision.

14 So the purpose of this construction is to capture what the driving  
15 circuit is doing with respect to the change in voltage in that near-linear  
16 section to further explain the structure of the driving circuit, which is  
17 operable to affect these claims.

18 And the teaching -- if we go to slide 17, it's further illustrated by  
19 figure 6b, which we've had up here before, which shows how the amplitude  
20 of the operational voltage varies according to the transmission frequency.  
21 6b depicts incremental decrease in the induced voltage by incrementally  
22 increasing the transmission frequency. At column 21, Lines 63 through 65,  
23 of the patent, it states, "An increase in transmission frequency of  $\Delta F$   
24 produces a decrease in induced voltage,  $\Delta V$ ."

25 An analogy of maybe why this makes sense with respect to the  
26 structure of the driving circuit might be looking at a car, for example. If we

1 purchase a car and that car was only capable of three discrete speeds, five  
2 miles per hour, 25 miles per hour, and 60 miles per hour, the car wouldn't be  
3 particularly useful for navigating traffic. Being able to select a speed based  
4 on present conditions enables that car to operate efficiently and effectively.

5 JUDGE FLAX: But if you had an oven that only worked at three  
6 temperatures, it would still be effective.

7 MR. PLUTA: An oven?

8 JUDGE FLAX: Yeah. An oven.

9 MR. PLUTA: An oven --

10 JUDGE FLAX: So let's change the analogy.

11 MR. PLUTA: Sure.

12 JUDGE FLAX: Let's say I have an oven that works at 350 degrees,  
13 400 degrees, and 450 degrees. I can cook a lot of stuff. Just like if you have  
14 something that only works at one point on this linear region, it would still  
15 work without adjustment.

16 MR. PLUTA: It would still work depending on -- it -- well, it would  
17 still work if you had a static system. But in these power systems, you have  
18 varying degrees of loads, varying requirements for power, and the ability to  
19 adjust is necessary. For example, if --

20 JUDGE FLAX: Well, let me ask you this. You've got your mobile  
21 phone, you put it on the charger, and you walk away. Once it determines  
22 where along that linear region it needs to adjust because you haven't put it on  
23 the charger exactly right, then it's done. It's going to charge in the way it's  
24 going to charge until you come back and pick it up again, right?

25 MR. PLUTA: It could. That -- I mean, that's the focus of --

26 JUDGE FLAX: Right.

1 MR. PLUTA: -- attempting to put your phone on a charger, right?  
2 But that depends on how you put it on the charger, how tightly the coils are  
3 coupled. So it may charge, it may not charge. And it may draw up more  
4 power, it may not draw up more power. And the goal of the system here is  
5 to adjust that for various variables that would --

6 JUDGE FLAX: Right. So --

7 MR. PLUTA: -- go outside an ideal situation.

8 JUDGE FLAX: -- the prior art discloses an embodiment where once  
9 the phone is fully charged, it stops. Or when you remove your phone, it  
10 knows it and it doesn't apply power any longer. Isn't that the same thing?  
11 What's different about that?

12 MR. PLUTA: I believe you're referencing the Onishi reference with  
13 the low or the power-saving mode?

14 JUDGE FLAX: Right.

15 MR. PLUTA: So that's a situation where the load is not connected.  
16 The couple is disconnected.

17 JUDGE FLAX: Right. And it's recognizing need for adjustment on  
18 the fly, right? So when you put the phone on there, it turns it on and adjusts  
19 it accordingly, right?

20 MR. PLUTA: It turns it on based on what's being sent to it by the  
21 reception side, so to speak.

22 JUDGE BARRETT: I'm going to go back to something you just said.  
23 If I heard you correctly, you said that the -- that f3 in Onishi is when it was  
24 not coupled, but isn't that a point or do you disagree that the curve is a --  
25 represents a couple?

1 MR. PLUTA: In Onishi? No, Your Honor. That's -- and I'm happy  
2 to continue talking about claim construction if the Board has further  
3 questions on that. But otherwise, in response to your question, Judge  
4 Barrett, that would move us into our argument on element 1.4 with respect to  
5 Onishi.

6 JUDGE BARRETT: Yeah. I want to jump into the prior argument,  
7 but let's hit this 1.4 real quick. So as it sounds like the critical language  
8 you're talking about is an inductive couple having a characteristic resonant  
9 frequency. Doesn't every couple have that? Isn't that a -- just a law of  
10 physics?

11 MR. PLUTA: Every couple has a characteristic resonant frequency,  
12 yes.

13 JUDGE BARRETT: So why are you arguing that it's missing in the  
14 reference?

15 MR. PLUTA: We're arguing that Petitioner has not shown by a  
16 preponderance of evidence that the figure they heavily rely on, figure 4 of  
17 Onishi, does not show a couple.

18 JUDGE BARRETT: Well, that -- pardon me, but that's a little bit  
19 different. Maybe what I hear you saying is the figure doesn't show a couple,  
20 but Onishi has to have an inductive couple having a characteristic resident  
21 frequency, which I thought you just agreed is a matter of physics. It's  
22 inherent in all couples.

23 MR. PLUTA: And that plays into the argument, our argument, that  
24 Onishi also doesn't disclose 1.7. But it's not our burden to show that Onishi  
25 meets the claim limitations. It's Petitioner's burden. And our arguments are  
26 focused on their lack of explanation or evidence with respect to what Onishi

1 shows. They didn't show that figure 4 by a preponderance of the evidence  
2 shows an inductive couple as required by figure 1.4.

3 JUDGE BARRETT: Okay. I would suggest you focus on 1.7.

4 MR. PLUTA: I will take your advice, Your Honor, and send us to --  
5 and this -- I'll address Onishi first with respect to figure -- or sorry,  
6 limitation 1.7, and then Baarman. On slide 24, so Petitioner's reliance on  
7 Onishi's figure 4 for limitation to argue that frequencies F1, F2, and F3 lie in  
8 the near-linear region of the frequency response curve also fails. Their  
9 entire argument relates to figure 4 and relates to a visual inspection of the  
10 graphs with regards -- no regards to the axes of Onishi. Onishi simply lacks  
11 the specificity shown and disclosed and claimed by element 1.7.

12 If we go to slide 25, figure 4 appears to show discrete points of  
13 frequency, F0, F1 F2, and F3. But it's unclear that the X-axis is actually  
14 showing transmission frequency or any frequency at all. It's not labeled as  
15 such. Onishi describes F1 as normal power transmission and F3 as power-  
16 saving transmission. But Onishi also states, at Paragraph 181 in Onishi, "As  
17 is clear from figure 4, the relationship F1 is greater than F2 is greater than  
18 F3 is satisfied." And this suggests that, if anything, the amplitude of figure 4  
19 is actually the frequency, because that's the only way the relationship  
20 between the discrete frequencies that as disclosed in Onishi meet the  
21 relationship that Onishi requires that F1's greater than F2, is greater than F3.  
22 Onishi's figure 4 is a completely different graph and explanation, relative to  
23 the comparison that petitioner attempts to make with figure 6b of the '696  
24 patent. So that leaves us with that the X -- x-axis in Onishi is entirely  
25 unclear, as to what it's showing. And in Paragraph 180 of Onishi, it says, in

1 figure 4, the horizontal axis indicates the frequency. Okay. And the vertical  
2 axis indicates the resonance peak value.

3 So the vertical axis, to the extent that it's explained at all in Onishi,  
4 says it's the resonance peak value. Thus, at best, figure 4 shows the  
5 relationship between F1, F2, and F3, as opposed to showing actual locations  
6 of the frequencies on a frequency amplitude graph. And without any of  
7 these details, of course, person of ordinary skill in the art would not be able  
8 to draw any conclusions regarding any similarities between figure 4 of  
9 Onishi and figure 6b of the '696 patent, which clearly labels the Y-axis as  
10 operational voltage and the X-axis as transmission frequency.

11 Dr. Mercier testified at Exhibit 1101 at Page 52, Lines 20 through --  
12 12 through 20, "It's very unclear to me what figure 4 is actually representing.  
13 Is this voltage? Is this power? Is this impedance? Is this efficiency? Is this  
14 resistance? Is it inductance?"

15 He said, "I don't know. It's not specified in Onishi. On slide 26, even  
16 assuming the Y-axis is resonance peak, as Onishi describes, the application  
17 of figure 4 would still make no sense because this is not a variable that  
18 varies with frequency. It's a single frequency that's achieved at peak  
19 impedance, voltage, current, or some other electrical characteristic, none of  
20 which is shown by Onishi in figure 4."

21 That is testified to by Dr. Mercier at Paragraph 126 -- 28 of Exhibit  
22 2006. On slide 27, again, Dr. Mercier testified Figure 4 depicts a very  
23 confusing curve due to the lack of labels on the respective axis. And this  
24 confusion leads to why a petitioner has not shown how limitation 1.7 is met  
25 by Onishi.

1 And Onishi, I'm now on slide 28, discloses that the normal power  
2 transmission frequencies, F1 and F2, are at or near resonance. That's Exhibit  
3 1004 at Paragraph 53. So even assuming figure 4's vertical axes refer -- axis  
4 refers to a particular design variable other than frequency, which is in our  
5 view a big assumption, given Onishi's stated position in relation that F1 must  
6 be greater than F2 and greater than F3, and the labeling of the Y-axis,  
7 apparently as resonance peak. Onishi describes frequencies F1 and F2 as  
8 being at or near resonance, which is similar to the Malpas reference in the  
9 prosecution history, distinguished by Applicant during prosecution.

10 JUDGE BARRETT: Stop there for a second. You said Onishi  
11 characterizes them as at or near?

12 MR. PLUTA: Yes, Your Honor.

13 JUDGE BARRETT: Is that your argument or does Onishi state that?

14 MR. PLUTA: Onishi states that at Paragraph 53 of Exhibit 1004,  
15 Your Honor.

16 JUDGE BARRETT: Okay.

17 MR. PLUTA: The power saving mode, F3, as set forth in Onishi, at  
18 that same Paragraph 53, Exhibit 1004, is set apart from the resonance  
19 frequency, such that the -- only a small amount of power is transmitted. And  
20 even Petitioner concedes in its reply at 10, Paragraph 53 only addresses the  
21 relative positions of the transmission frequencies during normal power  
22 transmission and during power saving power transmission.

23 Dr. Woods, on slide 29, testified on cross-examination that on  
24 Onishi's use of the word, apart, would mean distinguishable from. And this  
25 suggests that while frequency F3 is distinguishable from the resonant  
26 frequency, there's no evidence that it substantially different from the

1 resonant frequency. Being apart or distinguishable from resonant frequency  
2 is not sufficient to qualify as substantially different.

3 Dr. Mercier further explains that operating at a transmission frequency  
4 that is substantially different from the resonant frequency, as opposed to  
5 simply different, apart from, or distinguishable from resonant frequency  
6 ensures there's some room for incremental fluctuation of the transmission  
7 frequency without incurring large, unpredictable fluctuations of induced  
8 voltage. That's Exhibit 2006, Paragraph 112. On slide 30, even visually  
9 inspecting Onishi figure 4, nothing in Onishi establishes that the frequency  
10 F3 falls within the near linear region of figure 4.

11 JUDGE BARRETT: I have a question about that. Where would you  
12 characterize the near linear region of the curve shown in figure 4?

13 MR. PLUTA: That's a great question, Your Honor. I think there's no  
14 guidance in Onishi that would enable someone to make that, to answer that  
15 question. Other than, looking at the figure and the way Onishi describes  
16 these frequencies, there is simply not enough information to tell. I mean,  
17 one --

18 JUDGE BARRETT: So you -- why can't you tell from looking at the  
19 figure because it looks a lot like figure 6b from the '696 patent?

20 MR. PLUTA: It does look -- it -- it's a parabola and parabola's have  
21 the same general shape, but the details matter, with respect to what that  
22 parabola is showing. In figure 6b, we know the Y-axis is showing the  
23 operational voltage. We know the X-axis is showing the transmission  
24 frequency. We know from figure 6b, the delta F and the delta V. and how  
25 that is affected along the curve. And we also show in figure 6b and the

1 specification of the '696 patent, what regions are too steep and what regions  
2 are near linear.

3 None of that detail is in figure 4. I could tell you, yeah, it looks like  
4 point -- you know, midway down looks straight. I don't know. I don't know.  
5 It -- there's no Y-axis value. If it is truly resonance peak and frequency,  
6 frequency versus frequency, I have no idea if there would be a straight line  
7 there. It's representative of a parabolic shape, I think that's all we can draw  
8 from that figure.

9 JUDGE BARRETT: Okay. Thank you.

10 MR. PLUTA: And so what does Onishi describe? F3 corresponds to  
11 a region in which little to no power is transmitted to the receiver. I'd like to,  
12 if -- unless the Board had any other questions on Onishi, jump, in the time I  
13 have remaining at least, to the Baarman ground.

14 MR. STEPHENS: Okay.

15 MR. PLUTA: I'd like to move to slide 40. Again, Petitioner relies  
16 solely on Baarman392, and its figure 3, in comparison to the '696 patent's  
17 figure 6b. And it, again relate -- relies on purely a visual inspection of the  
18 graphs, with no regard to the axis labels. As with Onishi, figure 3 of  
19 Baarman is simply not comparable to the '696 patent's figure 6b.

20 The Petition fails to demonstrate that Baarman, which characterizes  
21 operating off resonance is the claim transmission frequency, substantially  
22 different from the characteristic resonant frequency. On slide 41, it's useful  
23 to see what Dr. Mercier testified regarding the '696 patent's figure 6b. He  
24 noted that, 6b is a plot of operational voltage at the output of an inductive  
25 couple. The X-axis is the transmission frequency and the Y-axis is the  
26 operational voltage.

1 Dr. Mercier testified on slide 42 that, The operational voltage in the  
2 '696 patent is the output voltage of the inductive couple. He states, "The  
3 output of the secondary inductor is going to be a sinusoidal-like wave form  
4 in the time domain."

5 And what's figure 6b is showing is the amplitude of what the voltage  
6 would be in the frequency domain. Now, contrary to what's disclosed in the  
7 figure 6b of the '696 patent, Dr. Woods testifies that Baarman's Y-axis is  
8 shown in terms of power transfer efficiency. And that it's the -- that's -- it's  
9 the efficiency of power transfer from the power coil to the secondary coil.

10 And he admits, no other effects or elements of the system are  
11 included. This is just as he says, "Coil to coil power transfer -- transmission  
12 efficiency."

13 So it's unclear, one, that Baarman is showing a coupled system, as Dr.  
14 Mercier testified at Page 56 of Exhibit 1102. The primary coil could be in  
15 isolation, even though there's a load connected to the secondary coil that  
16 could not be coupled.

17 On slide 44, Baarman describes the general operation of its inverter as  
18 in between the range of between frequency A and B, where frequency B is  
19 somewhat less than the resonant frequency. It's Paragraph 38 of Exhibit  
20 1008. But frequency is somewhat less than the resonant frequency are not  
21 substantially different from the resonant frequency as claimed.

22 Now, Dr. Woods attempts to equate them on slide 45, arguing that  
23 since frequency B is not on resonance, it's substantially different. In  
24 essence, Dr. Woods is arguing that any frequency that is different from the  
25 resonant frequency is substantially different. But this reads the substantially  
26 different language right out of the claim element 1.7, and it also excludes off

1 resonant regions, such as those disclosed in the '696 patent, as regions 4a  
2 and 4b.

3 On slide 46, Dr. Woods also testified on cross-examination that  
4 Baarman does not disclose the difference between the two frequencies, other  
5 than that frequency A is farther away from frequency B. And that  
6 attempting to obtain an actual equation of Baarman's figure 3 curve would  
7 be complicated. It's Exhibit 2007 at Page 32, Lines 18 through 33, Line 11.  
8 And on slide 47, Dr. Mercier confirmed the lack of clarity in Baarman's  
9 disclosure. He said, "Frequency B, as described in Baarman, somewhat less  
10 than the resonant frequency and frequency A is some other frequency further  
11 away from that."

12 And Dr. Mercier said, "I think that's pretty much all we can surmise  
13 from the language in Baarman." It's Exhibit 1102, Page 79, Lines 18  
14 through 24. So Baarman does not disclose or describe by a preponderance  
15 of the evidence that either of the frequencies, A or B are within the near  
16 linear region of a frequency amplitude graph.

17 JUDGE BARRETT: Counsel, you understand you're eating into your  
18 time?

19 MR. PLUTA: I understand, Your Honor. I'm just --

20 JUDGE BARRETT: Okay. That's fine.

21 MR. PLUTA: -- going to cover one more point before I sit down,  
22 unless the Board has any other questions. On slide 48, touching on this issue  
23 of Baarman's piece-wise linearization, Petitioner contends that the range  
24 between frequencies A and B are near linear. Baarman describes its power  
25 transfer curve for this range as piece-wise linearized by a software lookup  
26 table and Dr. Woods on slide 49 explains that piece-wise linear function

1 means if you have a curve, you can approximate it more accurately by  
2 treating it as a series of two or more line segments.

3 And Dr. Mercier testifies that Exhibit 2006, Paragraph 155, that this  
4 illustrates Baarman's acknowledgement that the curve between frequency A  
5 and frequency B is non-linear, by the fact that piece-wise linearization is  
6 required.

7 JUDGE BARRETT: Counsel, you -- I understood Patent Owner's  
8 construction to include the near linear. Are you sort of dropping the word  
9 near and you are requiring it -- the (inaudible) to have a linear relationship?

10 MR. PLUTA: No, Your Honor. We're not. And I think I understand  
11 what you're getting at with the question. Piece-wise linearization is not  
12 required for a near linear or a linear curve. You piece-wise linearized  
13 something if the curve is non-linear.

14 JUDGE BARRETT: Well, we're back to the non-linear. I -- a lot of  
15 this, it seems almost like a so what? You're saying, well, this proves that the  
16 curve is not linear, but that doesn't help me when we get to the near linear  
17 part.

18 MR. PLUTA: Our argument with respect to this is that, Petitioner has  
19 not shown that the frequencies, to the extent there are frequencies disclosed,  
20 environment between points A and point B are not in the near linear or linear  
21 region of the curve.

22 JUDGE BARRETT: Okay.

23 MR. PLUTA: By virtue of its requirement that it has to be piece-wise  
24 linearized.

25 JUDGE BARRETT: Okay. Understood.

1 MR. PLUTA: Unless the Board has any further questions, I believe  
2 I'll reserve the rest of my time.

3 JUDGE BARRETT: Thank you.

4 Whenever you're ready.

5 MR. STEPHENS: All right. Thank you, Your Honors.

6 First, Your Honors, I'd like to start with the claim construction  
7 dispute, and I would just direct Your Honors to slide 13 of Patent Owner's  
8 demonstratives. At the bottom of this slide, "Patent Owner characterizes the  
9 dispute as whether the term 'substantially different' allows for incremental  
10 change in frequency while remaining in one of the near linear regions of the  
11 frequency amplitude graph." That doesn't accurately characterize the  
12 dispute. We've never disputed that the -- that element 1.7 would allow for  
13 incremental change. The full scope of that limitation could be consistent  
14 with a system that allowed for incremental change. So we're not arguing  
15 that you have to exclude an allowance for incremental change from the  
16 scope of 1.7. But as we understand it, that's not what Patent Owner is  
17 arguing with their construction. They're mandating the use of an allowance  
18 for incremental change, saying that, that's part of what's required by the  
19 substantially different from limitation. So -- and that's not correct, Your  
20 Honors, for the reasons we just went over.

21 Judge Flax, I think you raised again, a good point for the file history,  
22 which is that there's only one characteristic or condition given for the  
23 limitation 1.7, which is that the substantially different transmission  
24 frequency must lie in the near linear region. Nothing about linear control or  
25 incremental change from the file history.

1 JUDGE FLAX: So opposing counsel says that, looking at the prior  
2 arts graphs, which you've been comparing to patents figures, that because  
3 you don't really know what's on the Y-axis, you really don't know what part  
4 of that graph would be near linear, even though visually, you can say, is this  
5 part looks the same as the patent, you don't really know.

6 What's your response to that?

7 MR. STEPHENS: Yes. For a more fulsome response, I direct Your  
8 Honors to Dr. Woods' reply declaration, specifically Paragraphs 19–43 and  
9 footnote 2. And there he explains that you -- the question of what's plotted  
10 on the Y -- on the Y-axis is, it's not something that a POSITA would need to  
11 know in order to understand whether frequencies lie in the near linear  
12 region. And the reason is because it's -- whether it's a measurement of  
13 power, power transfer, power transfer efficiency, voltage, or current, they're  
14 all linearly related. And so they produce the parabolic shape that we see in  
15 figure 6b. We see again in Baarman, and we see it again in Onishi. And the  
16 near linear region is going to be consistent across those plots regarding --  
17 regardless of what's really plotted in the Y-axes. There's no -- and that's  
18 really the only evidence we have in the record on that point. Dr. Mercier has  
19 not --

20 JUDGE FLAX: Well, okay, here's a question.

21 MR. STEPHENS: Yes?

22 JUDGE FLAX: Let's talk about Onishi's bell curve. It's -- there's  
23 something on that Y-axis.

24 MR. STEPHENS: Yes.

25 JUDGE FLAX: There has to be some value there for it to have that  
26 shape.

1 MR. STEPHENS: Right.

2 JUDGE FLAX: And it -- what it says is, resonant peak, and then it  
3 indicates that the graph generally is talking about in load connection. So I  
4 read the rest of Onishi as talking about load connection related to voltage. I  
5 don't know that this necessarily is a value of voltage on the Y-axis in  
6 Onishi's figure 4.

7 Can you shed some light on that?

8 MR. STEPHENS: What I think we --

9 JUDGE FLAX: There's a value.

10 MR. STEPHENS: Yeah.

11 JUDGE FLAX: There is a value.

12 MR. STEPHENS: Well, what Dr. Woods has stated in Paragraph 43  
13 of his declaration, is that a POSITA would understand what's on the Y-axis  
14 in Onishi is an observed characteristic or measurement of the power of the  
15 inductive couple. Now it doesn't say whether that's voltage or current.

16 JUDGE FLAX: Color?

17 MR. STEPHENS: No, I don't think that's, you know --

18 JUDGE FLAX: Smell? What is it?

19 MR. STEPHENS: Well, we know that it's a -- it's an attribute that has  
20 a parabolic frequency shape.

21 JUDGE FLAX: Okay.

22 MR. STEPHENS: So that's going to be related to power transfer. We  
23 know that, because at the resonance peak, that's when the maximum power  
24 is transferred. And then in any inductive coupling, as you move farther  
25 away from the resonance peak, the power transferred to therefore the  
26 induced voltage, and therefore the induced current, decreases as you have

1 frequency moves farther away. You exhibit that parabolic shape. So  
2 whether it's showing power, current, or voltage, it's kind of immaterial. It  
3 doesn't matter to a POSITA, because the near linear region is the same in  
4 each of those plots.

5 And I would just note, look at the file history. They didn't say that it  
6 has to be in the near linear region of a frequency voltage graph. It's a  
7 frequency amplitude graph. It's not specifically connected to voltage. And,  
8 you know, again, figure -- the -- column 9 --

9 JUDGE FLAX: (inaudible) connects it to voltage. Does that matter?  
10 Because the claim says that the circuit produces an oscillating driving  
11 voltage at that that frequency that's substantially different.

12 MR. STEPHENS: Yes. And figure 6b is not referring to the voltage  
13 that's referred to in the claim. The claim's referring to driving the voltage of  
14 the primary inductor. What's shown in figure 6b would be the induced  
15 voltage on the secondary side.

16 So again, but when the voltage is maximized in figure 6b, of course,  
17 that's when the maximum power transfer occurs. So you could plot it versus  
18 power. You could also plot it versus current, because you're inducing higher  
19 currents on the secondary side.

20 Now I would just, you know, note here that Patent Owner, on their  
21 direct, you know, raised some questions about what's disclosed in Baarman.  
22 Those were arguments, specifically slides 40 to 43, that we're hearing for the  
23 first time today. If you go back and look at the Patent Owner's response and  
24 the surreply, those are not arguments that Patent Owner ever raised in its  
25 briefing. And, you know, we understand that the arguments are not to be  
26 raised at the oral hearing.

1 I just finally conclude as to piece-wise linearization, and Baarman<sup>392</sup>,  
2 if Your Honors may refer to Paragraph 59 in Dr. Woods' declaration where  
3 he explains that a POSITA would've understood that the use of piece-wise  
4 linearization is not incompatible with operating in the near linear region.  
5 And it's for the reason I think that Judge Barrett identified, which is we're  
6 talking about near linear regions, not fully linear regions. There is no fully  
7 linear region in a parabolic curve. And so a POSITA would understand that  
8 you can always further linearize the curve to obtain tire control. And that's  
9 an option. It's not even required by Baarman. It says you can piece-wise  
10 linearize, but you could also perform that control algorithm that's disclosed  
11 in Paragraph 7, or in figure 7, even without piece-wise linearization.

12 If there's no further questions, I think I -- we're out over time.

13 JUDGE BARRETT: I think we're good. Thank you.

14 MR. STEPHENS: Good. Thank you.

15 MR. PLUTA: I think I'll only need one or two minutes, but just a  
16 couple points. The details matter here. The -- I can draw any type of  
17 parabolic curve and put labels on it, like, you know, the peak effectiveness  
18 of my argument was 30 minutes ago. I don't know. I'm probably at the tail  
19 end of it, but it all depends on how you characterize something. Onishi  
20 specifically says resonance peak, and it puts some discreet functions or  
21 frequencies there. It's unclear whether it's plotting that resonance frequency  
22 against the other ones. Then it wouldn't look like a parabolic curve at that  
23 point. If you're plotting a frequency versus a frequency, we don't know what  
24 it'll look like.

25 With respect to Baarman, similarly, we know that it's the -- Baarman  
26 says it's voltage or power efficiency. Petitioners have made no attempt to

1 reconcile the different scales or the different measurements to the extent  
2 they're even disclosed in the references and why that wouldn't matter.

3 Why does it matter? Dr. Woods testified that an inductive couple is  
4 dependent on the resonance frequencies of each individual coil. And  
5 combining those frequencies of the primary coil and a secondary coil is not a  
6 simple sum but, rather, a geometric mean of the two individual resonance  
7 frequencies. So I'm not going to pretend to know the math on how to do that  
8 at this point, but none of that was accounted for whether it was impedance,  
9 resistance, other value, other value variations. None of that was accounted  
10 for in the Petition. The Petitioner hasn't met its burden by preponderance of  
11 the evidence that Onishi and Baarman disclose elements 1.4 and 1.7.

12 JUDGE BARRETT: Before you step away, I do have one question. I  
13 -- I'd like to hear if you have a response to what was Petitioner's -- I believe,  
14 the last argument that some of the slides around 40 to 43, something like  
15 that, are new arguments?

16 MR. PLUTA: I missed the number. Can you -- slide 40 to 43. Thank  
17 you.

18 So the argument is 40 to 43 are new? Is that --

19 JUDGE BARRETT: I -- that's my understanding of the argument that  
20 those were not made in the Patent Owner response or the survey reply.

21 MR. PLUTA: I would simply point the Board at least to the  
22 preliminary response at Page 49. We also believe that these were disclosed  
23 at the patent owner response at Page 24 in conjunction with Exhibit 1001 at  
24 figure 6b. 41, Dr. Mercier testified at Exhibit 1102, Page 17, Lines 19  
25 through 18.5. I would reference or point the Board to Patent Owner  
26 response at 24, and our -- and Petitioner's reply at 6 through 7 and our

1 surreply at 10, on slide 42, again, Dr. Mercier's deposition, Exhibit 1102 at  
2 Page 19, Lines 2 through 20.

3 JUDGE BARRETT: You don't need to read them all off. You're just  
4 reading from the --

5 MR. PLUTA: I am.

6 JUDGE BARRETT: -- cites at the bottom of the slide.

7 MR. PLUTA: Your Honor -- and that's our contention. These were  
8 supported by the papers in one way or the other. This -- we actually had this  
9 discussion prior, I believe. These were the slides that we had a meet and  
10 confer about. They didn't object to them. So I think this is a little late at this  
11 point to be talking about objections to slides or positions that are set forth in  
12 the slides. They raise no objections to our slides.

13 JUDGE BARRETT: Well, objections are not -- we'll take a look at it.  
14 If the -- we will evaluate the arguments that were made in the principal  
15 briefs, and if it's not there, it's not there.

16 MR. PLUTA: Agreed, Your Honor.

17 JUDGE BARRETT: All right. Thank you.

18 MR. PLUTA: Thanks.

19 JUDGE BARRETT: This case is submitted, and we are off the  
20 record.

21 (Whereupon, the above-entitled matter went off the record.)

PETITIONER:

Michael Hawkins  
Nicholas Stephens  
Thomas Reger  
Joseph Bauer  
Terry Stalford  
Yong Peng  
FISH & RICHARDSON P.C.  
hawkins@fr.com  
nstephens@fr.com  
reger@fr.com  
jbauer@fr.com  
stalford@fr.com  
epeng@fr.com

PATENT OWNER:

Robert Pluta  
William Barrow  
MAYER BROWN LLP  
rpluta@mayerbrown.com  
wbarrow@mayerbrown.com