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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INDUCTIVE, INC.
Petitioner

v.

WITRICITY CORPORATION,
Patent Owner.

IPR2024-00105 (Patent 10,027,184 B2)
IPR2024-00140 (Patent 8,466,654)

Record of Oral Hearing
Held: March 5, 2025

Before JAMESON LEE, CHRISTOPHER L. OGDEN, and SCOTT RAEVSKY, *Administrative Patent Judges*.

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The above-entitled matter came on for hearing on Wednesday, March 5, 2025, commencing at 12:20 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

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

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3 JUDGE OGDEN: Hello. Welcome to the Patent Trial and Appeal
4 Board. I'm Judge Ogden, and also appearing today are Judges Lee and
5 Raevsky.
6 We are convened for oral arguments beginning in IPR 2024-00105
7 which pertains to patentability challenges of claims in US Patent Number
8 10,027,184. And following the hearing in this proceeding we'll also be
9 hearing arguments in IPR 2024-00140, which pertains to patentability
10 challenges in US Patent Number 8,466,654. We're taking the proceedings
11 one at a time today starting with the 105 proceeding,as we have outlined in a
12 previous order.
13 We'll start with appearances for both parties. And if there's anyone
14 else attending remotely with you today who are not speaking, such as co-
15 counsel or a client representative, I'd ask that you please identify them as
16 well. Let's start with appearances for Petitioner.
17 MR. ZUCKER: Good afternoon, Your Honor. David Zucker of
18 Latham and Watkins for the Petitioner, InductEV. And also here with me are
19 Blake Davis and Steve Peters who are also counsel for InductEV.
20 JUDGE OGDEN: Okay. Thank you, Mr. Zucker. Will you be
21 presenting arguments yourself?
22 MR. ZUCKER: I will be presenting on this first argument. And
23 Mr. Davis will be presenting on the second proceeding.
24 JUDGE OGDEN: Okay, thank you. Okay, can I get appearances for
25 Patent Owner?

1 MR. LAWSON: Yes, Your Honor. This is Lance Lawson from the
2 law firm Burr and Forman on behalf of Patent Owner WiTricity
3 Corporation. I have with me my partner and colleague Ryan Corbett, and
4 also client representative Mr. Misha Hill. And IPR 00105, I will be
5 presenting the argument on behalf of Patent Owner WiTricity Corporation.
6 And in IPR 00140, my colleague Mr. Corbett will be presenting arguments
7 on behalf of Patent Owner WiTricity Corporation.
8 JUDGE OGDEN: Okay. Thank you, Mr. Lawson. Before we get
9 started let me just go over a few points to keep in mind during the hearing.
10 First of all, it's not permitted to record any PTAB hearing. The court
11 reporter will be providing a transcript, and that will become part of the
12 record at a later date. So, please try to keep in mind that the hearing is being
13 transcribed and try to clarify as much as you can anything that's to be made
14 explicit on the written record.
15 For example, if there's anything on the demonstratives that may not
16 be apparent on the written record please make sure that that this is apparent,
17 such as identify the location of anything on the demonstratives where that
18 appears in the record, as the demonstratives themselves are not part of the
19 record.
20 Your arguments should be limited to the point of those arguments that
21 have been presented previously in the briefs. To the extent that you may
22 have any objections to the other side's presentation, please hold those
23 objections until it's your time to speak.
24 As we've outlined in previous orders, each side will have 60 minutes
25 to present their arguments, and I'll be keeping track of that time on a
26 stopwatch. And the Petitioner will open the argument and can reserve

1 rebuttal time which should not exceed more than half of Petitioner's total
2 argument time. And then, Patent Owner will respond to Petitioner's
3 arguments and may also reserve surrebuttal time also not to exceed more
4 than half of Patent Owner's total argument time.
5 Then, after the conclusion of these sides time with respect to the
6 105 case, we'll be taking a short break. And then, we will reconvene for
7 arguments in the 140 case at that time.
8 So, Mr. Zucker, do you wish to reserve any rebuttal time for
9 Petitioner?
10 MR. ZUCKER: I'd like to reserve 15 minutes, Your Honor.
11 JUDGE OGDEN: Okay. So, then you have 45 minutes in your initial
12 time, and you're ready.
13 MR. ZUCKER: Good afternoon, Your Honors. As mentioned, my
14 name is David Zucker of Latham and Watkins for Petitioner InductEV.
15 Beginning on Petitioner's Slide 2, the Petition challenges Claims 1
16 through 13 and 16 of the '184 patent184 patent on four grounds. All four
17 grounds begin with the Fells reference, which is undisputedly prior art and is
18 a wireless charging system that also undisputedly discloses for an object
19 detection, which is the focus of the '184 patent184 patent.
20 Now, there are four grounds. But I will not that Patent Owner has not
21 made any distinct arguments with respect to Ground 4. They only rely on
22 arguments made for Ground 1 Claim 1 from which Ground 4 and Claim 13
23 depend. And so, unless Your Honors have a different preference, I plan to
24 walk through the few disputed elements in each of Grounds 1, 2, and 3
25 today, and reserve the remaining for our papers.

1 Ground 1 is that Fells alone discloses or renders obvious Claims 1, 8,
2 and 11. And looking at Petitioner's Slide 8, there are two limitations that
3 Patent Owner disputes are met by Fells. There must be at least one magnetic
4 field sensor, and the sensor must be positioned within the magnetic field of
5 the wireless energy transfer system.
6 Now, I will come back to this point later on rebuttal. But a number of
7 Patent Owner's arguments in their papers in this case have attempted to read
8 in additional structural or functional limitations for what the magnetic field
9 sensor must be or what it must do. And so, I just want to reiterate up front
10 that there are only two requirements for the magnetic field sensor.
11 There must be a magnetic field sensor within the foreign object debris
12 detection system, and it must be positioned within the magnetic field of the
13 wireless energy transfer system. That's it. Both of those limitations are
14 taught by Fells, as is every other limitation of Claims 1, 8, and 11.
15 But furthermore, to the extent there is any dispute as to whether Fells
16 teaches that the magnetic field sensor is positioned within the magnetic field
17 of the wireless energy transfer system, the Petitioner explained that that
18 would be an obvious modification of Fells.
19 On Petitioner Slide 9, we have Fells Figure 40, and an excerpt of Fells
20 Figure 288 where Fells teaches a sense circuit can act as a proximity
21 detector. And Fells calls out two particular things that the proximity detector
22 sense circuit can do. It can initially detect that a device or foreign object has
23 been placed in the vicinity of the wireless power supply. And it also detects
24 if a device or foreign object has been removed from the wireless power
25 supply.

1 Fells further describes two particular ways that its proximity detector
2 can be constructed. Fells Paragraph 289, and this is on Petitioner's Slide 10,
3 explains that the proximity sensor as relevant to this case can be an inductive
4 proximity sensor, or it can be a Hall effect sensor. Each of these disclosures,
5 an inductive proximity sensor and Hall effect sensor, is a magnetic field
6 sensor and so is sufficient to disclose every limitation of Claim 1 that's been
7 challenged.
8 Starting with the Hall effect sensor of Fells, it is essentially
9 undisputed that the Hall effect sensor is a magnetic field sensor. And that's
10 because as Fells explains in Paragraph 289, it is a sensor in which there is a
11 change in voltage in response to a change in magnetic field. Now, the reason
12 I say it is essentially undisputed is because Patent Owner made a new
13 argument in their sur-reply, and this is on Petitioner's Slide 12, arguing for
14 the first time that a Hall effect sensor would not detect non-magnetized FOD
15 debris.
16 Now, Patent Owner does not link this argument to any particular
17 limitation in Claim 1. But to the extent that Patent Owner is arguing that the
18 magnetic field sensor in Claim 1 must detect non-magnetized FOD debris,
19 that is incorrect. As we see in the claim, the only requirement is that there is
20 a magnetic field sensor. The claim does not say anything about or
21 distinguish between detecting non-magnetized versus magnetized debris.
22 When it comes to—
23 JUDGE OGDEN: So, Mr. Zucker, so is it your position that foreign
24 object debris could include magnetic objects or magnetized objects?
25 MR. ZUCKER: That's correct, Your Honor. And that's consistent
26 with Fells disclosure. For example—

1 JUDGE OGDEN: What type of objects would that be? Would that be
2 electronic objects?
3 MR. ZUCKER: Sure. It could be electronic objects. It could be a
4 metallic object that has been magnetized. It could truly be a piece of passing
5 debris that happens to be a permanent magnet having fallen off some other
6 device. There's no limitation in the '184 patent184 patent as to what types of
7 magnetized debris. It only talks about foreign debris, and that's the same
8 terminology that Fells uses that it detects foreign objects.
9 JUDGE OGDEN: It seems a little strange to refer to things like, you
10 know, electronic devices as debris. Is that just kind of how the term is used
11 in this context?
12 MR. ZUCKER: It is. I think there is maybe a colloquial tendency to
13 think that debris means specifically trash or something like that. But that is
14 not how it's used in the '184 patent184 patent. Debris is just used to refer to
15 any unwanted objects that could interfere with the interaction of the
16 resonator.
17 And so, we see that same similar usage, foreign objects, in Fells when
18 Fells talks in Paragraph 289 about detecting foreign objects. There's no
19 support in the record for a distinction between foreign objects of foreign
20 debris, or anything like that. It's just as Fells states, the proximity detector
21 can detect the presence either of devices or of foreign objects. The foreign
22 objects being anything that is not a valid device to be charged.
23 And we see, I don't believe there's any dispute, that Fells does
24 provide this detection. Because if we look for example on Petitioner's Slide
25 13 in their patent owner's response, Patent Owner concedes that Fells
26 discloses that its proximity detector detects a portable device or foreign

1 object. And so, again that aligns with the claim language here. There's at
2 least one magnetic field sensor, and a foreign object debris detection system
3 because foreign objects are being detected in the vicinity.
4 The last point I'll make on the Hall effect sensor going back to
5 Slide 11 is that Patent Owner's expert, Dr. Horenstein, has admitted that
6 Hall effect sensors detect magnetic fields. He said that they are capable of
7 detecting DC magnetic fields. And so, again there doesn't appear to be any
8 dispute setting aside Patent Owner's untimely sur-reply argument. There
9 doesn't appear to be any dispute that a Hall effect sensor is a magnetic field
10 sensor.
11 That alone would be sufficient to meet the magnetic field sensor
12 limitation. But out of an abundance of caution, the petition presented a
13 second argument that Fells' disclosure of an inductive proximity sensor,
14 which can be formed—which forms its proximity detector is also a magnetic
15 field sensor.
16 And we can see on Petitioner's Slide 14, Fells says, optionally an
17 inductive proximity sensor could be formed using another coil in the
18 wireless power supply. And as Dr. Allen explained, a person of ordinary
19 skill would understand that an inductive proximity sensor is a magnetic field
20 sensor because a change in the magnetic field creates the change in
21 inductance that's then going to be measured by and reflected in the inductive
22 proximity sensor.
23 In response to this argument, Patent Owner put forth a reference
24 called Carstens that would be—that's Exhibit 2007, and it's shown on
25 Petitioner's Slide 15. And Carstens, in fact, confirms that one type of

1 inductive proximity sensor as Fells discloses that a person of ordinary skill
2 in the art would have been familiar with is an inductive hiccup coil.
3 And as
4 Carstens says, an inductive pickup coil is a type of sensor used primarily as a
5 proximity sensor, and it is used to sense the presence of a magnetic field.
6 And the way it operates in the first sentence highlighted on Slide 15 is that it
7 is a coil that generates a current proportional to the change influx of a
8 magnetic field.
9 So, that aligns with Fells' description of its inductive proximity sensor
10 at Fells Paragraph 289. An inductive proximity sensor formed using a coil.
11 And so, Carstens further confirms that Fells' disclosure of an inductive
12 proximity sensor is a magnetic field sensor. It senses magnetic fields.
13 To try to escape this, Patent Owner presents what is a new, narrow
14 definition of magnetic field sensor, and this on Slide 17 of Petitioner's
15 demonstrative. Patent Owner argues that a magnetic field sensor must detect
16 external magnetic fields.
17 First and foremost, that is not supported by the specification. When
18 the specification talks about sensors, and this is in the '184 patent184 patent
19 at Column 5, Lines 25 through 38, it talks about sensors measuring changes
20 in the magnetic field. There's no reference to or requirement to measuring
21 external magnetic fields. Rather—
22 JUDGE LEE: Mr. Zucker, this is Judge Lee. I'd like to ask you,
23 remember the two types of sensors you just explained to us? The Hall effect
24 sensor and the other inductive sensor. Does either one of them require self-
25 generation of magnetic field? Or does it matter whether the field is self-
26 generated?

1 MR. ZUCKER: It does not matter for the claim whether the field is
2 self-generated. That said, I do not believe on this record either of the Hall
3 effect sensor or the inductive proximity sensor require a self-generated field.
4 Patent Owner—
5 JUDGE LEE: That's my question. It doesn't matter. I'm not worried
6 about the claim. Throw the claim out. I'm not concerned about the claim.
7 Just scientifically, technically, does either type of sensor require self-
8 generation of magnetic field?
9 MR. ZUCKER: No. So, a Hall effect sensor does not require a self-
10 generation of a magnetic field. When it comes to the inductive proximity
11 sensor, the parties have put two different types of inductive proximity
12 sensors into the record. The first is the inductive hiccup coil that I talked
13 about a minute ago, and that does not require self-generating the magnetic
14 field. So, that is at least one example of an inductive proximity sensor that
15 does not require self-generation.
16 Now, Patent Owner has raised some arguments about what they call
17 an eddy current sensor, and claimed that that does require a self-generating
18 magnetic field, and therefore does not meet the claim language, excuse me,
19 limitation. That's wrong. And if we look to Petitioner Slide 21, Patent
20 Owner attempts to equate an inductive proximity sensor with an eddy
21 current sensor. But Fells does not say eddy current sensor. It just says an
22 inductive proximity sensor.
23 And as Dr. Allen explained, that includes both the inductive pickup
24 coil and the eddy current sensor. And so, an eddy current sensor is a type of
25 inductive proximity sensor. Fells' inductive proximity sensor is not limited
26 to an eddy current sensor.

1 Now, even in the eddy current sensor that Patent Owner focuses on a
2 great deal in their briefs, I still—we still believe that it is not actually a self-
3 generated magnetic field. And this is on Slide 22. Patent Owner put forth
4 three references describing what they call an eddy current sensor and how it
5 works. That's Staugaard (phonetic) Exhibit 2008, Rabiee Exhibit 2010, and
6 Carr Exhibit 2011.
7 But none of these sensors are actually measuring the field that is
8 generated by the sensor. What each of them say is that you generate a field,
9 and then in the object there is generated opposing magnetic field. And it's
10 that opposing field that is not generated by the sensor, but generated in
11 response to the sensor that is being measured.
12 And so, even in this case, even if Patent Owner was right that Fells is
13 specifically an eddy current sensor, and even if Patent Owner was right that
14 a magnetic field sensor must measure external magnetic fields, Fells'
15 inductive proximity sensor is still a magnetic field sensor because what it's
16 measuring is the opposing magnetic field generated in the object. That's
17 what we see in Staugaard, Rabiee, and Carr.
18 So, having established that each of the Hall effect sensor and the
19 inductive proximity sensor is a magnetic field sensor, the next dispute of
20 limitation requires that sensor be positioned within the magnetic field of the
21 wireless energy transfer system. Fells discloses this, and in the alterative it
22 would have been obvious.
23 Starting on Petitioner Slide 27, there are three ways that Fells'
24 disclosure tells us its proximity sensor, excuse me, its proximity detector is
25 positioned within the magnetic field of the wireless energy transfer system.

1 First, first respect to the Hall effect sensor in particular, Fells states
2 that there is a change in voltage in response to a change in magnetic field.
3 And so, in order for the sensor to be effective it has to be located in a
4 magnetic field that then is changed. If a sensor is not positioned within the
5 magnetic field, the center can't perform the proximity detection that Fells
6 says it does.
7 The second passage of Fells that demonstrates that its sensor is within
8 the magnetic field, and I don't have on this on the slide, I apologize, is
9 Figure 40 where Fells shows that the primary coil and the proximity detector
10 are all within the wireless power supply. They're necessarily going to be
11 near each other.
12 And what Fells says in Paragraph 295 is that its primary coil can be
13 placed in any orientation relative to the other components, and it can be
14 unshielded. And so, when Fells' primary coil is energized and unshielded
15 and at any particular orientation as Dr. Allen explained, that unshielded coil
16 is going to generate a magnetic field that extends a considerable distance
17 away, including the area where the neighboring circuit element, that
18 proximity detector, is located.
19 JUDGE LEE: Mr. Zucker, what do you understand the magnetic field
20 to be? So, if something is within the magnetic field—I mean, theoretically, a
21 magnetic field could be big even though it's very small except, you know,
22 really close to the coil. So, what is the extent of the magnetic field that the
23 sensor has to be in?
24 MR. ZUCKER: So, I think there is no specific level of measurability
25 or quantifiability that is required. If there is a non-zero magnetic field, even
26 if quite small that extends from the system, the claim limitation is met.

1 JUDGE LEE: And does the sensor have to be operating what's in the
2 magnetic field while the magnetic field is operational?
3 MR. ZUCKER: No, it does not. This is an argument the Patent Owner
4 makes. If we look at the claim language, the only requirement is that there
5 be a magnetic field sensor. And I'm looking at Petitioner Slide 32. The only
6 requirement is that there be a magnetic field sensor, and that the magnetic
7 field sensor is positioned within the magnetic field of the wireless energy
8 transfer system.
9 So, the magnetic field sensor itself is actually not required to do
10 anything ever. There is no requirement that the magnetic field sensor
11 actually sense anything to meet this claim. And there is certainly no
12 requirement that the magnetic field sensor be operational or sensing at the
13 time it is positioned within the magnetic field of the wireless energy transfer
14 system.
15 JUDGE LEE: What about from Limitation 1F that says that there is
16 more in the foreign object detection system is configured to verify that
17 foreign object debris is not moved into or over the source resonator during
18 generation of the oscillating magnetic field? Doesn't that sort of say that
19 there has to be an operational sensor that is operating during the generation
20 of that oscillating magnetic field?
21 MR. ZUCKER: There has to be some sort of detection during that
22 generation. But it poignantly does not have to be the magnetic field sensor. It
23 just has to be accomplished by the foreign object debris detection system.
24 And so, the way that we have mapped Fells to this claim is that the foreign
25 object debris detection system contains both a magnetic field sensor and also
26 Fells's control element.

1 And it is undisputed that the control element checks for whether
2 foreign objects are present or have moved onto or over the source resonator
3 during generation of the source field. And so, the control element of Fells
4 undisputedly meets that last limitation independent of the magnetic field
5 sensor.
6 If Patent Owner had intended for Limitation 1F to be specifically
7 using the magnetic field sensor, they could have claimed that. But they
8 specifically claim the opposite. It only must be the foreign object debris
9 detection system.
10 JUDGE LEE: So, Counsel if I hear you correctly are you saying that
11 the magnetic field sensor in this claim is not required to detect foreign object
12 debris?
13 MR. ZUCKER: The magnetic field sensor must be part of the foreign
14 object debris detection system. But there is no requirement that it do any
15 further detection. And so, what we've pointed to in Fells is that there is a
16 magnetic field sensor that does at least initial proximity detection when a
17 device approaches. It can detect the presence of that initial device or foreign
18 objection. And then, later there is the control unit that is performing later for
19 an object debris detection. And so, that is met in Fells here regardless of
20 whether the magnetic field sensor is or is not performing detection during
21 the time that the magnetic field is being generated.
22 JUDGE LEE: I think I understand your position that the claim doesn't
23 explicitly say get a readout from the magnetic field sensor. But the foreign
24 object debris detection system verifies that there's foreign object debris, and
25 it has a sensor. So, isn't it a bit of a strained interpretation to say that
26 sensor's not used for anything even though it's recited.

1 MR. ZUCKER: So, I don't think it's a strained interpretation. I think
2 it is the literal reading of the claim. There must be a foreign object debris
3 detection system. And in this case, it is undisputed that Fells discloses that
4 through the combination of magnetic field sensor and the control element
5 that provides the later debris detection check during generation of the field.
6 So, that is undisputed but there is such a foreign object debris
7 detection system and that it performs the check that's being described later.
8 Again, the Patent Owner could have claimed a further check specifically
9 made by magnetic field sensor, but they elected not to.
10 And part of the reason that we can see this in Fells if we go back to
11 Slide 27, the third part of what Fells tells us the proximity detector
12 specifically does in Fells Paragraph 288, is that it detects whether a foreign
13 object has been placed in the vicinity of the wireless power supply, and it
14 also detects if a device or foreign object has been removed from the wireless
15 power supply.
16 So, it is undisputed on this record that in order to detect objects within
17 the area of the magnetic field, the sensor itself must actually be positioned
18 within the area of the magnetic field. If the sensor is not in the magnetic
19 field, it's providing no detection in the magnetic field.
20 JUDGE RAEVSKY: Let me ask you this, Counsel. So, we require
21 under Phillips to read claims in the context of specification. Is there another
22 device unclaimed that could be used to perform Limitation F in the foreign
23 object debris system other than a magnetic field sensor?
24 MR. ZUCKER: In the '184 patent you're asking?
25 JUDGE RAEVSKY: Yes.

1 MR. ZUCKER: So, I can get an answer to that on rebuttal. I don't
2 know the answer to that offhand. But I would say that as a matter of law it
3 doesn't matter because also under Phillips, it is improper to limit the claims
4 to a specification embodiment. That's true even if it is the only specification
5 embodiment.
6 If the Patent Owner had meant that all detection must be done by the
7 magnetic field sensor, they could have claimed it that way. Instead, they
8 used a broader term, foreign object debris detection system.
9 JUDGE RAEVSKY: This isn't really competing canons of claim
10 construction. We also shouldn't be reading out the preferred embodiment;
11 that's quite disfavored.
12 MR. ZUCKER: Sure.
13 JUDGE RAEVSKY: If the only embodiment is a magnetic sensor
14 being used to determine whether debris exists in that field and that happens
15 to be what's claimed, isn't it a fair of reading of this claim to say that that
16 sensor is going to be used? That's something to consider to address in
17 rebuttal.
18 MR. ZUCKER: I appreciate that, Your Honor. And I will address it
19 more thoroughly in rebuttal. But part of what I would say is that the '184
20 takes great pains to say no less than by my count 15 times that every bit of
21 its description in accordance with an exemplary and non-limiting
22 embodiment.
23 And that it specifically says at the end, and this is Column 11,
24 Lines 51 through 55 of the '184 patent184 patent that while the invention
25 has been described in connection with certain preferred embodiments, other
26 embodiments will be understood by one of ordinary skill in the art and all

1 are intended to fall within the scope of this disclosure, which is to be
2 interpreted in the broadest sense allowable by law.
3 And to, the Patentee has taken great pains not to limit their claims,
4 which they chose to write broadly to the specific manner in some of those
5 specification examples. And so, I'm happy to address that more thoroughly
6 on rebuttal.
7 JUDGE LEE: Counsel, it's Judge Lee. I want to ask you in one aspect
8 this claim is not broad. It's kind of narrow. It says, verified that the foreign
9 object debris has not moved onto or over the source resonator. But the
10 Petitioner is a little general on that because, you know, you're referring us to
11 disclosure in the art about detecting the presence of debris around the
12 wireless power supply.
13 So, you know, just being around is not enough to meet, move onto, or
14 over. Can you say—I know they didn't complain about this or argue about
15 this. But I'd like to hear your response.
16 MR. ZUCKER: Certainly, Your Honor. So, starting at Fells Paragraph
17 288, which is on Petitioner Slide 277—excuse me, Petitioner Slide 27, there
18 is a first sentence that I think you may be referring to. We're talking about
19 broad where it says, can detect the device or foreign object has been placed
20 in the vicinity of the wireless power supply.
21 But then, there is a further sentence that says, it detects of a device or
22 foreign object is removed from the wireless power supply. And so, that
23 sentence is narrower and more limited. It's not in the vicinity. It's removed
24 from the wireless power supply.
25 And if we look at Fells's other disclosures, for example at Fells's
26 Paragraph 191 or Paragraph 194, it repeatedly talks about detecting when an

1 object is placed in or placed on the wireless power supply. So, that is the
2 answer to where this more specific disclosure is in Fells is that Fells talks
3 about detecting, yes in the vicinity, but also specifically when a foreign
4 object is placed in or on the wireless power supply.
5 Now, on the point of being in the vicinity, Patent Owner makes some
6 argument that the vicinity might just be the neighboring area and not
7 within——not specifically within the magnetic field. That's not how a
8 person of ordinary skill would understand the claim. One, because Fells
9 does——excuse me. That's not how a person of ordinary skill would
10 understand Fells's disclosure.
11 One, because Fells does have these more narrow statements about
12 detecting items removed from or placed on the power supply. But also
13 because Fells incorporates by reference the Stevens patent. And this is on
14 Petitioner Slide 28. And it incorporates the Stevens patent for a method of
15 foreign object detection. And Stevens repeatedly equates being in the
16 vicinity of the primary coil with the area where the electromagnetic field
17 exists.
18 It says, the primary coil generates an electromagnetic field in the
19 vicinity of the primary unit. And then, it talks about being in proximity of
20 the primary coil as the area where coupling with the coil occurs. And so, a
21 person of ordinary skill reading Fells would understand the statements about
22 vicinity and the proximity are actually not broad. They're referring, as in the
23 incorporating Stevens reference, specifically to the area where the magnetic
24 field exists, the area where coupling could occur, and where a device could
25 be charged.

1 JUDGE LEE: Apart from the general disclosure you reproduced on
2 Slide 28 from Fells that foreign objects may be detected using Stevens
3 system, is there anything in Fells that relates to specific disclosure in Stevens
4 to the sensors you've mapped to the claim?
5 MR. ZUCKER: Fells does not go into the details of Stevens beyond
6 the broader statement that foreign object detection can be used during the
7 disclosure, and Stevens is incorporated. Does that answer Your Honor's
8 question?
9 JUDGE LEE: Yes.
10 MR. ZUCKER: Now, the last point I want to make, and this really
11 goes to as much to our alternative argument that it would have been obvious,
12 even if Fells does not expressly teach to place its magnetic field sensors in
13 the magnetic field device. Patent Owner admits that under their
14 interpretation of Fells where the sensors are not within the magnetic field
15 generated by the system, that it cannot actually detect objects within the
16 magnetic field.
17 So, Patent Owner's interpretation of Fells admittedly creates a blind
18 spot for the system where no detection is happening within the magnetic
19 field of a resonator. That's not how a person of ordinary skill would
20 understand Fells both because Fells discloses, for example, at Paragraph 288
21 being able to detect when a device is moved from the wireless power supply.
22 And also because Patent Owner admitted that this is a problematic
23 system. It would create blind spots and have issues. And I'm sorry, I'm
24 looking for an example at Petitioner Slide 31. Dr. Horenstein was asked,
25 well in your view there is a possibility that a device approaches Fells system
26 can enter the field of the primary coil before being detected. And he said,

1 yes. And they said, isn't that a problem? And he said, yes. That would be a
2 problem for Fells.
3 And so, Dr. Allen explained that this is both why a person of ordinary
4 skill would understand Fells to disclose that its sensors are positioned within
5 the magnetic field, and also why it would have been obvious to do so
6 because if you don't position the sensor within the magnetic field, you have
7 this blind spot that even Patent Owner's expert admits is a problem for Fells.
8 It makes the system non-functional because a device could approach to be
9 charged and not actually receive charge.
10 Now, on the obviousness argument Patent Owner really only makes
11 one argument in response to the petition's claim that it would be obvious to
12 modify Fells. And that is their claim on Slide 35 that the proximity detector
13 would in fact become a foreign object itself, and that is not true.
14 We see this on Slide 36 in Fells itself. The idea that placing a metal
15 object or a sensor within the magnetic field of primary coil would somehow
16 break Fells's system is directly refuted by Fells because Fells explains that
17 you can have a sense coil wrapped around your primary coil.
18 And what this tells the POSA is that you can have a metal object or a
19 sensor around the primary coil, on top of the primary coil within the
20 magnetic field of the primary coil and it doesn't cause a problems for the
21 system. It doesn't detect itself. And we see this again in Stevens.
22 Stevens talked about a friendly parasitic load which is an inevitable
23 parasitic load caused by the presence of metal in, for example, the secondary
24 device or the host object. But Stevens doesn't say that this breaks the
25 system, or it would heat up. It just says, yeah, you have to deduce the total
26 friendly parasitic load and account for that in designing your system. And a

1 POSA reading Stevens we just incorporated in Fells would know how to do
2 that.
3 And so, we submit that to the extent even not expressly taught in
4 Fells, it would have been obvious to place Fells's proximity sensor within
5 these magnetic fields to avoid the blind spot problem.
6 Unless Your Honors have further questions, I do want to reach
7 Ground 2, which is the combination of Fells and Cook. The petition
8 proposes that it would have been obvious to modify Fells such that the
9 device to be charged is specifically a vehicle as taught in Cook, and that's
10 not disputed.
11 The Patent Owner does not dispute that Cook charge discloses
12 wirelessly charging a vehicle that it would have been obvious to modify
13 Fells to charge a vehicle, or that there would have been a motivation to do
14 so. The only dispute is actually still with the disclosure of Fells. And so, if
15 we look at Claim——excuse me, Petitioner Slide 42 the only limitations that
16 Patent Owner disputes are the health and status check limitations. But there
17 is a distinction between these two sets of claims, but I do want to point them
18 out.
19 Claims 4 through 6 require checking the health and/or status check of
20 the wireless energy transfer source. But also, they depend that from Claim 1,
21 and therefore they require a magnetic field sensor. And for those claims, the
22 petition points primarily to Figure 40 embodiment of Fells, the proximity
23 detector.
24 For Claim 16, there is no magnetic field sensor required. And so, the
25 petition does not rely on the Figure 40 embodiment of Fells. It talks about
26 Figure 2 and some of the further variance of Figure 2. Starting with

1 Claim 16 on Slide 46, Fells discloses two different types of health and/or
2 status check of the resonator.
3 The first is that Fells performs a calibration inductance measurement,
4 also called a sense circuit calibration. And Fells explains that after the
5 previously charged device has left, the system will do a sense circuit
6 calibration to set the inductance baseline, and it will specifically make sure
7 that that measurement is a valid one, so the sense circuit calibration is a
8 health and/or status check of the resonator that would be sufficient.
9 We also have an alternative that the sensor periodically monitors the
10 energy and the energy storage element of Fells. That's also a health and
11 status check of the resonator, which I'll explain in a minute. And it is
12 independently sufficient.
13 On Slide 47, starting with the sense circuit calibration, the sense
14 circuit calibration is a status check over the resonator because at least in
15 some instances the coil that is being used to take that inductance baseline
16 measurement is actually the resonator. What Fells says in Paragraph 259 is
17 that the sensor, it uses the same coil for detection as used for the transfer of
18 power.
19 And so, in this case when you are taking a baseline inductance
20 measurement what you are measuring is the baseline inductance of the
21 primary coil over the resonator. And so, the baseline check is telling you the
22 inductance of the resonator. Notably, Patent Owner and Dr. Horenstein
23 never address Paragraph 259 in their papers. We raised it in our petition and
24 our reply, and it's just not addressed by them.
25 Even setting aside Paragraph 259 where the resonator coil is the same
26 as the sense circuit coil, Fells teaches that the sense circuit calibration is a

1 status check of the resonator because that check is required in order for the
2 resonator to turn on. So, we see on Petitioner's Slide 48 the——as Dr. Allen
3 explained if you don't have a properly calibrated valid sense circuit
4 calibration what will happen is you won't properly detect the removal or
5 approach of an object to be charged. And so, Switch 1 won't close, and the
6 resonator won't turn on. And so, the status of the resonator is that it is
7 currently unable to be turned on if you did not properly perform your
8 calibration check.
9 Turning to the energy storage check, again this is——the sense circuit
10 calibration is sufficient. There's an alternative energy storage check. On
11 Slide 49, Fells teaches that the sense circuit periodically monitors the energy
12 in the energy storage element. And this is a status check of the resonator
13 because if the energy storage element is depleted the sense circuit doesn't
14 work, and the resonator won't turn on even if a device needs to be charged
15 approaches.
16 On our Slide 49, I actually think Patent Owner's quote explains this
17 quite well. They agree that the check of the energy level in the energy
18 storage element ensures that the sense circuit can properly function. And
19 then, the resonator's ability to deliver power depends on the sense circuit
20 being functional. And so, if the energy storage check indicates that the
21 storage element is depleted, the resonator's current status is that it is not
22 currently able to deliver power in Patent Owner's words.
23 Patent Owner's expert admitted this on our Slide 51 that having a non-
24 depleted energy storage element, which is what the check would tell you, is
25 a necessary precondition to the resonator functioning.

1 Now, one more point I'll make is on our Slide 50 there is also a
2 disclosure in Fells at Slide——at Paragraph 255 where the energy storage
3 element directly powers the resonator. And so, in that case even more so the
4 status of the energy storage element is the status of the resonator. It tells you
5 whether you have enough power to turn on the resonator or not.
6 Unless there are further question on Claim 16, I do want to turn to
7 Claims 4 through 6.
8 JUDGE OGDEN: So, Mr. Zucker, it seems like you're saying that
9 anything that's a check that you would need to perform as a prerequisite of
10 using the energy transfer source counts as a status or health check on the
11 source itself. Is that what you're saying? And if so, that seems like that could
12 include a lot of things. And how does it specifically relate to the energy
13 transfer source itself?
14 MR. ZUCKER: So, I would maybe frame that a little differently. First
15 of all, we do have these specific disclosures in Fells that there is a check of
16 the resonator because the sense circuit check, for example, is actually
17 checking the inductance of the resonator and where the energy storage
18 element is directly being powered by the resonator.
19 And so, we don't actually need to reach this broader argument. But it
20 is true that in both cases we've made a broader argument. But the argument
21 here is that if you have a check where the response could indicate to you that
22 the resonator is not currently able to turn on, that is a status check of the
23 resonator because it is telling you that the status may well be, even if you do
24 everything else correctly, this resonator will not turn on. So, that is the
25 current status of the resonator is it cannot be turned on until some particular
26 solution is corrected.

1 So, turning then to Claims 4 through 6. Claims 4 through 6 are
2 broader because they do not require a health and safety check of the
3 resonator. They only require a health and safety check of the wireless energy
4 transfer source. And the petition maps the claim wireless energy transfer
5 source to Wells's (sic)——excuse me, to Fells's wireless power supply 200.
6 And so that includes, for example, the sense circuit and the energy storage
7 element.
8 And so, even if Patent Owner were correct in some of their arguments
9 that this sense circuit calibration and energy storage element only check the
10 status of the sense circuit or the energy storage element and not of the
11 resonator, that would still be sufficient for Claims 4 through 6 because that
12 is all that's required. Claims 4 through 6 do not actually require a check of
13 the resonator, only of the wireless energy transfer source more broadly.
14 That's further explained in our Slides 57 through 58. But in the
15 interest of time, I do want to talk with my remaining time about the Fells and
16 Ono combination. On Slide 61, Claim 12 requires an enclosure housing at
17 least a portion of the wireless energy transfer source wherein the foreign
18 object debris detection system is integrated into the enclosure.
19 The petition explains that this was taught by Fells, and in the
20 alternative obvious over the combination of Fells and Ono. If we look at
21 Petitioner Slide 62 as Dr. Allen explained, Fells teaches that the proximity
22 sensor and the control element, which as I explained earlier collectively
23 make up the debris detection system, are integrated into and part of the
24 wireless power supply. And that is all shown as an integrated unit with a
25 dotted line, which would logically understood to be implemented within a
26 single enclosure.

1 So, Fells alone teaches this. But to the extent the Board requires a
2 more explicit disclosure of an enclosure, turning to Slide 65 Ono teaches in
3 his Figure 2 and corresponding description that that is a detector coil 26, a
4 primary coil 21, and they are both together within the primary enclosure.
5 And there is no dispute about this combination. Patent Owner does not
6 dispute that Ono teaches an enclosure housing a wireless energy transfer
7 source, that Ono teaches a debris detection system within that same
8 enclosure, that it would have been obvious to implement that arrangement in
9 Fells, or that there would have been a motivation to do so.
10 Instead, Patent Owner's only dispute turning to Slide 67 is that they
11 offer a claim construction of integrated into the enclosure. That means
12 united with the enclosure to form a functioning or unified whole. To be
13 clear, we think this is met by the Ono/Fells combination.
14 Ono, and as implemented in Fells, describes taking the debris
15 detection system and uniting it inside the enclosure with the rest of the four
16 energy transfer source. At his deposition, Patent Owner's expert said, no.
17 When I use that term, what I mean is the sensors have to be molded into the
18 plastic housing of the resonators.
19 And so, notwithstanding what Patent Owner says in their papers, that
20 appears to be the definition they're using here that Claim 12 actually
21 requires sensors molded into the plastic housing of a resonator. There's no
22 support for that looking at Petitioner's Slide 68. It's not found anywhere in
23 the '184. There's no mention of molding sensors into plastic housings.
24 When the '184 patent184 patent talks about integrating, it talks about
25 integrating a component into a system of specified volume, or within a
26 particular physical enclosure or space as you can see at these quotes here

1 from the ’184 patent184 patent, Column 11, Lines 4 through 8, and Column
2 4, Lines 23 through 28.
3 And so, under the plain meaning of integrate and the meaning that’s
4 supported by the specification, the combination of Ono and Fells meets this
5 because you have the debris detection system integrated into the enclosure
6 that is housing the portion of the wireless energy transfer source.
7 And if we look at Slide 69 of Patent Owner’s dictionary definition, we
8 see that this is consistent not only with the definition they propose, but with
9 Definition 3 in the same construction, to unite with something else or to
10 incorporate it into a larger unit. That’s what we’re doing here.
11 We’re taking the debris detection system, uniting it with the detector
12 coil, with the wireless energy transfer source, and placing those into the
13 larger enclosure. And so, that is what this claim means and it’s undisputed
14 that that’s taught in Ono under that explanation.
15 JUDGE LEE: Counsel, it’s Judge Lee. I want to ask. So, we know the
16 sensors within the enclosure. Do we know anything else other than that? Is it
17 fixed? Is it loose? And do you have anything else other than it’s within the
18 disclosure?
19 MR. ZUCKER: Are you asking in the proposed combination or as a
20 claim requirement?
21 JUDGE LEE: In the proposed combination.
22 MR. ZUCKER: Yeah. So, the proposed combination is that the——
23 Fells in Figure 2 and Figure 40 already show a circuit block diagram of how
24 these components would be arranged. And so, all you would do as described
25 in Ono is place a single enclosure containing all of those components. And
26 so they would be, whether they are fixed or loose, they would arranged as

1 already described in Fells. The only thing we're actually doing as borrowed
2 from Ono is putting a singular enclosure around all those components that
3 are already consistently shown within that dotted line box.
4 JUDGE LEE: I see. So, it doesn't matter how they're arranged inside
5 you're saying.
6 MR. ZUCKER: Right.
7 JUDGE LEE: As long as it's all within the same enclosure that's
8 enough for integrated.
9 MR. ZUCKER: Correct. And there's no disclosure in the '184
10 patent184 patent of any narrower definition of integrating any discussion of
11 being connected or loose, or anything like that.
12 JUDGE LEE: Thank you.
13 JUDGE OGDEN: Mr. Zucker, you're a little into——about a minute
14 into your rebuttal time. You can continue on a little bit if you'd like. I just
15 want to let you know.
16 MR. ZUCKER: Thank you, Your Honor. I'm happy to answer any
17 further questions that Your Honors have. Otherwise, I will reserve the
18 remainder of my time.
19 JUDGE OGDEN: Okay. Thank you, Mr. Zucker. I think you've used
20 about 46 minutes. So, you'll have about 14 in your rebuttal time.
21 Mr. Lawson, would you like to resume your sur-rebuttal time for
22 Patent Owner?
23 MR. LAWSON: Yes, Your Honor. We'd like to reserve 15 minutes of
24 rebuttal time, sur-rebuttal time, please.
25 JUDGE OGDEN: Okay. You'll have 45 minutes in your initial time
26 then, and you can start when you're ready.

1 MR. LAWSON: Okay. Your Honor, first I think I want to share my
2 screen. And I just want to make sure that everybody, that Your Honors can
3 see our screen. We'll walk through our slides, but we'll also look at the
4 Petitioner slides and also several of the references.
5 JUDGE OGDEN: That's fine.
6 MR. LAWSON: And I'll share now. Let's see if I can get to—
7 JUDGE OGDEN: Yes, I see it.
8 MR. LAWSON: Okay. And I want to get to——here we are. All
9 right, are you able to see? Your Honors, are you able to see my sharing now,
10 patent order demonstrative slides?
11 JUDGE OGDEN: Yes. Yes, I can see.
12 MR. LAWSON: Okay, very good. Thank you. Your Honor, this is
13 first of all the patent owner would point out as an initial matter, the
14 Petitioner is not making any arguments that the '184 patent184 patent is
15 anticipated by any of the references that it relies on. It is only making
16 obviousness arguments. So, all four grounds are based on obviousness. The
17 Petitioner is not arguing that any of the references anticipate the '184
18 patent184 patent or any of the claims of the '184 patent184 patent.
19 Okay. I would also like to just as a general overall view here is we've
20 explained, as the Patent Owner explained in its sur-reply, we'll probably
21 spend most of our time talking about Ground 1 and the Petitioner's argument
22 that Fells makes obvious the claims, the independent Claim 1 of the '184
23 patent184 patent.
24 And what we explained in introduction of our sur-reply is that these
25 are two completely different inventions doing——trying to sense foreign
26 object debris in completely different ways. And as you'll see, we'll point out

1 this is nothing more than Patent Owner trying to use Fells to fit this square
2 peg into the round hole of the ’184 patent184 patent and its independent
3 Claim 1.
4 I would note for Your Honors and point it out during Petitioner’s
5 argument Petitioner admitted, and Your Honor made note of it that quote is,
6 the magnetic field sensor is not required to do anything, end quote. And that
7 is just——could not be further from the truth.
8 It’s obviously an element of the claims, of Claim 1, the independent
9 claim, and it’s really——that is the center point that Claim 1 requires is that
10 the magnetic field sensor is placed within the magnetic field, and be placed
11 within the magnetic field will show that it will recognize foreign object
12 debris because that foreign object debris calls perturbations, small
13 perturbations in the magnetic field.
14 It’s the entire——that’s what the ’184 patent184 patent is about, and
15 it does it in a very unique way by placing the magnetic field sensor in the
16 operating magnetic field of the source resonator of the wireless transfer
17 system, okay? And nothing in Fells or any other references does that. And in
18 fact, Fells does it——Fells is directed toward a wireless charging system for
19 a mobile phone.
20 JUDGE RAEVSKY: Let me stop you there for just a second. Before
21 we go into Fells, since you brought up the magnetic field sensor issue that I
22 discussed with opposing Counsel, how do you respond to the point that it
23 doesn’t explicitly require a reading of that magnetic sensor, and therefore the
24 last limitation does not require operation of the magnetic field sensor?
25 MR. LAWSON: Well, Your Honor, I think what he said was when we
26 talked, we’re on the——the Petitioner’s argument is that the magnetic field

1 sensor doesn't do anything, okay? All it has to do is be placed inside within
2 a magnetic field, and it doesn't do anything and that just couldn't be further
3 from the truth.
4 You also have to reclaim the claim elements, the claim language as
5 Your Honors know as a person of skill in the art wouldn't understand the
6 claim language in light of the specification, okay? And it's clear from
7 specification in the '184 patent184 patent, and we'll walk through it, but the
8 role of the magnetic field sensor and how it must be placed in the magnetic
9 field of the wireless transfer system and the source resonator, okay?
10 And that is made very clear, and I'll just cite it now. But if you look at
11 the '184 patent184 patent in the specification from, you know, from Column
12 4, Line 39 through Column 7, Line 13, it goes——explains in very good
13 detail the exact purpose of the magnetic field sensor and how it is placed, the
14 magnetic field sensor is placed within the magnetic field of the source
15 resonator. And in fact, and we'll get to it, will show the direct site. The
16 direct quote is, the magnetic field of the source resonator passes through the
17 magnetic field sensors of the '184 patent184 patent that are claimed in Claim
18 1, okay?
19 And I will also point for the record. So, the '184 patent184 patent in
20 its citation, and I would direct Your Honors to this, but when we get finished
21 with all this and when you go back doing your analysis, the Patent Owner
22 would suggest that you read the specification of the '184 patent184 patent
23 from, again, Column 4, Line 39 through Column 7, Line 13.
24 We'd also suggest that Patent Owner agrees with Petitioner that
25 Fells 288 through Fells 290 is what you should also reference. And it's
26 exactly what the purpose of and how Fells operates, and how it is completely

1 different from what is disclosed and claimed in the ’184 patent184 patent.
2 So, that is Fells 288 through Fells 290. And again, in Fells 288 we’ll get into
3 more detail, Your Honors. But it’s very interesting to point out.
4 Fells 288 through 290 specifically refer to Figure 40 of Fells, and
5 we’re going to go into that in great detail. It’s very interesting and the Patent
6 Owner points out, and we’ll point it out here, nothing in Petitioner’s
7 presentation, nothing in Petitioner’s demonstratives say anything about
8 Figure 40, okay?
9 Because the way Fells does——the purpose of Fells is to have a
10 wireless charging system for a mobile phone. And the purpose is to conserve
11 the energy of the wireless phone charging system, okay? And Figure 40 will
12 show——and again, we’ll get in more detail. I just want to make sure that
13 these are the main points for the patent. Figure 40 will show that the switch
14 is——the wireless charging system under Fells is not produced in the
15 magnetic field. It is off. It has no energy going through it, and that’s how
16 Fells conserves energy for this mobile phone charging device.
17 Only when the separate magnetic field sensor senses a foreign object
18 debris or mobile phone, okay, only then the switch closes and then it turns
19 on the magnetic field of the source resonator, okay? So, the magnetic field—
20 —the magnetic sensor in Claim 1 of ’184 patent184 patent, it can’t be——in
21 Fells, the magnetic sensor cannot be inside or within the magnetic field of
22 the source resonator in Fells because the magnetic——because the Fells
23 source resonator is not producing the magnetic field. It doesn’t produce the
24 magnetic field until after the magnetic field sensors senses the foreign object
25 or a portable device.

1 JUDGE OGDEN: Well, Mr. Lawson, even if that's the case, even if
2 magnetic field sensor is not operating while the source magnetic field is also
3 operating, isn't the——wouldn't the sensor still even in active form be
4 within the magnetic field?
5 MR. LAWSON: Well, I think if I understood you Your Honor, the
6 point is that there is no——the magnetic field sensor is sensing in Fells. It is
7 sensing, but it is sensing. Okay, before the source resonator in the wireless
8 charging system in Fells is producing the magnetic field. There is no
9 magnetic field to sense.
10 JUDGE OGDEN: Right. But then, once they—
11 MR. LAWSON: (Inaudible) at that point in time it's not within the
12 magnetic field of the wireless charging system.
13 JUDGE OGDEN: Yeah, but once—
14 MR. LAWSON: (Inaudible) producing the magnetic field.
15 JUDGE OGDEN: Once the charging system does start producing the
16 magnetic field, the magnetic sensor, if it was there previously it doesn't go
17 away, right? It's still in the same place even if it's not operating, right?
18 MR. LAWSON: That's correct, Your Honor. That's how we
19 understand Fells's disclosure. We also would add on that that the sensor is to
20 the side of and is disclosed in Figure 40. And if you would—
21 JUDGE OGDEN: But if we assume that it is within the field previous
22 to the field being generated, you would agree that just the fact of turning off
23 the sensor and turning on the field, that doesn't make——the sensor doesn't
24 go away. It's still within——the sensor itself is still within the field, even if
25 it's not operating at that time, right?

1 MR. LAWSON: Well, no, Your Honor. The Patent Owner would
2 submit that it's not inside. The magnetic sensor is not inside the magnetic
3 field if there's no magnetic field. And that's how it's done.
4 JUDGE OGDEN: No, I think you're not——I'm not sure you
5 understand what I'm saying. I'm saying that when there is a magnetic field,
6 at some point there will be a magnetic field in Fells, right, in the 212. But
7 you're saying that at that point the proximity detector or, you know, the
8 magnetic——what Petitioner contends is that the magnetic field sensor, that
9 would be turned off, right? I'm asking you to comment on even though it's
10 turned off, even if that proximity sensor detector is turned off, it doesn't
11 move and its location is still in the same place that it was prior to that source
12 resonator being turned on, right?
13 MR. LAWSON: Yes, Your Honor. I think it could be, but the Patent
14 Owner is not submitted——is not saying that the magnetic field sensor is
15 turned on. What Patent Owner——what Fells discloses is that the magnetic
16 field sensor is on, but there is no magnetic field being produced by the
17 wireless transfer energy source, by the source resonator. It's off.
18 If it would, Your Honor, if I could go——we can jump straight to—
19 —we can go to Figure 40. I'll come back to explaining, you know, how '184
20 explains this in good detail. But if you—
21 JUDGE RAEVSKY: Yeah, so I think that when you are referring to
22 the magnetic field being off, you're missing Judge Ogden's question.
23 Eventually, the magnetic field is going to be turned on. At that time, isn't the
24 magnetic field sensor then in the magnetic field?
25 MR. LAWSON: Well, if you look at Figure 40, Your Honor, it will
26 suggest that it's not. Figure 40 shows the——Fells Figure 40, which again

1 this is what Paragraph 288, 289, and 290 are referring to. So, all the
2 discussion about Paragraph 288, 289 by Petitioner were all in light of this
3 figure in Fells, okay? And it shows that the proximity detector is not within
4 the magnetic field of the source resonator. It's off to the side.
5 The source resonator's LP, if you look in there the magnetic field
6 from LP would be going to the right of the screen where the other device
7 that's coming is going to, you know——the receiving resonator would
8 receive the transfer of the energy. The proximity center is off to the side of
9 the device. Close, but off to the side. And that's what——and you see again
10 in Figure 40, Switch 1 is open, okay?
11 JUDGE RAEVSKY: I'm struggling to understand why your position
12 is that this diagram shows that the proximity detector would not be in the
13 magnetic field. My somewhat dim recollection from physics is that a
14 magnetic field would extend pretty far, and its strength would decrease
15 exponentially with the distance, but that it doesn't stop suddenly a few
16 inches away or centimeters, or whatever it may be.
17 So, how can we concretely say the proximity detector is not within the
18 magnetic field?
19 MR. LAWSON: Well, it's what Fells says. It's in the proximity. It's a
20 proximity detector. It's in proximity of the resonator disclosed in Fells.
21 When it gets inside the eddy currents and things, that would be——once it's
22 turned on I think we'll——the Patent Owner's position is that that might be
23 possible. But that's not what's disclosed, and that's not the purpose of what
24 we're showing here.
25 JUDGE RAEVSKY: Just to confirm. You say it's the word proximity
26 that tells us that it's not actually in the field.

1 MR. LAWSON: Well, it's off the word proximity and Figure 40,
2 Your Honor. It shows—
3 JUDGE RAEVSKY: How can you use the—how can we rely on
4 whatever is basically seen between components in Figure 40 to determine
5 that there's a—
6 MR. LAWSON: Well, we have to rely on what a person with ordinary
7 skill in the art would read the disclosure in Fells and the figure in Figure 40.
8 And our expert, Dr. Horenstein, who's an expert in these selector mechanics
9 have stated very clearly in his declarations and are cited in our briefs that
10 that would not be considered in the magnetic field of the source resonator.
11 Would it be on the side if somebody is adding currents? It could be.
12 But the proximity detector there, Your Honor, the point is it's not detecting
13 perturbations in the magnetic field of the source resonator. Again, in this
14 figure it shows that the proximity factor, the magnetic field of the source
15 resonator is off. So, it could not be looking for perturbations in the magnetic
16 field or the source resonator because it's off. It's not generating a magnetic
17 field. The proximity detector—
18 JUDGE LEE: Counsel, it's Judge Lee. But what is it detecting then if
19 the magnetic field or the source resonator is off, and it was detecting
20 something?
21 MR. LAWSON: Right.
22 JUDGE LEE: So, what is it that it was detecting?
23 MR. LAWSON: For example, the proximity detector they've said it
24 has——the inductive proximity detector that they say is the proximity
25 detector, the inductive proximity produces its own magnetic field. So, the
26 inductive proximity detector in Fells produces its own magnetic field, so it

1 would detect, okay, a metallic object or another magnetic field that's coming
2 toward it.
3 And when it does, when its magnetic field is changed, the proximity
4 detector then blows at Switch 1. And then, it tells the system to now turn on
5 the source resonator and start transferring energy. And again, you take this
6 in light that this is——it's a conservation.
7 The point of Fells is to conserve energy for mobile phone charging,
8 wireless mobile phone charging, so that when there's no mobile phone on or
9 near the resonator the system is not generating a magnetic field. It's not
10 transferring energy. The only thing that's being——the only thing that has
11 energy being used is the proximity detector.
12 And Your Honor if you look, the energy storage module that's in
13 Figure 40, that is for the proximity detector. It has its own energy source. So,
14 it has a battery with its own energy source, and that operates the proximity
15 detector to produce its own magnetic field, and it consents——and it leads
16 the wireless charging system is off.
17 The proximity detector with its own energy source, okay, is on. So,
18 it's very low power but it's able to send out a magnetic field, and it can
19 sense metallic objects or a magnetic field a proximity detector can. And
20 we'll get to the Hall effect sensor. The Hall effect sensor similarly can detect
21 a magnetic field, but it can't detect metallic objects.
22 But that's the point of Fells, and much different from Claim 1 and the
23 claims in the '184 patent184 patent. Fells has a separate proximity detector
24 with its own energy storage device, and it's conserving energy with a system
25 by keeping the resonator and producing its own——the proximity detector
26 produces its own magnetic field.

1 And when it sees the mobile phone coming to it or another foreign
2 object debris, a metallic object or a magnetic object, that proximity detector
3 will sense that, and then it turns——the switch closes. And then, it turns on
4 the charging system, okay? And that's completely different than what's
5 disclosed in Fells——excuse me, what's claimed in the '184 patent184
6 patent. Completely different.
7 JUDGE LEE: Counsel, I'm just wondering why we're talking about
8 Limitation 1E. I know it's in your papers, but have you given up on
9 Limitation 1F? I don't recall you arguing that limitation.
10 MR. LAWSON: I don't think we've given up on 1F. I think that's the
11 purpose of Claim 1 is so that the foreign object debris system——because it
12 verifies that foreign object debris hasn't moved onto or over the source
13 resonator during generation of the oscillating magnetic field.
14 So, if I go back——and if I may, Your Honor, go back up to the top
15 and we can talk about how the invention of '184 and Claim 1, and how the
16 '184 patent184 patent senses——uses the coils in the sense——to make
17 the——to sense the magnetic field sensor inside the magnetic field of the
18 operating resonator, and then it's incorporated therein.
19 And then, that issues the magnetic field from the source resonator,
20 passes through those coils of the magnetic sensor, and thereby——and those
21 coils sense any perturbations in the magnetic field of the source resonator,
22 okay, when it detects foreign objects, okay? And that's how the invention in
23 '184 patent184 patent works. And it's significantly different than the, you
24 know——what's disclosed in Fells.
25 And if I may, Your Honor, I'll go up to the top of that and we can talk
26 about it. It's, you know, it's quite different, but it's also, you know, very

1 unique. And the ’184 patent184 patent, and I’m looking at——if you look at
2 it at Slide 7, a foreign object debris which is metallic objects, okay,
3 sufficient size or characteristics in the metallic objects is important. And
4 again, we’ll come back because the Hall effect sensor doesn’t detect metallic
5 objects. It only detects magnetic fields, okay?
6 But it says and here we go, these perturbations are thereby defined
7 may be detected by measuring electric parameters of the resonators or the
8 characteristics of the energy transfer, okay? And that’s what it’s detecting,
9 okay? And that’s, you know, Column 4, 51 to 59, right?
10 And here’s Figure 2 and shows these coils. These are the magnetic
11 field sensors disclosed in the ’184 patent184 patent, okay? And it
12 discusses——and here’s the fore point here. This is Slide 9 for Your Honor,
13 and this is a quote. During operation, the wireless energy transfer system
14 generates a magnetic field that passes through the two loops.
15 And that’s the point in Claim 1. Claim 1 has the magnetic field sensor
16 is positioned within the magnetic field, and the magnetic field of the source
17 resonator passes through those two loops, which is the magnetic sensors.
18 And then, those two loops measure perturbations in the magnetic field
19 because they’re within it, okay?
20 And that’s distinctly different, completely different actually, from
21 what Fells discloses with a separate proximity detector with its own energy
22 source that’s not within the magnetic field of the source resonator, okay? So,
23 it says in the absence of five, the loops are substantially——well, let me go
24 back up. I’ll just get a quote for the record there, Your Honor, for——this is
25 a very important passage what I just quoted. This is, again, I’ll just quote it
26 for the record.

1 During operation, the wireless energy transfer system generates a
2 magnetic field that passes through the two loops. That's in the '184
3 patent184 patent. That's at Column 5, 43 to 45. It's also at Column 5, 25 to
4 38. And it's in Dr. Horenstein's declaration. He explains the operation of
5 those magnetic sensors within a magnetic field at Paragraphs 37 to 51. And
6 again, this is Slide 9 of Patent Owner's demonstrative exhibits, okay?
7 When FOD is placed——so, the second bullet point on Slide 10
8 explains the '184 patent184 patent specification explains that when the FOD
9 is placed so it's partly covering one of the loops, not another loop, the FOD
10 may deflect or absorb some of that magnetic flux of the source resonator,
11 perturbing the magnetic field, and resulting in a larger difference between
12 the voltages.
13 Again, that's the '184 patent184 patent. That's at Column 5, 53 to 63.
14 And that's what those——that's what the magnetic field sensors in the '184
15 patent184 patent are doing. They're measuring if five comes within the
16 magnetic field of the source resonator, it detects those perturbations caused
17 by the five, okay? it provides a number of embodiments. The '184 patent184
18 patent will go where the five sensors may be one-looped, they may be
19 twisted in a number of different loops but here's the key point. We're on
20 Slide 11 of Patent Owner's demonstratives.
21 Each of these configurations can accomplish the goal measuring
22 magnetic field perturbations due to the presence of the metallic five, and
23 that's the magnetic field perturbations of the magnetic field produced by the
24 wireless transport system. And that's at Column 7, Lines 8 to 10 of the '184
25 patent184 patent.

1 And again, Column 5, Lines 64 to Column 8, Line 4 it goes through
2 very detailed explanations of different ways you can use those loops that are
3 placed within the magnetic field of the source resonator, okay? And here we
4 talked about——Petitioner made a point that Dr. Horenstein during his
5 deposition noted that if proximity detector was just to the side of the wireless
6 transfer source in Fells that it might have a blind spot.
7 Well, the ’184 acknowledges that also. And it shows here at
8 Figure 4B, this is Slide 12 of the Petitioner’s demonstrative, it shows an
9 embodiment with two offset arrays. And it shows that basically two layers of
10 these magnetic field sensors so that it covers the blind spots. The ’184
11 patent184 patent acknowledges that there could be blind spots depending on
12 how you place the magnetic sensors and how much coverage, area they
13 cover.
14 So, Figures 4A and 4B show a way to place the coils over the source
15 resonator within the magnetic field. Figure 4B shows how——Figure 4A
16 shows where there’s a blind spot. You see in between the squares, you see
17 there that’s a blind spot. It may not be covered.
18 Figure 4B covers that blind spot by having overlapping layers of the
19 magnetic field sensors. Thereby, you know, taking out or minimizing the
20 potential of a blind spot by your magnetic field sensors, so that Figure 4B
21 would catch most if not all five it would cover within the magnetic field of
22 the source resonator, okay?
23 And again, we’ve got a person in skill of the art that would understand
24 that those loop sensors are huge that way. Dr. Horenstein explains that in
25 Paragraphs 47 to 51 of his declaration. We explained it in our sur-reply at 7.
26 We also explained it in our initial response.

1 And again, such an arrays in Figure 4B is necessary for full detection
2 coverage to be monitored or the entire face of the resonator. That's
3 Dr. Horenstein's Paragraphs 47 to 51, okay? And again, the '184 patent has,
4 you know——discloses it talks about low——you know three different
5 power modes. It's low power, medium power, and high power. But at all
6 times, the power is on in the '184 in the '184 specification. The source
7 resonator is on at all times, even in low power mode. And the magnetic field
8 from the source resonator is passing through the magnetic field sensors.
9 And once, you know, a device comes on over it to turn on if it's a
10 valid device, it will then turn on to go from medium power to high power
11 depending on what it does. But at all times, unlike the Fells's disclosure
12 where there's no power going to the resonator and there's no magnetic field
13 being produced by the resonator, in the '184 patent at all times the
14 magnetic——the source resonator is producing the magnetic field and is
15 passing through the magnetic field sensors as disclosed and claimed in
16 Claim 1 of the '184 patent.
17 JUDGE LEE: Mr. Lawson, it's Judge Lee. Can you go to
18 Limitation 1F, and I'm a little confused by this clause. During generation of
19 the oscillating magnetic field. Is that during clause modify——to verify?
20 MR. LAWSON: Does it say—
21 JUDGE LEE: Or does it modify as not moved onto or over the source
22 resonator?
23 MR. LAWSON: During generation of the——again, I guess that goes
24 back to my previous slide, Your Honor, with the low power modes. It's
25 generating——in the '184 patent specification, it shows that the source
26 generator——excuse me, the source resonator is producing the magnetic

1 field at all——is producing the oscillating magnetic field. So, it's generating
2 the magnetic field at all times. It's on.
3 JUDGE LEE: I know, but can you go—
4 MR. LAWSON: So, that's what this—
5 JUDGE LEE:——to Limitation 1F?
6 MR. LAWSON: Yes, Your Honor. Yes. So, during generation while
7 it's generating the oscillating magnetic field the debris detection system is
8 configured so that those magnetic field sensors can detect foreign objects if
9 it comes in the area.
10 JUDGE LEE: Let's just stay with the claim language, right? You see
11 the clause, during generation, right? So, I'm confused as to what that
12 modifies. Is it saying—what has to happen during generation of the
13 oscillating magnetic field? It could be that the verification has to happen
14 during that time, or the debris has not moved onto the source resonator.
15 MR. LAWSON: It's detecting—the sensor is configured to verify that
16 during the—while the source resonator is generating the magnetic field,
17 foreign object debris hasn't moved over. If it does, then it detects that with
18 the perturbations in the magnetic field.
19 JUDGE LEE: So, the verification doesn't have to happen during that
20 generation. So, your answer is it modifies. The debris has not moved.
21 MR. LAWSON: I'm not sure if I understand the question, Your
22 Honor, but it is explaining—this element simply explains that the debris
23 detection system which is having the magnetic field sensors within the
24 magnetic field of the source resonator, which is the oscillating magnetic
25 field that it talks about in that same element, it confirms that no foreign
26 object debris has moved over on top of the resonator or near the resonator

1 during the time period. Otherwise, it would measure the perturbations and
2 would send a signal to—that a five has moved within the magnetic field of
3 the wireless transfer system.
4 JUDGE LEE: Well, let me try this again. It's important to me, right?
5 So, 1F says configure to verify something during generation of the
6 oscillating magnetic fields. Is it the verification that has to happen during
7 this period? Or is it that something has to happen during this period, and that
8 something is the debris has not moved?
9 MR. LAWSON: Well, Your Honor, what I think it's saying there,
10 what that clause is saying we're in the foreign object debris detection system
11 is configured to verify, I mean, by operating and being the magnetic field
12 sensors are positioned within the magnetic field as we just talked about with
13 the Figures 4A, 4B, with the magnetic field sensors within the magnetic field
14 while the resonator is on, okay? It continues to provide—
15 JUDGE LEE: You know, you seem to bring in so many concepts. I'm
16 merely talking about these two lines. And the answer is confusing when you
17 bring in so many other things. It just says, configure to verify the object has
18 not moved during generation of the field. That's all. So, I just don't know
19 what the during modifies.
20 Does it modify active verifying? Or does it modify the active—the
21 debris moving? So, it should be—the answer should be, it modifies the
22 active verifying, or it modifies the active debris moving. It's just a fair
23 question.
24 MR. LAWSON: Your Honor, I apologize. But if I understand your
25 question to verify the debris moving because it says here the foreign object
26 debris, it's verifying that foreign object is not moved onto or over the source

1 resonator. And that's what the magnetic field sensors are for is to continue to
2 monitor and verify that foreign object debris hasn't moved onto or over the
3 source resonator while it's generating the magnetic field.
4 JUDGE LEE: Right. So, what has to happen during that generation?
5 The verification is one answer, or the debris has not moved over the source
6 resonator is the other answer. I'd just like to know what the answer is.
7 MR. LAWSON: It's verifying—
8 JUDGE LEE: Is it one or is it the other?
9 MR. LAWSON: It's verifying that debris has not moved onto or over
10 the source resonator. That's what it's verifying that foreign object debris has
11 not moved onto or over the source resonator. So, it's operating normally.
12 There's not FOD there. There's no difference in the—there's no
13 perturbations in the magnetic field by that, and it's verifying that no foreign
14 object debris has moved onto or over the source resonator while it's
15 generating the oscillating magnetic field. I hope I've answered Your Honor's
16 question. That's what that claim language is claiming.
17 JUDGE LEE: Well, I didn't understand the answer. Sorry.
18 MR. LAWSON: I'll try. This is showing—the claim, Element F, is
19 saying that the foreign object debris system is configured, again, with—and
20 again with the magnetic field sensors that are in the magnetic field of the
21 oscillating magnetic field of the resonator, okay, it's verifying that foreign
22 object debris has not moved onto or over the source resonator during the
23 generation of the oscillating magnetic field. So, those sensors are there to
24 verify that nothing has come onto the source resonator while it's producing
25 the magnetic field.

1 JUDGE OGDEN: So, Mr. Lawson, under this claim language could
2 the magnetic field stop, and then you perform a verification to determine
3 whether—while the magnetic field with no debris had moved onto or over
4 the source resonator?
5 MR. LAWSON: Well, yes. It would send a signal what Your Honor
6 would send a signal to. The magnetic field would sense whether there's a
7 foreign object that has come onto or over the source resonator. And that
8 would send the signal to the system, correct.
9 And then, Your Honor, independent claim shows whether, you know,
10 whether it's a verified device in those systems, right, like in a vehicle and
11 those things. But that's what Claim 1, the independent Claim 1 is how the
12 system operates to detect when a foreign object debris is coming near or
13 over the oscillating magnetic field of the source resonator that's operating.
14 And again you can have, as we've talked, you can have—you would
15 have it at very low power mode so that it's using little power but there is a
16 magnetic field being produced so it's conserving energy. But that oscillating
17 magnetic field is still there, and then it can kick on if the magnetic field
18 sensor, you know, identifies a foreign object. It could reduce the field, or it
19 could, you know, begin to go into a higher mode in order to, you know,
20 transfer the power to the verified device.
21 JUDGE OGDEN: Okay. I think we've spent enough time on that. I'll
22 let you continue on your other arguments.
23 MR. LAWSON: Thank you, Your Honor. If we go to Slide 19, we
24 talk about—the '184 patent specifically talks about objects that it's meant to
25 detect not just magnetic fields, but metallic objects, okay? So, things like
26 tools, coils, metal pieces, soda cans, you know, chewing gum or a burger—

1 you know, food wrappers that have metallic paper wrappers. Those are the
2 kinds of—the metal foils and those things. Those are the kinds of things that
3 it's meant to detect as foreign object debris, okay?
4 Again, we talked about the difference with Fells. In Fells we
5 discussed this, the magnetic field sensor can't be within the magnetic field
6 because the sensor in Fells is not generating a magnetic field. It's got—when
7 it's got the switch open.
8 And only after detecting the mobile phone, you see the last bullet
9 point there we talked about this, this is Slide 20, it's actually detecting the
10 mobile phone. Then, Switch 1 closes. Then, and only then, the source
11 resonator begins to produce a magnetic field to charge the mobile phone.
12 That's Fells. That's completely different than the magnetic field sensors that
13 are in the magnetic field of the source resonator in the '184, okay?
14 We went over Fells and Figure 40. Again, Your Honors, Patent Owner
15 submits that if you read in Fells for your—288 to 290 are the operative
16 paragraphs in Fells. The Petitioner agrees. That's why they showed it. And
17 we agree too, but it's got to be right in conjunction with Figure 40. And
18 that's what Paragraph 288 shows. It starts out with discussing Figure 40 of
19 Fells, okay?
20 Slide 24 shows that the Hall effect sensor, we'll come to that, the Hall
21 effect sensor can sense magnetic objects, not metallic objects but magnetic
22 objects. And that's in Horenstein's—Dr. Horenstein's declaration at
23 Paragraph 96, and also in our sur-reply at 9.
24 JUDGE RAEVSKY: Counsel, what's your response to Petitioner's
25 contention that this is a new argument raised for the—

1 MR. LAWSON: Well, we made the argument in our response, Your
2 Honor. It's also in our expert's declaration when we talked about how the
3 Hall effect sensor would not detect—only detects metallic objects. I mean,
4 he has a whole paragraph. Just for Your Honor's knowledge, this figure on
5 Slide 24 of Patent Owner's demonstrative is from Dr. Horenstein's
6 declaration, and it's just above Paragraph 96 where he explains that a Hall
7 effect sensor only detects magnetic fields, not metallic objects.
8 JUDGE RAEVSKY: Where in the POR did you make that argument?
9 MR. LAWSON: I have to go back and look, Your Honor, but I could
10 get that on—or for our—in my rebuttal time.
11 JUDGE RAEVSKY: That's fine.
12 MR. LAWSON: But we don't have to talk about the Hall effect
13 sensor. And we have a whole section how a Hall effect sensor isn't a
14 magnetic field sensor as used in—as disclosed and claimed in the '184
15 patent. In fact, Your Honor, I think if you give me—I'll get back to it. But I
16 think the Hall effect sensor—
17 JUDGE OGDEN: And if you'd like to come back in your sur-rebuttal.
18 I mean, time—you've got about five minutes or four minutes left in your
19 time.
20 MR. LAWSON: Thank you, Your Honor. We have an entire section
21 on how the Hall effect sensor is not a magnetic field sensor in the—as
22 disclosed and claimed in the '184. And I'd be happy to give you the cite.
23 And we talked about Figure 40.
24 The Hall effect sensor discloses that the magnetic field of a mobile
25 phone—because a mobile phone has a magnetic field with it, and that's
26 where we talk about this again is in—it is in Dr. Horenstein's declaration at

1 96. And in our sur-reply at 10 we talk about this, and I'll have the cite to you
2 for our response.
3 But again, I would also make a point, Your Honor, that our sur-reply
4 was a direct response to Patent Owner's reply brief. And they continue to
5 make the argument that the Hall effect sensor is a magnetic field sensor
6 under Claim 1 of the '184 patent.
7 JUDGE OGDEN: So, Mr. Lawson, I don't want to cut off any
8 arguments you plan to make but your time is getting pretty short. I just
9 wanted to make sure that you had some time to address, for example,
10 Ground 2, and specifically the issue of whether or not Fells discloses a
11 health or status check.
12 MR. LAWSON: Okay. Yeah, and I'd just make a point that
13 independent Claims 8 and 11 are tied to Claim 1, and that's why Fells by
14 itself does not—in Fells and Cook don't make those claims on patentable.
15 On Ground 2, Claims 2 to 7, 9 to 10, I mentioned Claims 8 and 11 are
16 dependent from Claim 1. Nothing in Cook fixes the failure of deficiencies of
17 Fells. So, those dependent claims aren't unpatentable because Fells doesn't
18 make Claim 1 unpatentable.
19 We have more discussion of the Hall effect sensor. Excuse me.
20 JUDGE OGDEN: You've got about a minute left. You can continue
21 on to your sur-rebuttal time if you want to make an additional point, but—
22 MR. LAWSON: Thank you, Your Honor. We just disclose that
23 Cook—all Cook discloses really is a vehicle coming from a magnetic
24 wireless transfer system. It doesn't do anything to correct the deficiencies in
25 Fells. In fact, it really is—it discloses using an RFID device to verify that the

1 vehicle has an account with the system. It doesn't do anything to fix the lack
2 of the disclosure in Fells.
3 The point we would make about Fells and Cook, that Fells doesn't do
4 the health and status check. If you look at Claim 4, Patent Owner has made
5 the argument that health and status check of the energy storage system meets
6 the limitation in Claim 4 to—regarding performing a health and status check
7 of the wireless energy transfer source. And that's just, you know, checking
8 the energy storage level of the proximity detector hasn't—isn't doing
9 anything to check the health or status of the actual, you know, wireless
10 energy transfer source, which is the resonator. I never showed that.
11 It says, certain energy storage element are completely separate from—
12 this again goes back to Figure 40 showing that the energy storage and the
13 proximity detector are complete separate from the resonator. And so, that
14 checking the storage level of the energy storage for the proximity detector
15 doesn't have anything to do with the actual health of the source resonator,
16 okay?
17 The only—again with the enclosures, the only thing we would—the
18 Patent Owner would suggest to Your Honors is that these dotted lines can
19 show a circuit board but are not indicative of an enclosure and don't show a
20 housing or an enclosure. And we cite cases, you know, for that purpose.
21 And again as Dr. Horenstein submitted in his declaration at
22 Paragraphs 126 to 128, you know, these dotted lines don't mean an
23 enclosure. If anything, it's more of a circuit board for an electronic circuit
24 system. Again for the record, that's Slide 51 of Patent Owner's
25 demonstratives.

1 But subject to you questions, Your Honors, I would reserve the rest of
2 my time for sur-rebuttal.
3 JUDGE OGDEN: Okay. Thank you, Mr. Lawson. It looks like you've
4 used about 47 minutes. So, you'll have about 13 left in your sur-rebuttal
5 time.
6 So, let's go back to Mr. Zucker. You have about 14 minutes of
7 rebuttal time. You can start when you're ready.
8 MR. ZUCKER: Thank you, Your Honor. I'm going to do my best to
9 minimize jumping around, but I have a couple of points I want to cover.
10 First, when I was up earlier the question was asked as to whether
11 anything in the '184 patent that talks about using different types of
12 resonators as in not just a magnetic field sensor, which is part of what've we
13 talked about in Fells. At the '184 patent, Column 7, Line 60 through Column
14 8, Line 4 it says that an array of FOD sensors may comprise multiple types
15 of sensors.
16 And then, it lists multiple different types of FOD sensors that could be
17 used not just magnetic field sensors, but temperature sensors, pressure
18 sensors, weight sensors, water sensors. And so, we do think that supports the
19 idea as we explained in the petition that the foreign object debris detection
20 system in Fells can include both the magnetic field sensor and also the
21 control element, and those do different detections at different times but that
22 nonetheless meets the claim elements.
23 On a related point to that, there was a question about Element 1F. Just
24 to be clear, the Patent Owner has never previously challenged 1F. The
25 petition explains at Page 23 through 30 in great detail how Element 1F is
26 met with the sense circuit and the control unit providing a check of whether

1 there is a foreign object present during the charging, during the generation of
2 the oscillating magnetic field.
3 I know Judge Lee had a question about what exactly in 1F the—how
4 exactly the clause in 1F play out. 1F says the debris detection system is
5 configured to verify that foreign object debris has not moved onto or over
6 the source resonator during generation of the oscillating magnetic field. We
7 think the most natural way to read that is that it's the verification that has to
8 occur during the generation of the oscillating magnetic field.
9 But Fells undisputedly teaches both because what the petition shows
10 at Pages 23 through 30 is a flowchart that says when charging starts,
11 immediately before charging Fells does a check for foreign object debris.
12 And then, during charging there is a loop in the flowchart in which it is
13 continuously checking for the presence for an object debris.
14 And so, both the verification happens during generation of charging.
15 And also what it is checking for is whether the debris has moved onto or
16 over the source resonator during verification of charging. And so, either way
17 that that's parsed, that's met. And again, Patent Owner didn't actually
18 dispute Element 1F.
19 JUDGE LEE: Well, Mr. Zucker, it's Judge Lee. But opposing counsel
20 says the field is off, you know, when the sensor's doing its work. So, how
21 can you meet it if the during clause modifies to verify?
22 MR. ZUCKER: So, we're talking about—
23 JUDGE LEE: You know, because it's—it can't be doing any
24 verification if, you know, if the field is off and the claim requires that
25 verification be done during generation of the field.

1 MR. ZUCKER: So, what opposing counsel was talking about is their
2 contention that the magnetic field sensor is off when the primary coil is on.
3 But our undisputed disclosure of how Fells teaches Element 1F doesn't rely
4 on the magnetic field sensor. It's the control element that separately
5 conducts a check for whether foreign object debris is present during
6 generation of the magnetic field. And so, whether the magnetic field is or
7 isn't there is irrelevant. It's satisfied by the control element there.
8 That said, I think Patent Owner's contention that the proximity
9 detectors, specifically the magnetic field detector, is going to turn off before
10 generation—the primary coil is energized is not correct. And we can see
11 that, for example, on Fells Paragraph 288 that's shown for example on
12 Petitioner's Slide 9.
13 Now, it is true that the first thing the proximity detector does is
14 initially detect that device or foreign object has been placed in the vicinity of
15 the wireless power supply. But then, it goes on to say that it also detects if a
16 device or foreign object is removed from the wireless supply. And that
17 removal can happen during or at the end of charging. And so, it is just not
18 correct to say the proximity detector only detects prior to the primary coil
19 being energized.
20 That said, even if Patent Owner was correct that the magnetic field
21 sensor only operated prior to the primary coil being energized, that would
22 not change the fact that when the primary coil is then energized the magnetic
23 field sensor is within that magnetic field, and that meets the claim
24 limitations.
25 This is at our Slide—I apologize. Let me make sure I have the right
26 cite for Your Honors. This is at Petitioner's Slide 32. Even if Patent Owner

1 were correct that there is a magnetic field sensor that does an initial
2 detection and then it turns off, and then the primary coil turns on, that would
3 not change the fact that Fells discloses that when that field is on the
4 magnetic field detector is now in the field, even if it's not performing
5 sensing. There's nothing in the claim that requires that those two
6 components be turned on at the same time.
7 JUDGE RAEVSKY: Mr. Zucker, is there anything in the record that
8 would help us understand the size of the magnetic field in Fells, so that we
9 could ascertain whether the proximity sensor is within it or not?
10 MR. ZUCKER: Fells does not disclose the specific size of the
11 proximity detector. What it does say is that the coil of—the primary coil can
12 be positioned at any orientation relative to the secondary coil. I think Mr.
13 Lawson made a comment that the magnetic field was essentially only
14 extended to the right in Figure 40 because that's where the secondary coil is,
15 but that's not what Fells discloses. Fells says it can be in any orientation.
16 And then, Dr. Allen explained that at these sorts of power levels
17 you're talking about here as I believe Judge Raevsky pointed out, there is
18 going to be a sizeable magnetic field extending out from the primary coil.
19 And on that note, I believe Mr. Lawson actually admitted that it is at least
20 possible that the proximity detector in Figure 40 is going to receive some of
21 the eddy currents generated from the magnetic field of the primary coil. That
22 would be sufficient here.
23 To be clear, that's not what we're relying on. But if there are eddy
24 currents being generated within the proximity detector that means it's within
25 the magnetic field and that's sufficient to meet this limitation.

1 A few other quick points I want to mention. Mr. Lawson spent a good
2 deal of time talking about differences between the specification of the ’184
3 patent and Fells. But to be clear, these are unclaimed differences. He’s
4 talking about whether the sensor generates its own magnetic field, whether
5 the generator—the resonator is on at all times, whether there’s an array of
6 sensors, whether it has or doesn’t have a blind spot. But none of those are
7 actually claimed.
8 And we can see this quite clearly. Mr. Lawson cited repeatedly to the
9 ’184 patent starting at Column 4, Line 39. And his contention was that
10 Column 4, Line 39 through Column 7 describes how the claim works. But
11 the very beginning of Column 4, Line 239 says, in accordance with
12 exemplary and non-limiting embodiments.
13 And in fact, every paragraph in Column 4 to Column 7 that
14 Mr. Lawson was talking about begins with that same phrase, in accordance
15 with exemplary and non-limiting embodiments. And so, it would be
16 improper as a matter of law to limit the claims to these exemplary and non-
17 limiting embodiments.
18 The only other point I would say, I think there was some contention in
19 my first presentation about what it would mean for debris to be magnetic.
20 But to be clear and as it was clear from Mr. Lawson’s presentation, at least
21 when Fells uses an inductive proximity sensor, it detects not just magnetic
22 objects but any metallic objects. And that’s what the ’184 calls for in object
23 debris.
24 If we look, for example, Column 1, Line 35 through 54 of the
25 foreign—of the ’184 patent, first it talks about non-magnetic or non-metallic
26 objects and it calls those foreign objects. And then, it talks about metallic

1 objects, and it also calls those foreign objects. And so, clearly this concept of
2 foreign object detection includes metallic and non-metallic, magnetic and
3 non-magnetic. And so, there's no basis to exclude Fells's disclosure of
4 foreign object detection.
5 With that, unless Your Honors have any further questions, we would
6 ask this Board to affirm the invalidity—to find Claims 1 through 13 and 16
7 invalid.
8 JUDGE OGDEN: I would just like to go—ask one question going
9 back to that limitation of 1F again and your position on that. You pointed us
10 to some parts of the petition. I think it started on Page 23. And I note that
11 part of your argument relies on Figure 18 of Fells in which there's a
12 flowchart that describes how the, you know, the control system operates and
13 part of that involves—it seems to involve checking to see if there's a foreign
14 object present periodically while—during the energy transfer process.
15 So, if based on the—on your alternative argument, your hypothetical
16 argument that it were true. That if it were to determine that the magnetic
17 sensor in Fells is turned off at the time the wireless power transfer is
18 occurring, are you relying on some of the other types of sensors that you
19 mentioned? I think you mentioned there was like optical or other types of
20 sensors other than magnetic sensors for that foreign object check in that
21 embodiment.
22 MR. ZUCKER: Yes. So, what the petition relies on for Element 1F is
23 the combination of the sense circuit and the control circuit, or the control
24 element as it's also called, because the control element is what Fells says
25 performs foreign object detection during generation.

1 And so, whatever type of sensor that control circuit it is, whatever it is
2 doing there, that is what we're relying on for Element 1F, and it's
3 undisputed that that's taught. The petition actually explains that we believe
4 the flowchart in Figures 18 and 19 are directly applicable to the Fells's
5 Figure 40 embodiment. But to the extent there's any doubt about that,
6 there's an argument that it would have been obvious to implement Fells
7 Figure 40 in this same looping way. And I'm looking at Petitioner's Page
8 29. And again, all of that is undisputed.
9 So, yes, our argument for 1F does not specifically rely on the
10 magnetic field sensor. It relies on the other sensors in Fells which are
11 similarly stated to perform foreign object detection.
12 JUDGE OGDEN: Okay, thank you.
13 MR. ZUCKER: Thank you, Your Honors.
14 JUDGE OGDEN: Okay. Thank you, Mr. Zucker for Petitioner. Let's
15 go back to Patent Owner, Mr. Lawson. You have 13 minutes for sur-rebuttal.
16 MR. LAWSON: Yes. Thank you, Your Honor. And just to start
17 with—you asked for the cite, the discussion by Patent Owner on the Hall
18 effect device and how it is not a magnetic field sensor within the magnetic
19 field of the wireless transfer system as required by Claim 1, that is Section
20 6B2 of Patent Owner's response. That's Pages 35 to 37.
21 And I would just note for Your Honors, I mean, we cite to about 20
22 different paragraphs of Dr. Horenstein's declaration also within that two-
23 page, two and a half-page discussion of how Hall effect sensor does not
24 meet element of a magnetic field sensor in Claim 1 as required by Claim 1.
25 I would, to start the rebuttal, Your Honor, I would say again that it is
26 exceptionally telling that Petitioner's position is that and quote, the magnetic

1 field sensor is not required to do anything, in the disclosure of Fells in order
2 to invalidate Claim 1 of the ’184 patent. And I almost don’t know what else
3 to say about that. Any reading of the claim by a person of skill of the art, in
4 light of the specification wouldn’t understand number one, the claim element
5 requires a magnetic field sensor and that is it is sensing the magnetic field of
6 the wireless transfer system as disclosed in the claim, and we talked about it
7 in detail.
8 I would also make the argument, Your Honors, I’m not sure I guess I
9 understand the Petitioner’s argument that the specification says that some of
10 the embodiments are non-limiting, the non-limiting as far as the disclosure
11 that’s in the specification. But they are limited by the claims of the patent by
12 actually what is claimed. And therefore, that’s why those are limited.
13 I would submit again to Your Honors that those—you know, that from
14 Column 4, Lines—again in ’184 patent, Columns 4, Line 39 through
15 Column 7, Line 13 explains very clearly about placing the magnetic field
16 sensors inside the magnetic field of the wireless transfer system disclosure,
17 the ’184 patent. And that is what those magnetic field sensors that are in that
18 oscillating field that’s producing the magnetic field is sensing.
19 Those magnetic field sensors are sensing the perturbations in the
20 magnetic field produced by the source resonator. And that is what is claimed
21 and disclosed in Claim 1 of the ’184 patent, and all the claims that depend
22 from it. And that’s why we spent so much time on it, Your Honor, because
23 Fells doesn’t make unpatentable Claim 1, the Ono—the other references
24 don’t do anything to add to Fells regarding placing the magnetic field
25 sensors within—inside the magnetic field of the source resonator. And that’s
26 why all those claims are not patentable because Claim 1 is not patentable.

1 JUDGE OGDEN: Mr. Lawson, I'm not quite sure I understand your
2 position on how—I mean, how would it be possible for a proximity sensor
3 that works on some sort of magnetic principle to detect debris within, you
4 know, within the area of a magnetic that would eventually be used as a
5 power transfer area between two coils? How would it be—how could it
6 detect foreign debris in that region using magnetic principles unless it's
7 within the field?
8 MR. LAWSON: Well, the—
9 JUDGE OGDEN: I'm saying specifically within the area where the
10 field would at least at some point occur.
11 MR. LAWSON: Right. I would say I would submit to Your Honor,
12 again, the Patent Owner in very good detail in Section 6B1 and 2 about how
13 the proximity detectors disclosed in Fells is not positioned within the
14 magnetic field of the wireless transfer system. And Dr. Horenstein, in his
15 declaration, talks about and explains how a person in skill of the art would
16 understand that, and that the proximity detector is off to the side. And it is—
17 the proximity detector disclosed in Fells, again, is just—creates its own
18 magnetic field. And that magnetic field is what detect foreign object debris
19 in Fells.
20 If you recall again on Figure 40, and there's been no debate about that
21 from Petitioner, when the proximity detector is initially detected whether or
22 not FOD is approaching, or again this is for a wireless phone charging
23 system, as the phone approaches the magnetic field—excuse me, the
24 wireless charging system or the resonator is turned off.
25 The proximity detector has its own energy storage. It has its own
26 energy storage source and that allows the proximity detector to produce its

1 own magnetic field. And that magnetic field proximity detector is what
2 detects FOD in FOD or, you know, the mobile phone in Fells. It's not
3 detecting perturbations in the magnetic field of the source resonator because
4 the source resonator is turned off.
5 And that's the whole point of Fells again is to conserve energy in the
6 wireless transfer system. It's turned off until it sees the approaching mobile
7 phone within proximity of that source resonator. Only then do you pull
8 Switch 1, and only then does the magnetic field of the wireless transfer
9 system get turned on.
10 JUDGE OGDEN: So, even if we assume that and we assume that the
11 proximity sensor has its own magnetic field that it's generating, isn't that
12 magnetic field going to necessarily overlap with the magnetic field of the
13 source resonator?
14 MR. LAWSON: Not—
15 JUDGE OGDEN: Because otherwise, how is it going to detect foreign
16 debris within the field region of the source resonator?
17 MR. LAWSON: Well, as an initial matter we—the Patent Owner's
18 argument is and that Dr. Horenstein testified to is that, again, the switch is
19 off, right? The source resonator, while the system is conserving energy, the
20 source resonator, the wireless transfer system, is completely off. So, there is
21 no magnetic field to be for the Fells proximity detector to be inside because
22 there's no magnetic field for that source resonator.
23 And again, it's off to the side, the magnetic field. And again, so a
24 person in skill of the art, and Dr. Horenstein explains this, and we have the
25 Patent Owner's response also in our reply in his declaration we cite to the
26 paragraphs, but how a person in the skill of art would understand what it

1 means for the magnetic field sensor to be inside the magnetic field of the
2 wireless transfer system. It's off to the side. It's within the proximity of the
3 wireless transfer system, the source resonator in Fells, but it's not directly in
4 the magnetic field when it's oscillating. It's off to the side. And again—
5 JUDGE RAEVSKY: Mr. Lawson, can I stop you there for a second?
6 MR. LAWSON: Yes, sir.
7 JUDGE RAEVSKY: Is it a useful argument to rely on the Patent
8 Owner that there's no magnetic field lines shown anywhere in Fells? Am I
9 correct in remembering that?
10 MR. LAWSON: That's correct. There are no magnetic field lines
11 shown in Fells. And as Petitioner in response to a question from one of Your
12 Honors noted that there are no magnetic field lines, it doesn't have any
13 discussion about where the magnetic field or how the large the magnetic
14 field is disclosed in Fells.
15 And again, Fells only discloses that the proximity detector is
16 producing the magnetic field in that the magnetic field in the source
17 resonator is off. So, there's no reason to even show the magnetic field of the
18 source resonator because it has nothing to do with FOD approaching the
19 wireless transfer system in Fells, only if and when—until after the FOD gets
20 detected by the proximity detector. And only then would any magnetic field
21 be produced.
22 But to Your Honor's point, there are no magnetic fields disclosed in
23 Fells. There's nothing to say that discloses that that proximity detector
24 would be in the field. And again, I would submit to Your Honor we got a
25 direct quote from the '184 patent where it directly—and we showed it in the
26 slide that discloses that the magnetic field of the source resonator in '184

1 passes through the magnetic field sensors, the loop coils in the ’184 patent.
2 They’re passive and they rely on the magnetic field of the source resonator
3 to pass through it.
4 Nothing in Fells, nothing in Cook, nothing in Ono, and nothing in
5 Wang states that the magnetic field of the source resonator is passing
6 through the magnetic field sensors disclosed in Fells. Nothing. There’s
7 nothing like that. It’s a completely different way of trying to conserve
8 energy for these two different—very different wireless transfer systems. It’s
9 a completely different way.
10 And I think, Your Honors, the only thing I have left to show—I would
11 only say if Your Honors—and I’ll have to do this quickly because Petitioner
12 didn’t show it. But to the extent Your Honor made the point that other than
13 incorporating by reference Stevens, Fells doesn’t discuss anything about
14 Stevens other than just making a passing reference.
15 If I could share my—if I could quickly share my screen, I would ask if
16 Your Honor can see it. I will go to Stevens. Their cite to Stevens, it’s Figure
17 4. And again what Stevens does, and I’ll just—
18 JUDGE OGDEN: I don’t see the figure, but we can follow along in
19 our record.
20 MR. LAWSON: Yes. If you look at Figure 4 of Stevens, it doesn’t
21 show a proximity detector or a separate magnetic field sensor for that
22 system. What is shows is if something comes within, you know, close to the
23 resonator, the voltage changes in the electrical drive unit that is there that
24 gives the power to the inductive coil.
25 It’s a completely different way of giving—delivering power to the
26 coil. It’s not a separate magnetic field sensor, and it’s not—it doesn’t show

1 anything being within—a magnetic field sensor being within the magnetic
2 field of the source resonator. So, it's completely different from what Fells
3 discloses. And it's completely different from what '184 patent discloses and
4 claims with the magnetic field sensor inside the magnetic field of the source
5 resonator of the wireless transfer system.
6 And subject to your questions, Your Honor, that is our rebuttal for
7 Patent Owner, sur-rebuttal for Patent Owner.
8 JUDGE OGDEN: Okay. Thank you, Mr. Lawson, and thank you, Mr.
9 Zucker. That'll conclude the arguments for the IPR 2024-00105 case. So,
10 let's take a short break and before we begin arguments for the 140 case. And
11 let's reconvene 20 minutes after the hour. So, until then we'll go off the
12 record.
13 (Off the record.)
14 (On the record.)
15 JUDGE OGDEN: Welcome to the Patent Trial Appeal Board. This is
16 Judge Ogden. Also with me are Judges Lee and Raevsky. And we—this is a
17 continuation of hearing between these parties today.
18 For this part of the hearing, we're going to be discussing—this is for
19 IPR 2024-00140 relating to US Patent Number 8,466,654. And we got—we
20 took appearances earlier in the prior part of the proceeding. But I would like
21 to do that again just in case there was any changes. Mr. Davis, I understand
22 that you're going to be arguing on behalf of Petitioner today, correct? Am I
23 correct?
24 MR. DAVIS: That is correct, Your Honor.
25 JUDGE OGDEN: And do you have any other appearances?

1 MR. DAVIS: Yes. Also with me are David Zucker and Steven Peters
2 also counsel for petitioner inductive.
3 JUDGE OGDEN: Okay, thank you. And Mr. Corbett for Patent
4 Owner. Do you have any other appearances?
5 MR. CORBETT: Yes, Your Honor. Lance Lawson, my co-counsel, is
6 on. He's representing the Patent Owner, WiTricity Corporation, as well as
7 Mr. Misha Hill, in-house counsel for WiTricity is also on the line.
8 JUDGE OGDEN: Okay, thank you. We'll get right to it on behalf of
9 Petitioner then. Mr. Davis, would you like to reserve any rebuttal time?
10 MR. DAVIS: Yes, Your Honor. I would like to reserve 15 minutes.
11 JUDGE OGDEN: Okay. So, I will start the time. And you have
12 45 minutes in your initial time, and you can start when you're ready.
13 MR. DAVIS: Thank you, Your Honor. As you know, my name is
14 Blake Davis. I am representing Petitioner InductEV. And we'll be discussing
15 the invalidity of Claims 1, 4 through 6, 7 through 10, 12 through 14, 16, 18,
16 and 19 of the '654 patent654 patent.
17 In the petition there are two grounds. The first ground, which has
18 three subparts, is based on Odachi. And then, the second ground is based on
19 Ross as the primary reference. The two grounds address different claims
20 with one exception, which is Claim 13 which is invalid under both
21 Grounds 1 and 2.
22 What I'd like to do today is to—like my colleague did for the prior
23 proceeding, is I will go through disputed limitations in the interest of time.
24 And as to undisputed limitations, barring questions from Your Honors, we'll
25 leave those for the papers.

1 Starting with the Ground 1 Odachi art. There is an initial claim
2 construction dispute, which if we go to Petitioner's demonstrative Slide 7
3 this is a dispute regarding the terms transmitting antenna and receiving
4 antenna, which are terms that appear in all challenged claims.
5 I'll note that while it appears in all of the claims, this claim
6 construction is only relevant to Ground 1. There is no dispute that for the
7 Ross Ground 2 that Ross satisfies and teaches the transmitting antenna and
8 receiving antenna under any proposed construction.
9 Turning to Petitioner's construction which is on Slide 10, the
10 Petitioner proposes that transmitting antenna should be construed based on
11 its plain and ordinary meaning as informed from the specification and the
12 claim context as an antenna that transmits energy, and receiving antenna
13 should be construed as an antenna that receives energy.
14 We see that in this specification. For example, at 2:26 through 31 that
15 a transmit antenna is a means—provides a means for energy transmission,
16 and receive antenna for providing a means for energy reception. The
17 specification uses those terms broadly.
18 Turning back to Slide 8, I'd like to just discuss the plain—
19 JUDGE LEE: Mr. Davis, it's Judge Lee. So, you're saying the
20 specification actually uses the word energy when referring to antenna?
21 MR. DAVIS: That's right, Your Honor. Back to Slide 10 of Petitioner
22 demonstratives, the '654 patent at 2:26 through 31, the transmitter 104
23 includes a transmit antenna 114 for providing a means for energy
24 transmission.
25 JUDGE LEE: Well, in context though I'm thinking they can't
26 possibly mean all forms of energy, right? It can't be mechanical energy.

1 That's not what it emits, right? It's got to be like electromagnetic energy,
2 right? Would you agree with that?
3 MR. DAVIS: That's absolutely right. I think that in the context of the
4 '654 patent, if you go to Slide 11 these are talking about, generally speaking,
5 wireless power systems for antennas where wireless power is used to mean
6 any form of any energy associated with electric fields, magnetic fields,
7 electromagnetic fields, or otherwise that is transmitted from a transmitter to
8 a receiver without the use of physical electromagnetic conductors.
9 So, I think where it's using the term energy in the context of the '654
10 patent, it is in the context of energy associated with electric fields, magnetic
11 fields, and electromagnetic fields, which is also what the prior art taught as
12 well.
13 JUDGE LEE: Great. So, the way I understand it is there's a whole
14 spectrum of frequencies for electromagnetic waves and only a small part of
15 it is deemed radio waves, right? I mean, is that true?
16 MR. DAVIS: So, there is a spectrum of waves. I wouldn't call the
17 area of the spectrum that is dedicated to radio waves to be a small portion. I
18 believe that the undisputed evidence in the record is that the radio frequency
19 goes up to I believe it's three terahertz, which is way above any possible
20 ICPT inductive coupling power transfer system like in the prior art, as well
21 as in the '654 patent itself.
22 JUDGE LEE: Right. So, I think the Patent Owner had proposed a
23 meaning for antenna as a device that generates or propagates radio waves.
24 And you did not—the Petitioner did not dispute that. Is that still your
25 position? Are you okay with that understanding? Is it radio waves only? Or

1 I'm just thinking, why would it just be radio waves? Why wouldn't it be
2 broader, more than radio waves?
3 MR. DAVIS: So, Petitioner in view of the specification, it's not
4 necessarily limited expressly to radio waves. I think that it would be—really
5 again it goes back to the use of wireless power and the type of energy that's
6 being referred to in the specification. For example, that's shown on Slide 11
7 in Petitioner's demonstratives, which is energy that's associated with electric
8 fields, magnetic fields, electromagnetic fields. So, it's going to be sort of—it
9 is going to be a type of wave that is electric, magnetic, or electromagnetic.
10 But I don't think that there is any limitation that is specific to the exact
11 frequencies that are used.
12 JUDGE LEE: Right. So, I'm just asking because you didn't dispute it
13 then. I don't think you would dispute it now. But what if the Board were to
14 construe antenna to mean kind of what Patent Owner had proposed, in which
15 you didn't dispute, but to say it's a device that generates or emits
16 electromagnetic waves.
17 MR. DAVIS: Well—
18 JUDGE LEE: It's a slight difference from what they said. They said
19 radio waves, but I'm a little uncomfortable because that's limiting, you
20 know, to just a partial spectrum, you know. What if we were to say an
21 antenna is a device that—I don't know if the word generates, emits, or
22 propagates electromagnetic waves. Would Petitioner find that acceptable?
23 MR. DAVIS: Petitioner would find that acceptable. We also showed
24 in both the petition as well as in the reply how—for example, in Odachi
25 where this dispute is relevant that Odachi would have been understood to in
26 fact be transmitting radio waves or waves more generally. And I don't

1 believe that there's any dispute that, whether it's waves or radio waves, that
2 Odachi is operating through the transmission of waves.
3 But going back to your question just to absolutely clear, we would
4 be—Petitioner would agree to a construction that is a device that, for
5 example, radiates and receives waves. And I think that that really goes to
6 slide—if we go to Slide 12 of Petitioner's demonstratives we—I think that
7 this is the definition that we were just discussing or that you were just
8 referring to, Judge Lee, which is that an antenna is a device that radiates
9 and/or receives radio waves.
10 As we explained in the petition, the idea of—and I think where the
11 dispute has primarily been is in the concept of radiating. What it means to
12 radiate waves, radio waves, electromagnetic waves in this context is really
13 just talking about the principle of physics, which is described in Serway at
14 the bottom of Slide 12, which is Exhibit 1043 which is that electromagnetic
15 waves are radiated by any circuit carrying an alternating current.
16 And so, really what it is to have an antenna in this context is to have a
17 circuit carrying an alternating current, and that again is exactly what the
18 prior art taught.
19 JUDGE RAEVSKY: Mr. Davis, I wonder if an antenna radiates
20 electromagnetic waves in the near field? Or is it only proper to say that it
21 radiates electromagnetic waves in the far field?
22 MR. DAVIS: So, it's going to transmit energy in all three. And so, if
23 we go to Slide 26 this is Dr. Horenstein's, this is Patent Owner's expert, and
24 he admitted this in the context. He was discussing the '654 patent. But again,
25 what the '654 patent has in a coil with alternating current flowing into it.

1 And what Dr. Horenstein explained is that when you have a primary
2 coil and it receives an AC current, you're going to have current that flows
3 through the wire, you know, from Serway. That means the electromagnetic
4 waves are going to be emitted from it. And that is exactly what
5 Dr. Horenstein says is does that generate some electromagnetic energy
6 emanating from the primary coil? The answer, it does.
7 And then, to your question, I think it was Judge Raevsky. Is that
8 energy in the induction field, the near field, the far field, or all of the above?
9 The answer is all of the above.
10 JUDGE RAEVSKY: Okay. So, that's actually not my question. You
11 answered the question of where the energy is. My question is where are the
12 waves? Are there waves only in the far field or also in the near field?
13 MR. DAVIS: So the waves, if I understand your question, they are
14 going to be in all three because it all begins at the coil. Because all—what
15 we are talking about in the context of an electromagnetic wave and these
16 different regions of the near field versus the far field is really talking about
17 the magnetic and electric components of the field, and which part of the field
18 is dominated by which component.
19 And so, that's where the magnetic field is going to dominate in the
20 near field for the electromagnetic waves. And then, you're going to have—in
21 the far field there's going to be the electric component of the field is going to
22 dominate in the waves as they've gotten that far.
23 JUDGE RAEVSKY: Either now or on rebuttal, your choice, I'd like
24 to see support in the record for there being electromagnetic waves in the near
25 field.
26 MR. DAVIS: Okay, Your Honor.

1 JUDGE OGDEN: Can I just ask another question going back to this
2 definition of antenna? You've pointed us to evidence that any—that there's
3 going to be waves, electromagnetic waves radiating from any conductor that
4 has an alternating current passed through it, right? Did I understand that
5 right?
6 MR. DAVIS: That's going to be—that's right.
7 JUDGE OGDEN: Okay.
8 MR. DAVIS: If I have a—go on.
9 JUDGE OGDEN: Okay. And so, my question is if an antenna is just a
10 device that radiates radio waves, isn't that going to be basically any
11 conductor that has an alternating current through it? That seems pretty
12 broad.
13 MR. DAVIS: That's right, and that's where the fact that it's an
14 antenna in the context of these claims I don't think it is meant to be a
15 particularly limiting requirement. The rest of the claims define what the
16 antennas need to do, how they need to be coupled, none of which matters
17 based on the near field or the far field, or the induction field, or where the
18 wave exists at a particular point in time.
19 What it is it's going to be just as a matter of physics. If I have an
20 antenna—if I have a coil and I flow AC current through it, there will be
21 waves whether it's in the near field, the far field, or anywhere else. As to the
22 what the claim requires, it just requires that there be an antenna, that it is
23 able to generate all those things, meaning it has AC current flowing through
24 it.
25 And this is really looking at, for example, Claim 13 on slide—
26 Petitioner's Slide 8, we see what the claim says about the antennas which is

1 there is a—the claim context tells us that there are two antennas. There's a
2 transmitting antenna and there's a receiving antenna.
3 It tells us that there is going to be a degree of coupling between them
4 without any reference to where that coupling will be or what is causing the
5 coupling, and that they are movable in relation to the other such that they
6 can have different alignment positions.
7 That's all the claim requires as to the transmitting and receiving
8 antenna. And if we look at Slide 9 in Claims 1 and 8 of the '654 patent, we
9 see that where the Patentee wanted to provide additional details as to what
10 the antenna requires, they did so expressly. So, we see for example in
11 Claim 1 that the transmitting antenna has a further requirement of including
12 an inductive element and a capacitor, and that it is resonant at a first
13 frequency.
14 And in Claim 8, it is has a similar requirement of a receiving antenna,
15 including a coil and a capacitor that are resonant at a first frequency. And
16 again, what that's going to be is in the context of alignment and the fact that
17 there's going to be some coupling between them, a degree of coupling and
18 that you will have the antennas, depending on which claim it is, one of them
19 will be moveable in relation to the other such that there can be different
20 alignment sections.
21 JUDGE RAEVSKY: You know, there seems to me that there's a lot
22 of evidence that you've introduced into the record to support the concept
23 that a conductor with an alternating current acts as an antenna. And then, the
24 connection you'd like us to make is that Odachi's transformer has alternating
25 current through it, and therefore it acts as an antenna.

1 But just thinking about conductors in general, I wonder if one of
2 ordinary skill in the art looking at say a trace on a circuit board, with pulse
3 with modulated data would say, oh, that's an antenna, or if that would be an
4 unreasonable way to refer to it.
5 And in the same way, I wonder what evidence we have on this record
6 to point us to that one with ordinary in the art would say that transformer is
7 an antenna in circumstances of Odachi.
8 MR. DAVIS: So, as to Odachi, I think that Odachi does not disclose a
9 transformer. It certainly doesn't disclose a traditional transformer which I
10 think that has been used by Patent Owner, and they've sort of introduced
11 that concept. Odachi doesn't use the word transformer.
12 What Odachi discloses, and I'll sort of jump to Slide 20, is it talks
13 about having a primary inductive coupling device and a secondary inductive
14 coupling device which has a coil. There will be a coil that is the transmitting
15 antenna, which is coil 32 for example in Figure 6. And then, you have the
16 coil 4 that's part of the secondary inductive device that goes on the bottom
17 of the car.
18 As to their configuration as we see in Figure 6 and in Figure 12, there
19 is no common core between these two coils which is a requirement even as
20 Patent Owner has suggested that a traditional transformer must have a
21 common fixed core. And if that was what Odachi taught that there was truly
22 a fixed core, there would be no need to test the degree of coupling and have
23 moving alignment positions because the coils would be fixed in alignment,
24 and you wouldn't have the rest of this claim.
25 I think that this is also something—and I think this more directly goes
26 to your question, Judge Raevsky. If we go to Slide 34 of Petitioner's—

1 whoops. If we go to Slide 33 of Petitioner's slides, we can see that just
2 because you have two antenna coils that are acting as a transformer—so you
3 can have two antennas that are in a transformer configuration. That doesn't
4 mean they are no longer antennas. It just means that they are acting similarly
5 in terms of the energy transfer to how a transformer could work.
6 And that's for example Cook's Exhibit 1036 at 1:37 through 45. And
7 Cook '765 is actually—it shares a number of the same inventors as the '654
8 patent itself and discusses how you can have antennas that are placed such
9 that they react similarly to a loose coupled transformer, which is to say I can
10 have two antennas. They can act similar to a transformer and still be
11 antennas.
12 And the same thing in Chutorash, which is I have two antennas 218
13 and 220 may be loop antennas configured to form an air-core transformer
14 when located within each other's near field. So, again we have two antennas
15 that are still operating just like a transformer. That does not make them no
16 longer antennas.
17 I think that that is where one of the problems with, sort of, Patent
18 Owner's interpretations of Odachi is a sort of myopic focus on when the
19 Odachi's transformer cores are in abutment or in contact when charging
20 occurs. And they ignore the rest of Odachi's disclosures that explain that the
21 cores are designed so that they disconnect and such that they will be able to
22 transmit.
23 For example, in the—if we go back to Slide 21which has Odachi at
24 2:23 through 45, what the Odachi system is designed to do is to have the two
25 cores that are separated from one another and located a spaced distance such
26 that transmitting the primary coil during the alignment process can go from a

1 misaligned position at one end of the stroke, and then it moves laterally until
2 it becomes closer to the secondary coil.
3 And during the motion of the primary coil from left to right, it will
4 induce a current to flow because the transmitting coil is—has an AC current
5 flowing into it. It emits radio waves. It emits the local field, the near field. It
6 also will be emitting in the far field because that is what happens if I have an
7 AC current flowing into a coil is it's going to have some component of each
8 of those different types of fields.
9 And then, energy will actually start to—through electromagnetic
10 induction, the magnetic field that is generated by the primary coil will
11 actually induce current, AC current, into the receiving coil which is the
12 transfer of wireless energy using inductive coupling that satisfies the claims.
13 Because again what we're looking at in the claim is not the field
14 where there is energy transfer. What we are looking at in the claims is for a
15 degree of coupling, and there's nothing in the claim that actually expressly
16 recites the type of coupling which seems to be something that the Patent
17 Owner is trying to import from the specification.
18 And that's, if we go back to Slide 13, what Patent Owner has
19 attempted to do in their construction is to add a near-field component of flux
20 requirement for antennas, and that antennas must be producing a near-field
21 component of flux and that it's that near-field component that's intercepted
22 by a secondary coil.
23 But there's nothing in the actual claim language that talks about—
24 well, I should say there's nothing that is a characteristic of an antenna that
25 requires a near field. And there is no evidence in the record from any of the

1 dictionary definitions that have been submitted by Patent Owner that would
2 support that an antenna must operate in the near field.
3 Rather, what we have on, for example, Slide 14 is it just says that
4 exemplary embodiments of the invention, and this is the '654 patent at 3:13
5 to 18 (sic) is exemplary embodiments of the invention include coupling
6 power between two antennas that are in the near fields of each other. That's
7 saying that near field is a coupling region, not a characteristic of the antenna.
8 And we know that there is other claim language that's expressly
9 recited in the claim that just merely recites that there's a degree of coupling,
10 not that there's a degree of coupling in the near field. And it would be
11 improper to import things from exemplary embodiments into the claims as
12 we know from federal circuit case law.
13 We also see that—
14 JUDGE LEE: Mr. Davis, it's Judge Lee. I remember Judge Raevsky
15 asked earlier, and I'm also interested, that sometime today we're interested
16 in you showing us how the prior art device outputs near field or far field. I
17 just want to remind you of that. That's pretty important.
18 And also, I have a separate question. What's the reason we would not
19 look at the involved patent, '654 patent, and say oh yeah, what's disclosed
20 there is not a transformed configuration? It has a primary coil. It has a
21 secondary coil. It has a gap. Why isn't that a transformer? Is it because
22 there's absence of a core in either coil?
23 MR. DAVIS: So, in the '654 patent there is nothing that says that it
24 cannot be—there is no discussion of transformers in the '654 patent as well.
25 There's certainly nothing that says that there can be—that antennas exclude
26 a transformer type configuration. I think also—

1 JUDGE LEE: Why isn't their embodiment a transformer? I mean, you
2 don't call it that, but I'm just wondering why we can't look at their figure
3 and say you have a transformer-like structure too?
4 MR. DAVIS: You absolutely could look at the '654 patent and
5 determine that the coils are arranged such that they are in a transformer core
6 configuration, or that they act similarly to a transformer. That is indeed the
7 purpose of using inductive coupling, which is the mechanism of energy
8 transfer for transformers.
9 We have that. We've submitted various evidence on that point, for
10 example, that's shown on Petitioner's Slide 34 from Holcombe which is
11 transformers can be thought of as extreme near-field devices. And then also
12 Kurs which is transformers are examples of devices that utilize this known
13 short range, near-field energy transfer scheme.
14 The idea of the transformer is simply that you have antennas that are
15 closely—that are located near to one another. I think that typically you'll
16 have a—well, to be a conventional true transformer there will be a fixed
17 common core which is going to be used in order to have the coupling
18 between the primary coil and the secondary coil entirely fixed. I think that's
19 in the various definitions that Patent Owner submitted.
20 But I also want to bring this back to the claim language, which does
21 not require—it requires that there are two antennas that are coupled. What
22 we know of antennas is that they radiate waves, which is just the principle of
23 charged particles that go through, when you have an AC current, go through
24 a coil that is going to be an antenna in the context of these claims.
25 And that is, I think Judge Lee to the question that you had, which is
26 how do we know that Odachi is going to be transmitting or radiating waves?

1 We know that because if we go to Slide 25 of Petitioner's slides, we have
2 Odachi at 7:29 through 38. Odachi teaches that the AC current flowing in
3 the primary coil induces a similar current in the secondary coil under the
4 effect of electromagnetic induction. And the AC current that's transferred
5 from the primary to the secondary is rectified by an appropriate circuit.
6 So, what we have in Odachi is we have a coil, and we have AC
7 current that's flowing into it which makes it a transmitting coil because it is
8 going to create an electromagnetic wave that is going to be transmitting
9 energy, which is the requirement of the transmitting antenna.
10 And then, you have a receiving antenna which is going to receive the
11 AC—it's going to have AC current flowing through it as—due to the
12 mechanism of electromagnetic induction. And then, it has AC current
13 flowing into it, which then makes the receiving coil also an antenna under
14 the meaning that we've described with respect to Serway and with respect to
15 the dictionary definition in Exhibit 2003.
16 JUDGE OGDEN: Now, is there expert testimony explaining that there
17 is generation of waves propagating away, or do you just have these excerpts
18 from the literature?
19 MR. DAVIS: Yes, Your Honor. And I can get cites for that after—
20 during my rebuttal time.
21 So, jumping into Slide 23 of Petitioner's slides, I just want to briefly
22 address that, and I think that we've been talking about is there has been a
23 focus of Patent Owner's arguments throughout—from pre-institution until
24 now that a focus on, in Odachi, what happens when charging occurs which is
25 when the cores are going to be touching one another, but that's not what the
26 claim is about.

1 And so, it's the wrong analysis of the prior art because what the claim
2 is directed to, especially if we look at Claim 13, is it talks about guiding the
3 receiving antenna to a first alignment position, having a degree of coupling,
4 moving the transmitting—one of the transmitting of the receiving antennas
5 to a second alignment position to improve the degree of coupling, and then
6 nothing after that. So, the actual act of the mechanism that's being used to
7 charge the device during charging is not at issue in the claim, and it's not the
8 focus of the—what should be in Odachi either.
9 JUDGE OGDEN: Counsel, is it in Claim 1 though? Because Claim 1
10 does have some language in there saying that the—it said transmitting
11 antenna being configured to generate a wireless field for charging a device,
12 including a receiving antenna. Is that a little bit different for Claim 1 than for
13 Claim 13?
14 MR. DAVIS: So, Claim 1 does include the additional requirement of
15 having a wireless field for charging. The wireless field again is a very broad
16 concept in the context of the '654 patent, which we see in, for example, the
17 '654 patent in 2:5 through 9, which is just any energy associated with
18 electric fields, magnetic fields, and electromagnetic fields which is certainly
19 going to be occurring in Odachi's primary coil because we have AC current
20 flowing through it. It is generating a field, and it is transferring energy
21 through an electromagnetic induction which is a type of energy for wireless
22 power in the context of the patent itself.
23 I think the other component of it is while it requires the transmitting
24 antenna is generating a wireless field, it is not required that you are using the
25 wireless field to actually affect charging in the context of the rest of the
26 claim. It is just saying that the transmitting coil needs to have the—it needs

1 to generate a wireless field, which we have shown and is undisputed by
2 Patent Owner that the transmitting coil that we identify as the antenna is in
3 fact generating a wireless field.
4 Their argument has only been that the transmitting antenna in the final
5 charging position acts similarly to a transformer. But what we are pointing to
6 for Claim 1, as well as Claim 13, is the discussion in Odachi of the
7 alignment process in Odachi where you actually have—the coils are always
8 going to be spaced apart from one another, including in the context of
9 Claim 1.
10 And so, Claim 1, although it does require a wireless field it doesn't
11 require that anything separate from Claim 13 in the context of, sort of, the
12 end position or during charging. There is still not a requirement for Claim 1
13 of during charging what is the mechanism of power transfer.
14 JUDGE OGDEN: Okay, thank you.
15 MR. DAVIS: So, I think one of the arguments that—I think Patent
16 Owner has made three arguments generally, again, focused on sort of
17 incorrectly focusing on when charging occurs. But nevertheless, what they
18 have alleged is that Odachi's coils are not going to be antennas because they
19 don't radiate as a result of having a core, a magnetic core material near
20 them.
21 And if we turn to Slide 29, we've shown that that just isn't the case
22 with a number of different references on Slides 29, 30 and 31, as well as
23 Slide 32, which is what the—what a core material is going to do is it's going
24 to shape the magnetic field that is generated by the transmitting coil. But it
25 does not make it such that the magnetic field doesn't get transmitted into
26 free space.

1 For example, in Hui we have a ferrite plate. It will shape some of the
2 flux so that it goes horizontally along the ferrite plates. But there will still
3 be, and as it shows at the top of Hiu's Figure 5 free space, there will still be
4 a magnetic field as actually generated beyond the core itself.
5 And we have similar disclosures from Dobbs at Figure 2 on Slide 31,
6 which is—sorry, Dobbs, Figure 2 in Paragraph 54 that even if you have a
7 core that surrounds a coil on all sides other than a small gap between the,
8 sort of, the side barriers you're still going to be radiating strongly to the
9 surrounding space.
10 Patent Owner in their sur-reply said that Dobbs, while that's a c-
11 shaped core, not an e-shaped core, we don't think that that's actually a
12 difference that it makes any distinguishing—however, we can show on
13 Slide 32 in Elliott that still even in you have an e-shaped core in the context
14 of inductive power transfer pickups you still will have radiated fields, even
15 though you have an e-shaped core that is surrounding the coil.
16 And so, what the evidence shows is that even if you have an antenna,
17 a coil that's carrying an AC current near a magnetic core you are still going
18 to be radiating energy and radiating waves into free space.
19 JUDGE LEE: Do you have any expert testimony on this? It's not cited
20 on the slide.
21 MR. DAVIS: Yes, happy to provide those citations. They're also cited
22 in, for example, the reply at 14. But after the break I will collect some
23 citations discussing that.
24 JUDGE LEE: So, if we altered the construction of antenna to mention
25 EMN waves rather than radio waves, I gather you're also okay with our

1 possibly changing the construction of transmitting antenna to antenna that
2 transmits electromagnetic waves rather than transmits energy.
3 MR. DAVIS: So, I think that it would be that it can transmit—
4 transmitting electromagnetic waves I think is going to be just—again, it's
5 going to go to the same principle of physics which is if I have an alternating
6 current that is flowing into a wire it is going to have electromagnetic waves.
7 I think that where our—where we would have the biggest dispute is
8 with respect to incorporating, for example, a near field or a far field, or an
9 inductive field requirement as to exactly where the coupling must occur
10 because that is not a concept of the—that is not a characteristic of the
11 antenna, and it's not a requirement of the claim otherwise.
12 The claim expressly uses very broadly the term coupling. And so, if
13 we have an antenna and it will—has AC current flowing through it, then it's
14 going to have near-field and far-field components to it. But the claim is
15 agnostic. It's open-ended as to what part of the field is used for the actual
16 coupling mechanism itself. It could be the near field. It could be the far field.
17 But that's just not a requirement of claim.
18 All the antenna is looking at is do we have a coil that has a current
19 flowing through it? And we have other limitations of the claim that are
20 directed to coupling and alignment, resonance, and the other requirements,
21 all of which occur during the alignment process rather than as part of the
22 actual charging itself.
23 JUDGE LEE: I'm just struggling with the definition of antenna that
24 transmits energy. It seems so broad, you know. But if I have it as the antenna
25 that transmits electromagnetic waves, it sounds more appropriate to me
26 because that's what we're talking about. And I'm just wondering if I did

1 that, we did that, it doesn't seem to me like either party would have any
2 objection to that. Do you?
3 MR. DAVIS: No, that is absolutely correct. There would be no
4 dispute from Petitioner. And we've shown in the petition and also in the
5 reply how the prior art by virtue of having Odachi's coils with AC current
6 flowing through them—
7 JUDGE LEE: Right. So, regardless of where near field stops and far
8 field begins, you say you're not sure where that line is. It doesn't matter
9 because both are seen in waves, right?
10 MR. DAVIS: That's correct, Your Honor.
11 JUDGE LEE: So, if that is the construction, antenna transmitting
12 antenna that transmits in waves, all you have to show is the art shows
13 generation of either near field or far field, then that would meet that
14 recitation, would it not?
15 MR. DAVIS: That's right. And that's where the claim is just—while
16 the specification embodiment—the specification discloses that in certain
17 embodiments there can be coupling of the two antennas in the near field,
18 that's not a requirement of the claim. And it's—so, all it just needs to be is
19 that it is able to generate fields or able to generate waves, which is just a
20 basic principle of physics. It's just not—the actual coupling can be any of
21 the different mechanisms to where—
22 JUDGE LEE: So, I guess you've just shown us a few minutes ago
23 where the evidence is that in the Odachi there is generation of near-field
24 magnetic waves, or you haven't done that yet? I think you have, right?
25 MR. DAVIS: That's correct.
26 JUDGE LEE: It's been cited in previous slides?

1 MR. DAVIS: Yes. And I will also provide citations for expert
2 testimony on that as well.
3 JUDGE LEE: Okay.
4 MR. DAVIS: I'd like to move to the second argument that has been
5 made with respect to the Odachi Claim 13, which is also an argument that
6 they make for Claim 1 which is that Odachi does not disclose moving the
7 antenna's responsive to detecting a degree of coupling, and Patent Owner is
8 wrong on that.
9 So, going to Slide 40 of Petitioner's slides, this is the limitation that
10 requires responsive to detecting a degree of coupling in the first alignment
11 position between the receiving antenna and the transmitting antenna that is
12 measured at the receiving antenna, moving one of the antennas from—to a
13 different alignment position.
14 Turning to Slide 41, the way that Odachi discloses this is that it will
15 use a test current that is flown—that gets provided to the transmitting coil.
16 And then, the transmitting coil while the test current is running through it
17 and generates an electromagnetic field, electromagnetic waves, is going to
18 move along the X-axis along a track from an operative home position to the
19 other end of the track. And it's going to detect the degree of coupling at that
20 every single position, and it's going to determine two points.
21 It's going to determine and X1, where the coupling goes from a first
22 degree of coupling, which is low. It's a discriminating signal low in the
23 context of Odachi's, for example, Figure 5 embodiment. And then, it's going
24 to determine a second position, X2, which is when the coupling goes from
25 high down to low. And then, what Odachi discloses is that it will take X1

1 plus X2, those two positions, divide them by two, and that will be sort of the
2 optimal alignment position.
3 What we've heard from Patent Owner is they argue that the
4 determination and the detection of coupling at the operative home position,
5 which is at—in the Figure, sort of, Figure 5 as it's drawn would be the far
6 left position. And they say that's irrelevant and that the second alignment
7 position is not responsive to that because the equation that is used in Odachi
8 to determine X2 is just X1 plus X2 divided by two.
9 What Patent Owner misses and why Odachi discloses the claims
10 though is that in order to determine X1, Odachi has to determine the
11 coupling at each of the different positions that occur before X1. And so, the
12 actual determination of X1 which is then used in the determination of XA
13 requires detecting a degree of coupling in each of the positions before X1.
14 So, from the operative home position through X1.
15 What I think is helpful is to potentially juxtapose this against another
16 disclosure where there are certain positions that are not used for determining
17 the operative home position which would be Column 14, Lines 11 through
18 18 of Odachi where it discloses an alternative embodiment where after it
19 determines X2 on the right side of Figure 5, it will stop detecting any further
20 degrees of coupling because after it determines X2 it's unnecessary, and it
21 will go to XA without further detection.
22 So, in the context of the operative home position though, it will in fact
23 always be detecting the degree of coupling at that operative home position
24 and using that as part of the determination of figuring out X1 and ultimately
25 XA, which is that second alignment position.

1 The second point is, going to Slide 42, is while we don't think that
2 this is required for it to be responsive to detecting a degree of coupling in the
3 first alignment position, Odachi does disclose that the operative home
4 position could actually be the same as where X1 is or even past X1.
5 And that's because if we look at Odachi at Column 9, 61 through 65,
6 the placement of—the design of the system is such that the secondary
7 inductive receptacle carried by the vehicle can come—can be placed
8 anywhere within the stroke range of the carriage 41d between E1 and E2
9 where E1 is the furthest left. It's that operative home position that we rely on
10 as the first alignment position.
11 And so, what Odachi is saying is you can actually have, based on the
12 design of the system and the stops 130 for the wheels, the operative home
13 position is basically at X1.
14 JUDGE RAEVSKY: Mr. Davis, I'm going to change tactic because I
15 think we're a bit into your rebuttal time. And I just want to ask for your short
16 and sweet explanation as to why you believe Patent Owner is wrong in the
17 Wang/Odachi ground when Patent Owner argues that the benefits of
18 compensating capacitors in Wang do not apply to Odachi.
19 MR. DAVIS: So, the reason why Patent Owner is wrong with respect
20 to the Odachi/Wang ground is the undisputed evidence from Wang is that
21 compensation capacitors are in fact going to improve transfer efficiency.
22 Their entire argument is based on the proposition that Odachi and Wang's—
23 I'm sorry, in Odachi that the cores will always be in contact with one
24 another which is not what Odachi discloses. Odachi says that the cores can
25 actually be and are designed to be spaced apart from one another.

1 And there's no dispute from Patent Owner that in the configuration
2 where the—even during the alignment process that there would actually be a
3 transfer efficiency benefit of having the compensation capacitors. And that's
4 supported by Dr. Allen as well and his unrebutted testimony.
5 And then, there's also an additional benefit which is that we have an
6 expressed obviousness ground that to the extent that it's required, a POSA
7 would have found it—would have and could have modified Odachi to be
8 entirely non-contact always. That argument has never been disputed by
9 Patent Owner that a POSA in fact would have and could have made Odachi
10 entirely non-contact in view of both the POSA's knowledge, but also in view
11 of Wang's disclosures. And in that case again, you would have undisputedly
12 a transfer efficiency benefit by adding the compensation capacitors from
13 Wang.
14 And with that, I didn't realize I was in my rebuttal time, and I will
15 reserve the rest of my time.
16 JUDGE OGDEN: Okay. Thank you, Mr. Davis. I think you've used
17 up about fifteen and a half minutes. So, that'll leave you about nine and a
18 half or so of rebuttal time. So, Corbett, would you like to reserve rebuttal
19 time?
20 MR. CORBETT: Apologies, Your Honor. Yes, I would like to reserve
21 15 minutes of sur-rebuttal time.
22 JUDGE OGDEN: Okay, thank you. You can begin when you're
23 ready.
24 MR. CORBETT: Okay. Can Your Honors see the presentation on the
25 screen?
26 JUDGE OGDEN: Yes.

1 MR. CORBETT: Okay, great. So, as Your Honors know, we just
2 spent a lot of time on the definitions of antennas and transformers. And I
3 want to jump in and start with addressing some of the questions that were
4 asked of my counterpart here.
5 And I want to first start with the definition of antenna that the Board
6 at least preliminarily adopted at the institution stage, which was a device that
7 radiates and/or receives radio waves. And that is—I'm on Slide 3 of Patent
8 Owner's demonstrative. And this is from Exhibit 2006, the Wylie Electrical
9 Electronics Engineering Dictionary that both parties and their experts cite to
10 in the papers.
11 One point that Judge Lee asked was what's the difference between
12 radio waves or electromagnetic waves and would it, I guess more
13 specifically, would it be proper to adopt a claim construction of antenna that
14 talks about electromagnetic waves versus radio waves.
15 And I don't believe that point was specifically addressed by either
16 party in the papers. But I would say Patent Owner's position would be
17 respectfully that antenna should not include electromagnetic waves. One, the
18 definition of antenna that's cited here on Slide 3 specifically refers to radio
19 waves.
20 And referring to the discussion earlier about the different types of
21 frequency ranges that are associated with radio waves specifically,
22 electromagnetic waves encompass a much larger frequency range than radio
23 waves. For example, electromagnetic waves include microwaves as well as
24 infrared waves and visible light.
25 And so, an antenna—to define an antenna as anything that emits an
26 electromagnetic wave arguable encompasses a microwave or a flashlight,

1 which is not contemplated at all in the ’654 patent. The ’654 patent
2 specifically uses the word antenna, and the Wiley Electrical Dictionary here
3 that’s cited in Exhibit 2006 shows that one skill in the art would understand
4 that an antenna does not emit just any type of electromagnetic wave. It’s
5 specific to radio waves.
6 The other point that I wanted to address first before getting into the
7 rest of the slides was the question from Judge Raevsky about the near field
8 and far field, and the support in the record for where—any support in the
9 record for the concept that waves exist in the near field.
10 And the Patent Owner would point to the ’654 patent itself. And it’s
11 Column 2, Lines 32 to 36. And I’ll read it into the record. As stated, an
12 efficient energy transfer occurs by coupling a large portion of the energy in
13 the near field of the transmitting antenna to a receiving antenna. Rather than
14 propagating most of the energy in an electromagnetic wave to the far field.
15 So, what this portion of the ’654 patent is saying is that when you’re
16 talking about a wave, a wave exists in the far field. And they’re drawing a
17 distinction there between a wave that’s in the far field and energy that’s in
18 the near field. So, it’s Patent Owner’s position that an antenna as one skilled
19 in the art would understand it has to be able to generate energy in the near
20 field and waves in the far field.
21 Now, what the ’654 patent is talking about is that for efficient energy
22 transfer, the coupling occurs in the near field. But that doesn’t change the
23 overall definition of an antenna. An antenna has to be able to emit energy
24 both in the near and far field, and that’s the fundamental distinction in
25 Odachi.

1 Odachi is not an antenna that is capable of emitting energy in the far
2 field, and that's consistent with the distinction that's drawn here in the 654
3 patent. The '654 patent doesn't talk about a transformer. It specifically uses
4 the word antenna.
5 And my counterpart mentioned the fact that Odachi does not use the
6 word transformer to describe its couplers. And I think the more relevant
7 point is that Odachi also doesn't use the word antenna, and that's the key
8 distinction. The reason they don't use antenna in Odachi is because it's not.
9 They call it a coupler. But I think as Judge Raevsky pointed out, it is a
10 transformer.
11 JUDGE RAEVSKY: Mr. Corbett?
12 MR. CORBETT: Yes?
13 JUDGE RAEVSKY: I'd like you to address Petitioner's contention
14 that even in Odachi, even if—and perhaps I'm misstating this. But as I
15 understand it, in Odachi even if it's transferring energy in the near field that
16 those conductors would still necessarily emit radiation in the far field,
17 including the electromagnetic waves. And I think that one piece of evidence
18 that Petitioner pointed to was on Slide 29 of his demonstratives, the Hui
19 reference, Exhibit 1041, to show that that would occur. There would still be
20 emission into free space. How would you respond to those arguments?
21 MR. CORBETT: I'm sorry, Your Honor, do you have the—I missed
22 the page number referred to in their demonstrative.
23 JUDGE RAEVSKY: It's Slide 29.
24 MR. CORBETT: Slide 29.
25 JUDGE RAEVSKY: This is one example.

1 MR. CORBETT: Right, yes. Well, the Hui reference relates to a PCB
2 transformer. And the PCB transformer, it does include this ferrite plate. And
3 it does allow for—there is some gaps in the tangential direction. And that's
4 what they cite to in their reply is that the ferrite plates do not restrict the field
5 in the tangential direction, not in the perpendicular direction.
6 And so, the Patent Owner's position is that this is a different structure
7 than what's in Odachi. In the structure of Odachi the e-shaped core that has
8 the secondary part of the core that's combined with the primary part does
9 restrict the field to the core.
10 And going back again to the definition of antenna, if an antenna as
11 Patent Owner would submit is required to be able to generate radio waves
12 into free space or into the far field more specifically, there's nothing in the
13 Hui reference that indicates that it is able to do that, or that Odachi
14 specifically is able to generate radiation or waves in the far field.
15 JUDGE RAEVSKY: So, it's your position that there's not even any
16 incidental far-field radiation generated in Odachi's device?
17 MR. CORBETT: Yes, Your Honor. That is our position. There is not
18 any incidental radiation generated in the far field of Odachi's device. And
19 Petitioner has not cited to anything in Odachi itself that would suggest that.
20 JUDGE RAEVSKY: So, under the plain and ordinary meeting, setting
21 aside the proposed constructions for now, you would say that Odachi's
22 device does not radiate radio waves because there's no far-field radiation
23 radiated. Do I understand that correctly?
24 MR. CORBETT: Correct.
25 JUDGE RAEVSKY: Okay.

1 JUDGE LEE: Aren't radio waves only existing in the far field that
2 you would—what a POSA would not regard near-field energy as radio
3 waves?
4 MR. CORBETT: Well, I think in the context of the '654 patent the
5 portion of Column 2 I referred to earlier draws a distinction between energy
6 in the near field and waves in the far field. And so, yes Your Honor, the part
7 about a wave is—does refer to the far field.
8 JUDGE RAEVSKY: Okay. But that doesn't rise to the level of you
9 being your own lexicographer though, I think. It's not that clear. Is that
10 characterization consistent with the understanding of a person of ordinary
11 skill of the art with the jargon in the field that, yeah, everyone knows it's
12 only far field are radio waves? Near field is just disorganized energy. Is that
13 what a POSA would understand? Or is that just something your inventor
14 chose to characterize?
15 MR. CORBETT: It's Patent Owner's position that that's where one
16 skill in the art would understand. And Patent Owner's expert, Dr. Horenstein
17 talks about the different fields, particularly in Exhibit 2010 around
18 Paragraphs 37 and continuing on to at least Paragraph 41 that that's one skill
19 in the art would understand the definition of antenna must at least have the
20 ability to generate waves into the far field.
21 Now, when we're talking about coupling, that coupling might occur in
22 the near field, but that doesn't change the definition of an antenna which is
23 what's used in the claim.
24 JUDGE RAEVSKY: I see.
25 MR. CORBETT: And it doesn't—

1 JUDGE RAEVSKY: So, the waves one would receive way out there
2 is not a continuation of whatever is found in the near field then because
3 otherwise they'd be the same field just propagating farther.
4 MR. CORBETT: Well, Dr. Horenstein explains that in his
5 supplemental declaration in Paragraph 37, he explains the difference
6 between the induction field, which is a local field that is very close to the
7 inductor. And then, the near field extends beyond that. And then, the far
8 field is where the waves occur in—as you get further. So, it is a continuum,
9 but the difference is just the antenna has the ability to generate those waves
10 in the far field as opposed to the transformer of Odachi does not.
11 JUDGE RAEVSKY: Why is your antenna able to do that and theirs is
12 not? They're all coils. So, why can your coil do it and theirs not do it?
13 MR. CORBETT: Right. And if I can go to my demonstrative here
14 the—on Slide 4 of the demonstrative, this is a reproduction of Figure 4 from
15 the '654 patent. And there's the primary coil which is shown in red, and the
16 secondary coil which is shown in green. And the difference is that there's no
17 core that is shared by the two coils that would restrict the magnetic flux lines
18 and restrict that field to going from the end of the far field like in Odachi.
19 So, that's the distinction, and I can skip ahead a little bit here.
20 On Slide 5, we can see the field lines, the flux lines that go from the
21 red coil, the primary coil, through the secondary coil, the green coil, and
22 there's no restricting of those field lines as an Odachi. And I can—
23 JUDGE RAEVSKY: I know. But your spec says a core is optional
24 though. It says using a ferrite core may—wait, loop antenna may be
25 configured to include an air core or a physical core such as a ferrite core. So,
26 doesn't that undermine what you're saying?

1 MR. CORBETT: Your Honor—
2 JUDGE RAEVSKY: You can have a core, and it would still be an
3 antenna.
4 MR. CORBETT: And I don't believe I have it in my slide, this figure.
5 But there is—in Dr. Horenstein's supplemental declaration, this is
6 Exhibit 2010, Paragraph 53, he explains what this is referring to, and he has
7 an image. What this core that the patent is talking about, '654 patent, is
8 talking about a ferrite disc that is placed in the center of the transmitting coil.
9 And what the '654 patent explains is that that prevents eddy currents from
10 forming in adjacent metal objects.
11 And so, it's still—it doesn't change the same principle of operation in
12 terms of generating waves in the far field or energy in the near field that is
13 used for coupling. All it does is it restricts the amount by which the flux
14 interacts with the adjacent metal surface to reduce eddy currents in the
15 metal. But it doesn't change the overall functionality or physical nature of
16 the antenna itself and how it emits radio waves into the far field.
17 JUDGE LEE: That just undermines your explanation a minute ago
18 though. I asked you why your coils are able to generate far field and
19 Odachi's not. And you say because you don't have a core and Odachi's
20 does. So, now here's an embodiment in your spec that includes a core. And
21 you say, well, core or no core it still generates a far-field wave. So, I can't
22 put the two together.
23 MR. CORBETT: Well, it's—Well, Your Honor, I can explain, and I
24 understand the question. The difference is the configuration of the cores.
25 What the patent is talking about and is shown again in Dr. Horenstein's
26 supplemental declaration in Exhibit 2010 on Paragraph 53, there is a disc,

1 what the patent calls a core. It doesn't extend. It's not a common core that is
2 shared by both coils, and that's the distinction. It's just a disc that sits in the
3 middle of the primary core to prevent the eddy currents from the—from
4 being formed in the adjacent metal object.
5 Now, I can skip ahead here to the contrast here in Odachi. And I'm on
6 Slide—
7 JUDGE OGDEN: Mr. Corbett, can we stick in the back of the
8 configuration under Odachi where the two plates are not in contact with each
9 other, right? So, in that configuration there's no shared core between the
10 upper plate and the lower plate, right?
11 MR. CORBETT: During the initial positioning, the two cores are
12 separated. That's correct. But no wireless energy transfer is occurring at that
13 point. There's a check current that is generated in the primary coil. And
14 then, as my colleague explained and I think the parties agree on how this
15 works to a certain extent, the primary coil is moved across, kind of,
16 underneath the bumper of the vehicle. And then, the amount of current is
17 monitored. And once it drops below a certain threshold that mark is
18 identified, and then it eventually reaches a peak and crosses back over the
19 threshold. And then, that crossing of the threshold is again identified. And
20 so, they take the difference.
21 JUDGE OGDEN: Right. But that process, there's still wireless energy
22 being transferred from one coil to the other, right, in order to make that
23 alignment. Isn't there at least some wireless energy being transferred from
24 the transmitter to the receiver?

1 MR. CORBETT: There is a current that is induced in the secondary
2 coil as that process is happening. But the actual charging of the vehicle does
3 not occur until the two cores come into contact.
4 JUDGE OGDEN: Well, I'd like you to address what Petitioner's
5 counsel was saying about Claim 13, which is that it doesn't necessarily
6 require that the charging actually occurred during that alignment process. Do
7 you disagree with that? And likewise with Claim 1.
8 MR. CORBETT: Well, I think in claim—I'll start and take those in
9 reverse order. Claim 1 recites a transmitter system for wireless power. And
10 as Your Honor pointed out earlier, it says transmitting antenna being
11 configured to generate a wireless field for charging a device, including a
12 receiving antenna. So, in Claim 1, Patent Owner would submit that, yes, it
13 does have to be—it is talking about the actual transfer of energy.
14 Claim 13 doesn't have some of those same elements. But again, I
15 think this all comes back to the definition of an antenna. It still doesn't—
16 Odachi still doesn't have an antenna. Just because there's a certain amount
17 of energy that is emitted during this alignment process doesn't transform the
18 transformer of Odachi into an antenna as—
19 JUDGE OGDEN: During the alignment process—I mean, you said I
20 think earlier that your position is that in Odachi, at least in that closed
21 configuration, there's not even an incidental radiation radiating out of the
22 core. But when it's open like this, isn't there going to be radiation radiating
23 out from the transmitting coil? Because there's no closed core, right, that's
24 going to enclose everything. And in the process—you know, and they may
25 not even be exactly aligned. Isn't there going to be at least some radiation
26 out into free space at that point?

1 MR. CORBETT: So, there will be some magnetic flux that's emitted
2 from the primary coil when they're not—when the two cores are not in
3 contact. But again going back to the definition of antenna, there's no
4 indication in Odachi that the primary coil of Odachi would generate a radio
5 wave out into free space.
6 JUDGE OGDEN: But why not? If they're not—if there is some
7 leakage of radiation in that configuration, how is that different from the
8 primary coil being an antenna, your definition?
9 MR. CORBETT: Well because the Patent Owner's position is that the
10 primary core and coil are—in Odachi, they are still very close to the
11 secondary coil in such—in the way that Dr. Horenstein explained it. It's the
12 induction field that is being used to couple the primary coil to the secondary
13 coil, not the near field as in the '654 patent. And because it's that induction
14 field due to the proximity, it's not radiating those waves into the far field.
15 JUDGE RAEVSKY: Mr. Corbett, this is a confusing point to me.
16 When I look at Slide 35 of Petitioner's slides, Petitioner reproduces
17 deposition testimony of Dr. Horenstein where it appears that Dr. Horenstein
18 admitted that there's no source that was cited for this local induction field
19 existing.
20 Can you help us understand the science behind that, why that's
21 correct? Was there a local induction field? Why is not just near field, far
22 field?
23 MR. CORBETT: Well, I would submit, Your Honor, that this portion
24 of Dr. Horenstein's deposition is taken a bit out of context. What
25 Dr. Horenstein explained is that this was a—this graphic did not pull from

1 some other source. He generated it himself based on the understanding of
2 one skill in the art for an induction field, a near field, and a far field.
3 And what he cited to which is on Paragraph 38 of his supplemental
4 declaration, Exhibit 2010, is definitions from the same Wiley EEE
5 Dictionary that we referred to earlier and that both parties rely on. And it
6 talks about induction field. He's got definitions of induction field, near-field
7 region, and far-field region.
8 And he explains in the surrounding paragraphs the—how those two—
9 how those three fields are related. In Paragraph 38, the definition that he
10 cites of an induction field, definition Number 2, says for the radiator such as
11 a transmitting antenna, the portion of the electromagnetic field which
12 behaves as if permanently associated with said radiator. This contrast with
13 the radiation field, which is the portion that's propagated outward as
14 electromagnetic waves.
15 And so, that's the basis for Dr. Horenstein's distinction between these
16 fields. And the figure that is shown on Petitioner's demonstrative Page 35 is
17 Dr. Horenstein's graphical representation of that concept and that distinction
18 between the induction field, which is what Odachi relies on, and the near
19 field and far field which is associated with the antenna.
20 JUDGE RAEVSKY: The confusion that I have stems from reading
21 elsewhere in the IEEE Dictionary which I don't think is of record, so I
22 apologize. I can't point to that in the record, but just my own personal copy
23 looking that the definition for near-field region.
24 One definition refers to the near-field region having two subdivisions,
25 including a reactive near-field region which is closest to the radiating

1 structure, and that contains most or nearly all of the sorted energy. And then,
2 the second portion is the radiating near-field region.
3 So, I wonder if my confusion stems from Dr. Horenstein referring to
4 the local region as that reactive near-field region. I'm not sure it's necessary
5 that you resolve this issue. I am wondering if you have a response.
6 MR. CORBETT: I am not 100 percent sure. I think it may be the case
7 that the reactive portion of the near field that you mentioned, it's possible
8 that that is referred to—can be referred to as the induction field, and those
9 two things are related or synonymous. I don't—I can't say that for sure.
10 But I just—Patent Owner's position is that whether the induction field
11 or that very close part of the near field, that's what Odachi is relying on.
12 That's what a transformer relies on when you're relying on radiation in
13 the—very close to the conductor as opposed to the second part of the near
14 field, the further part of the near field.
15 And the far field, in particular, that an antenna would need to be able
16 to generate those waves in those regions. And Odachi just—as we've
17 discussed, it's Patent Owner's position that Odachi does not generate waves
18 into the far field, therefore not an antenna.
19 JUDGE RAEVSKY: Okay, that's helpful. I want to just take a slightly
20 different tact and get your feedback on Dobbs, which Petitioner reproduces a
21 figure from on its Slide 31. And as I'm sure you're aware, Petitioner relies
22 on Dobbs to show that a spaced set of connectors that are perhaps acting like
23 the transformer will radiate strongly to the surrounding space.
24 I will note I do not see on this slide that it says that's far-field
25 radiation. But I would like your input as to why radiating strongly to the

1 surrounding space does not constitute far-field radiation, and why that isn't
2 what's happening in Odachi when the conductors are spaced apart.
3 MR. CORBETT: Yes, Your Honor, that's a good question. As we, I
4 believe, we put in our sur-reply brief, the difference is there is a difference in
5 the structure here of Dobbs and Odachi. And what Dobbs is referring to
6 here, one, it talks about here on Slide 31 of Petitioner's exhibit is it talks
7 about a frequency above 20 kilohertz
8 And there is no distinction—no discussion as I'm aware of in Odachi
9 as to the frequency that is used. And so, I believe what this portion of Dobbs
10 is saying here in 54 is talking about radiating strongly to surrounding space
11 as related to this particular frequency that's referenced here in 54. And that's
12 not the case necessarily in Odachi, as well as the amount of space is not
13 really specified here in Dobbs to indicate this radiation into the surrounding
14 space.
15 One last point I would make is, and I think your question, Judge,
16 you're asking is sort of hinted at this is that surrounding space is somewhat
17 vague. And you know, surrounding space, even the induction field, is very
18 close to the conductor. And so, arguably would be surrounding space. And
19 so, it's not clear from this portion of Dobbs that surrounding space indicates
20 the far field.
21 If I can go to—back to the demonstrative that I'm—on the shared
22 screen here. This is a representation of the Odachi reference. And this is
23 from, again, Dr. Horenstein's declaration, Paragraphs 42 to 53, and 69,
24 where he explains this.
25 This is Exhibit 2010 where the magnetic flux lines that are shown here
26 in yellow, because the core during charging has formed a single core, the

1 two parts form a single core, these flux lines are contained within the core,
2 and therefore do not radiate into the far field or even the near field, and
3 therefore are not an antenna.
4 Dr. Horenstein, you know, also opined that even in a scenario where
5 there is a small gap between the two cores, that the flux lines would be
6 largely contained in the core even though as we discussed a little earlier
7 the—some leakage that occurs in the gap there, it does not radiate into the
8 far field. There's no wave into the far field. It doesn't make this structure an
9 antenna.
10 And you know, I think that's the fundamental distinction here is that
11 the claim says an antenna. And Odachi does not use the work antenna at all.
12 What it really is, it refers to a coupler. But as Dr. Horenstein opines, it is
13 really a transformer structure than an e-core.
14 And I think just to emphasize to this point, during my colleagues
15 presentation he referenced a couple of different references or exhibits that
16 Petitioner relied on, Exhibits 1036 and 1045, Cook 7:65 and Chutorash
17 reference I believe is how you say it.
18 And the point there is that both of those references refer to antennas as
19 well as transformers, and they talk about the fact that some of their
20 principles of operation are similar. But again, they still use two different
21 terms. And I think that cements the distinction of how one skilled in the art
22 would understand that an antenna is not a transformer. A transformer is not
23 an antenna. They're two different terms. Just because they rely on some of
24 the similar principles of physics doesn't make them the same.
25 Now, moving to the second point which I think is Ground 1B in the
26 petition, this concept of whether Odachi moves the transmitting antenna

1 based on a degree of coupling in the first position. And we saw this slide—
2 or this figures in Petitioner's presentation. And if I can use my laser pointer
3 here to articulate.
4 Now, what Petitioner is saying is that this first alignment position in
5 the claim is this left most point that's shown here in red. And as this—as the
6 primary coil is moved across the parking space, the current eventually drops
7 and it crosses over this threshold I_0. And it marks it. There's a high low.
8 There's a discriminating circuit 25 that generates this high low signal that's
9 shown here.
10 And so, all that the system cares about is where does this crossing
11 point happen. This is totally irrelevant over here at the first alignment
12 position. And as the primary coil continues across the parking space the
13 current will reach a low point, and then start increasing as the primary coil
14 gets further away from the secondary coil. And again, the discriminating
15 circuit only cares where it crosses the threshold I_0. And it makes this spot
16 X2. And then, it continues across until it finishes the full sweep of the
17 parking space.
18 But the point is that the claim talks about moving the coil responsive
19 to a degree of coupling in the first alignment position. Now, Petitioner
20 makes a point that you somehow have to—you have to know what the
21 degree of coupling at every point along here, and that's simply not supported
22 by Odachi. None of this matters.
23 The only thing the discriminating circuit cares about is where does
24 this crossing point happen. And then, it takes—it splits the difference
25 between two different points, X1 and X2 to find XA, which is the maximum
26 degree of coupling. All these other points here are irrelevant to that

1 determination. And so, Odachi fails to disclose this limitation of the claim
2 for that reason.
3 I'll address, I think, Judge Raevsky asked the question about whether
4 it had been obvious to combine the compensation capacitors of Wang with
5 Odachi. Now, what Wang is referring to is wireless transfer systems that
6 utilize electromagnetic fields to try to transfer electric power from a
7 stationary primary source to one or more movable loads without contact.
8 That's the key point.
9 What Wang is trying to accomplish is increase the air gap between the
10 two couplers. And the problem with doing that it as you increase the air gap
11 the coupling becomes weaker. And so, what Wang says is while you
12 increase the frequency to improve the coupling.
13 However, in doing so, and this is at Page 38 of Wang and I'm on
14 Slide 23 of Patent Owner's demonstrative, Wang says that when you
15 increase their frequency to improve the coupling, there's an increase in the
16 reactants. And so, capacitors are added to compensate for that increased
17 reactance.
18 Now, one point that I want to address before I continue with Patent
19 Owner's slides is that what Petitioner relies on is the, in Wang, the
20 capacitors improving the efficiency of the wireless power transfer. And they
21 say, well it would have been obvious to improve the wireless transfer
22 efficiency in Odachi.
23 But what we're talking about in Odachi when we're talking about the
24 actual wireless transfer is those two cores are in contact. So, when it comes
25 to talking about whether it's a transformer or an antenna, all of a sudden they
26 don't care—you know, they are very keen on the fact that they're separated.

1 But when we're talking about Wang and increasing the efficiency, that's
2 when the actual transfer is happening.
3 And so, it is relevant that the transfer happens when the cores are in
4 contact because in Wang, Wang is talking about the situation when they're
5 not in contact and you need to add those capacitors in order to address the
6 increased reactants when you increase the frequency to improve coupling.
7 And that's not an issue in Wang because during charging the core are in
8 contact. There's not a weak coupling that occurs in Wang—in Odachi,
9 excuse me, during charging. And so, there would be no reason to add—I'll
10 skip ahead, to add the—
11 JUDGE OGDEN: Wouldn't there be a reason to improve efficiency
12 during that alignment phase when the two plates are not in contact?
13 MR. CORBETT: Well, there's no indication in Odachi, Your Honor,
14 that efficiency is a concern in the alignment phase. In the alignment phase,
15 there's—it's just a check current that is applied. And that check current—the
16 value of that check current is just monitored to see when it drops below the
17 threshold. And so, the efficiency that's really—is relevant is the efficiency
18 of the actual power transfer, not the check current that is applied before the
19 power transfer actually starts.
20 So, Patent Owner would submit that any efficiency that might be
21 gained during that alignment process is not relevant, is not really the
22 efficiency that Wang is talking about because Wang is talking about
23 efficiency during the actual power transfer.
24 JUDGE RAEVSKY: Do you have a response, Mr. Corbett, to
25 Petitioner's contention that they also raise an obviousness position that it
26 would have been obvious to keep the conductors in Odachi apart, in which

1 case the capacitor of Wang would have been used to that effect. And that
2 you did not rebut this position in your papers.
3 MR. CORBETT: Your Honor, we did rebut it in Patent Owner's sur-
4 reply. I can get you the exact page number in my sur-rebuttal time. But
5 Patent Owner's position is that this argument is waived. What Petitioner
6 relied on in where—this obviousness argument they're referring to that it
7 would have been obvious to make Odachi quote unquote, wireless, relates to
8 the preamble. And that's Petitioner Page 23 to 25 of the petition.
9 They did not rely on this obviousness argument when it comes to
10 transforming or modifying the transformer of Odachi to make it an antenna.
11 And we did point that out in our sur-reply that that is not an argument that
12 they made. The only thing they've relied on Wang for is these compensation
13 capacitors.
14 They have not made the argument in their papers that particularly in
15 their petition that it would have been obvious to totally change the couplers
16 of Odachi to make them—where there's no contact between the cores for
17 charging. I mean, if they were to make that argument even it wasn't waived,
18 it would require ignoring the whole positioning system of Odachi.
19 Odachi talks about specifically raising the coupler up so that they're
20 in abutment with the secondary core. If you were to totally change the
21 couplers, you wouldn't need any of that. And none of that discussion was in
22 their—in Petitioner's petition.
23 JUDGE RAEVSKY: I think what Petitioner might say in response is
24 that at least just looking at Page 19 of the reply at the bottom two lines, they
25 quote the petition, excuse me, as saying it would have been obvious to

1 implement Odachi wirelessly. Maybe that's what they're referring to when
2 they say they raise that argument in the petition.
3 MR. CORBETT: Yes, that's correct, Your Honor. But if you look at
4 the petition, it's Pages 23 to 25 where they make that argument. That has
5 nothing to do with the antenna, the antenna element of the claim. That's
6 talking about the preamble. And I can—the preamble of Claim 1 that talks
7 about a transmitter system for wireless power.
8 And starting at the bottom of Page 23 of their petition this is where
9 they say to the extent Patent Owner contends that Odachi does not teach
10 quote, wireless power, it would have been obvious to implement Odachi
11 wirelessly with its primary and secondary inductive couplers spaced slightly
12 apart. That's not an indication that you would change anything about the
13 structure of Odachi to make them—to make these transformers an antenna.
14 So, it's Patent Owner's position that that argument has been waived.
15 JUDGE OGDEN: Mr. Corbett, you're getting about a half minute into
16 your sur-rebuttal time. You can make another point if you'd like—
17 MR. CORBETT: Sure.
18 JUDGE OGDEN:—or save it for sur-rebuttal.
19 MR. CORBETT: Thank you, Your Honor. I will skip ahead here a
20 little bit and talk about briefly the combination of Partovi with Odachi and
21 Wang. And Partovi is not related to charging electric vehicles like Odachi.
22 It's related to charging small electronic devices like a cellphone where you
23 might want to charge multiple of them at one time. And there's no indication
24 that that's a concern in Odachi. There's this charging station at a parking
25 space, and there's no—it doesn't make sense how you would try to charge
26 multiple cars at the same time using the same primary coil.

1 Now, the other part that—the other point that Petitioner relies on is—
2 and I'm on—skip ahead to Slide 31 where we have the image of Odachi on
3 the right. These pancake coils that are shown here on the left would entirely
4 change the principle of operation if you were to try and incorporate them
5 into the transformer of Odachi that requires a very specific configuration of
6 an e-shaped core.
7 And the last point I would make that's addressed in our papers, and I
8 don't believe I have a slide on it here is that the alleged motivation to
9 provide a broader range by having multiple primary coils and would allow
10 you to reach a car that is parked in the next parking space over, there's
11 simply no support for that in Odachi.
12 Odachi, and we explain in our papers, Odachi specifically says this
13 positioning system is used so that you can move the coil to find the right
14 spot where it needs to be to charge the car. And going back to how that point
15 is specifically found, Patent Owner hasn't—or Petitioner has not explained
16 how that would work when you've got a multitude of coils, primary coils, in
17 figuring out which one you're using to charge a car or how you would use it
18 if the car is parked at the extreme far end. Not that Petitioner is completely
19 silent on that. This is simply a hindsight reconstruction and manufacturing of
20 a rationale to combine two references that no person in the skill of the art
21 would combine.
22 And the last point that we would make on Ground 2 and very quickly
23 before I eat up too much of my sur-rebuttal time is that in Ross, the Ross
24 reference is talking about two different—there's two different scenarios that
25 are at issue here.

1 The first is when there is a designed stopping point, like what Ross
2 calls for example a loading and unloading zone. And what Ross explains
3 here, and I'm on Slide 33 of Patent Owner's presentation, demonstrative
4 exhibit, says as the driver approaches there's an auto-positioning feature that
5 automatically steers the vehicle into a rough tolerance position, which Ross
6 says is about 10 to 15 centimeters, I believe, from the optimal position.
7 Now, the reason it knows the optimal position is because it's a
8 designed stopping point. And so, after it gets to this autosteering mechanism,
9 steers the car to its rough position, then the auto positioning feature uses the
10 vehicle sensors 60 to do so. And then, it's more closely aligned with the
11 optimal lateral position. So, we try to get it as close as possible.
12 Now, what Ross doesn't say is how that moving from the first
13 position to the second position occurs, and whether it's responsive to the
14 degree of coupling at that rough position. And so, it's Patent Owner's
15 position that what Ross fails to disclose is that there's any sort of
16 determination of the degree of coupling at that rough position that informs
17 the moving to this optimal position.
18 The optimal position is already known in this scenario because it's a
19 designed stop point. And so, there's not a need to rely on the degree of
20 coupling. And Petitioner has not shown where the degree of coupling in that
21 rough position is used to inform moving to the optimal position.
22 Now, what Petitioner points to is a different scenario where the car is
23 driving down the road. And that part says that the lateral position of the
24 coupler on the car is maintained within a rough position of the coupler that's
25 implemented in the road itself.

1 Now, what it doesn't say is where is this first alignment position that's
2 referred to in the claim. There is no first alignment position that's moved to,
3 and then the degree of coupling is determined. And then, the coupler is
4 moved to the second alignment position.
5 That disclosure to the extent they're relying on the previous scenario
6 where there's a designed stop point, that doesn't translate over to the
7 scenario that Ross is referring to where the car is driving down the road, and
8 it's just trying to maintain it in a rough position. There's no defined first
9 position and second position as recited in the claim.
10 And so, for that reason Ross fails to disclose the limitations of
11 challenged claims for which Petitioner relies on Ross. And unless there are
12 any additional questions, I'd like to reserve the remainder of my time for
13 sur-rebuttal.
14 JUDGE OGDEN: Okay. Thank you, Mr. Corbett. I think you've used
15 52 minutes. So, you have eight for sur-rebuttal. Mr. Davis, you've got nine
16 and a half minutes. So, you can start when you're ready.
17 MR. DAVIS: Thank you, Your Honors. A couple of housekeeping
18 matters from before during my original argument that I just want to go
19 through. For Judge Raevsky, the waves in the near field, a citation for expert
20 declaration is, for example, Allen's supplemental declaration 36 to 37 about
21 Odachi transmitting in the near field.
22 Also just the Patent Owner's sur-reply, this is not an issue that's in
23 dispute, the Patent Owner's sur-reply at Page 4. Electromagnetic radiation
24 necessarily includes a near-field component. It's a quote from their sur-
25 reply.

1 The second was from Judge Lee, expert testimony on Hui, Dobbs, and
2 Elliott about the radiating fields. That would be Exhibit 1032, Dr. Allen's
3 supplemental declaration, Paragraphs 47 through 51.
4 For Judge Lee, expert testimony on how Odachi will propagate waves,
5 examples would be in Allen's supplemental declaration, Paragraphs 31
6 through 32, as well as Paragraphs 45 and 47.
7 And then, Judge Raevsky asked about expert testimony regarding that
8 the transformer can be formed using antennas, and also the antennas in
9 Odachi that would be Paragraphs 43 through 44 of Exhibit 1032 are some
10 examples. And also where he cites various prior art sources, including things
11 like Exhibit 1036 using transmit and receiving antennas to react similarly to
12 a loose coupled transformer.
13 JUDGE RAEVSKY: Mr. Davis, can I jump in?
14 MR. DAVIS: Yes.
15 JUDGE RAEVSKY: That's very helpful. I just want to address
16 Paragraph 36 of Dr. Allen's supplemental declaration. About halfway
17 through that paragraph he testifies that—and sir, I'll let you get here. I didn't
18 realize you weren't—
19 MR. DAVIS: Yes, I've got it now, Judge Raevsky.
20 JUDGE RAEVSKY: He said I agree, and this is what a POSITA
21 would see in Odachi. Energy transmitted primarily in the near field and not
22 in the far field. So, is it Petitioner's position that Odachi does not transmit
23 far-field radiation?
24 MR. DAVIS: So, no it would still have some amount of far-field
25 radiation. What it is, that's just not going to be what is used in Odachi for
26 purposes of either the energy transfer or in the coupling. Those are all going

1 to be much more in the near field. And so, it will have a far-field component.
2 That's sort of a necessary component in any of the waves. But what it's
3 really focused on and used, which is true in the '654 patent as well is that
4 near-field component is going to be—
5 JUDGE RAEVSKY: Now, if that's the case why would one of
6 ordinary skill in the art consider the device in Odachi and the antenna when
7 we're just talking about incidental far-field stuff? Just like a trace on a PCB
8 like I mentioned earlier, a person of ordinary skill in the art is not going to
9 consider that an antenna.
10 MR. DAVIS: So, they would in the context of the '654 patent because
11 they are the exact same. It is two coils that are being used in order to transfer
12 energy primarily in the near field. And that's what—where the '654 patent is
13 using an antenna is not as limited to like a cellphone antenna or something
14 that is the primary purpose of it is for transmitting in the far field. It's just
15 using antenna for the basic sense that I have a coil or some sort of a circuit
16 with AC current going through it which is going to radiate electromagnetic
17 energy. And it's going to have all of those different components.
18 That's also why the '654 patent emphasizes that the purpose of it is to
19 have rather than propagating energy into the far field. Like the objective is
20 not to have a bunch of energy going to the far field. It is really to do energy
21 transfer in the near field. That's exactly what Odachi discloses as well. It's
22 the same thing in Wang and throughout each of the grounds in the petition.
23 JUDGE RAEVSKY: Okay. And I understand your position. Going to
24 one other piece of what you said. You said there would be incidental far-
25 field radiation in Odachi. And can you help me remember the support for
26 that?

1 MR. DAVIS: Yes, Your Honor. That would be, for example, we have
2 Dr. Horenstein's testimony where he talks about what will happen if I have
3 energy that is being transmitted or energy—if I have AC current that is
4 flowing into a coil it will generate an induction field, a near field, and a far
5 field. That was on our Slide, I believe, it's 26, Dr. Horenstein Exhibit 1033
6 at 15, 3 through 13. So, that's just the basic fundamental principle that if I
7 put energy into it I will have an induction-field, near-field, far-field
8 component.
9 What I'd also say is what we've talked about a lot in the context of
10 Odachi is, and what Patent Owner focuses on, is where the transmitting coil
11 is going to be very closely aligned in terms of the cores with the receiving
12 inductive coupler.
13 But if you look at, for example, Figure 11 of Odachi, we see where
14 the transmitting coil will start to send out fields is where it is completely
15 unaligned, misaligned with the receiving coil. That's where it will be at, for
16 example, the first operative home position. There will be no second core to
17 contain any part of the field that is being transmitted from the top of the coils
18 in figure—like that position in Figure 11.
19 That's the part of Odachi where you certainly are going to have
20 incidental fields that are going in all three of the regions, regardless of
21 whether or not that's also true at the actual point of contact where you're in a
22 charging configuration in the unmodified sort of Odachi version.
23 I think I heard about—for our ground based on obviousness of Wang
24 and Odachi, Patent Owner alleges that there should be a waiver of our
25 obviousness argument because purportedly only relied on it for the
26 preamble. I think as a preliminary matter that's just fundamentally wrong.

1 We relied on the fact that you would find it obvious to combine—to make
2 Odachi not on contact which is undisputed. And that's for Claim 1, the
3 relevant claim.
4 But even if we have to have put it into Limitation 1A discussing the
5 antennas, we did that too. That's petition Page 30 where we expressly state,
6 a POSA would have recognized, and I'm quoting from Page 30 the first full
7 paragraph, a POSA would have recognized that by transferring power more
8 efficiently the modified Odachi could wirelessly charge more powerful
9 vehicles, charge vehicles quicker and calm safer obstacles that might
10 otherwise impede transfer efficiency.
11 So, we do in fact rely on the fully modified Odachi that can wirelessly
12 charge vehicles in the context of the relevant limitation where they are
13 contending wrongly that there was any sort of waiver.
14 I think Judge Lee asked Patent Owner about the distinguishing of
15 Odachi's coils from the coils that are disclosed in the loop antennas that are
16 disclosed in the patent themselves. There isn't a difference. In the prior art,
17 you have a coil that is a loop antenna, which we show is a loop antenna
18 under a plain meaning of a loop antenna.
19 But in the '654 patent as well as in references like Turman, their
20 response is okay, but Odachi has a core. And I think Judge Lee, you pointed
21 out so does the '654 patent. The '654 patent says it can have a core too. So,
22 then they have to jump through a bunch of hoops to say actually, although
23 the '654 patent doesn't say of this our expert has said that that is a
24 completely different type of core than what's in Odachi.
25 But what we can see in the prior art is when it talks about cores, the
26 understanding is not going to be that it's singularly an air disc core. We see

1 in things like Elliott where an e-shaped core is a common shaped core, and
2 there is nothing anywhere in the ’654 patent that says that you could not
3 have an e-shaped core. It just says you can have a ferrite core.
4 Indeed right after the discussion of the ferrite core, it also says you
5 could have other pieces of ferrite that shield the—that are designed to shield
6 external components on other parts of the device, low frequency ferrites.
7 And so, the idea that there’s a very limited type of core that’s only permitted
8 in the ’654 patent, it’s completely unsupported.
9 JUDGE OGDEN: I think you’re out of time, Mr. Davis. Thank you
10 very much for your arguments.
11 JUDGE LEE: Can I ask that one last question, Mr. Davis?
12 JUDGE OGDEN: Sure, yes. We’ll give Patent Owner a little bit of
13 extra time.
14 JUDGE LEE: So, Petitioner’s expert says, yes, some of the flux will
15 escape the core. So, if we find that credible does that get you where you
16 want if you have to have far-field waves? So, some flux escapes the core.
17 Does that automatically lead to, yes, there’s going to be far-field waves?
18 MR. DAVIS: So, I think that discussion of only in the context of
19 where the cores are particularly close together is the wrong analysis. And I
20 think that this is where there’s been a discussion. If what a transmitting
21 antenna needs to do is to transmit in the far field, it does that by virtue of
22 being a transmitting—or being a coil with AC current flowing into it.
23 And I think that that is the question of, is it an antenna? Then the
24 second question is, what is it used for the actual coupling or where is it
25 located with respect to a second antenna? And that’s a different question.

1 And in the claim, all that requires is that they were coupled. It does not
2 require that you used far field or near field, or anything like that.
3 And we also submit that even under Patent Owner's claim instruction,
4 which is wrong, there is no requirement for a far field. And so, we'd submit
5 that that would be a new claim construction argument that would be
6 improper at this stage of the sur-reply.
7 JUDGE LEE: Thank you.
8 MR. DAVIS: Thank you, Your Honors.
9 JUDGE OGDEN: Thank you, Mr. Davis. We gave you about three
10 extra minutes of time. So we'll give, Mr. Corbett, we'll give Patent Owner
11 11 minutes of sur-rebuttal time.
12 MR. CORBETT: Thank you, Your Honor. One housekeeping matter.
13 During my initial comments, it believe it was Judge Raevsky asked where it
14 was that we made this—Patent Owner made this waiver argument as to
15 whether it would have been obvious to modify Odachi to be wireless. And
16 that was the sur-reply at Pages 9 and 10. The couple points I want to address
17 that my colleague mentioned in his rebuttal time, in particular Slide 26 of
18 Petitioner's demonstrative, there's an excerpt from Page 15 of
19 Dr. Horenstein's definition. And my colleague said that this was somehow
20 an admission by Dr. Horenstein as to how Odachi operates. And that is
21 simply inaccurate.
22 The portion of the deposition that is excerpted here on Slide 26 of
23 Petitioner's demonstrative is—does not show what questions were asked a
24 couple of pages before that starting on Page 13, Line 6, of Dr. Horenstein's
25 deposition. The questioning starts explicitly referring to the '654 patent, and

1 in particular Figure 4 of the ’654 patent. And the questioning continues on
2 for Page 14 and 15 all referring to the ’654 patent.
3 Any insinuation by Petitioner that Dr. Horenstein’s deposition here,
4 testimony here, somehow is an admission as to the extent to which Odachi
5 emits radiation or waves in the near field, far field, none of that is accurate.
6 That is all testimony relating to the ’654 patent, not Odachi.
7 The other point I’d like to address from Petitioner in Petitioner’s
8 rebuttal time was the reference to Page 3 of the petition. And Petitioner’s
9 point that this somehow provides support for their argument that it would
10 have been obvious to change the structure of Odachi to make it wireless.
11 And the part that my colleague read from, Page 30 of the petition says
12 that a POSA would have recognized that by transferring power more
13 efficiently, the modified Odachi could wirelessly charge more power
14 vehicles, charge vehicles quicker, and compensate for obstacles that might
15 otherwise impede transfer efficiency.
16 Now, what modified Odachi is referring to is Odachi, plus a
17 compensation capacitor. It’s not referring to changing the entire structure of
18 Odachi. And in particular, the emphasis on Page 30 here is the ability to
19 charge more powerful vehicles and charge them more quickly.
20 And that again is not—it’s not the same argument as saying, well it
21 would have been obvious to totally change the structure of Odachi and make
22 it—to change the couplers and make the transformers antennas. That is a
23 separate argument that was not made.
24 And so, this portion of Page 30 of the petition that the Petitioner relies
25 on does not support their argument that that argument was raised and

1 supported in the initial position, this Patent Owner's position that that
2 argument has been waived.
3 And the last point I'd like to make relates to the discussion in the '654
4 patent of the use of a ferrite core. And I believe Petitioner takes the position
5 that there's no support anywhere for the fact that these cores that are talked
6 about in the '654 patent are different than the cores that are shown in
7 Odachi, and that's not the case.
8 In Dr. Horenstein's supplemental declaration, Exhibit 2010 starting in
9 Paragraph 51, he addresses where in the '654 patent it talks about this ferrite
10 core. And he specifically cites to Column 2, Line 62 to 64, where a ferrite
11 core may decrease the effect of extraneous objects.
12 And so, what Dr. Horenstein explains, and it continues into Paragraph
13 52, 53, all the way through 56 is—what that means is when you're talking
14 about decreasing the effect of extraneous objects it's referring to these eddy
15 currents and using the ferrite disc as way to decrease the effect of the
16 extraneous objects.
17 This is not saying, well it can be used for—you can use the core of
18 Odachi or the core of any transformer, and use a transformer instead of an
19 antenna. That's not what it's referring to, and so there is support. There is
20 explanation from Patent Owner's expert as to how one skilled in the art
21 would understand that reference to a ferrite core in the '654 patent as not
22 somehow equating that core to the core of Odachi.
23 JUDGE RAEVKSY: Mr. Corbett, I want to address a related point
24 that Petitioner brought up in its rebuttal which is that what their boiling their
25 case down to is the coils in the '654 patent, they're just close to each other
26 operating in the near-field energy and that's exactly what Odachi is doing.

1 Whether you call them antennas or something else, it's the same thing. I
2 have probably overgeneralized, but how would you respond to that?
3 MR. CORBETT: Well, I guess I would say a couple of points that,
4 one, just by use of the word antenna, and antenna infers the ability to
5 generate a near field and a far field. And so, that's not a new claim
6 construction position. Patent Owner's claim construction position references
7 the near field because that is how the coupling occurs.
8 But Dr. Horenstein explained in his supplemental declaration that an
9 antenna as one skilled in the art would understand generates, or is at least
10 able to generate a near field and a far field. And so, that's what is built into
11 the term antenna. And the '654 patent, yes, it actually talks about near field
12 and far field. It says the near field is what's used for coupling.
13 And the contract with Odachi is that Odachi does not use the near
14 field for power transfer. It uses the induction field to transfer energy from
15 the primary coil to the secondary coil. So, there are coils. And of course, that
16 is—you know, they have that in common, Odachi and the '654 patent.
17 But the '654 patent is completely different because it explicitly talks
18 about near field and far field. And none of those are referenced anywhere in
19 Odachi because Odachi is a transformer. They're not relevant in Odachi.
20 There is no near field and far field in Odachi. And I think it's very telling
21 that none of that is discussed in Odachi, nor is the work antenna used even
22 once in Odachi.
23 And if there are no other questions from the Board, I'd like to close
24 with Patent Owner would respectfully request that the Board affirm the
25 validity of all the challenged claims.

1 JUDGE OGDEN: Okay, thank you. It doesn't look like we have any
2 further questions. Thank you both sides for your arguments. I think they've
3 been very helpful today in this case and in the prior 105 case.
4 We'll take both cases under advisement, and we'll issue a decision in
5 due course. So, we are adjourned. Let's go off the record.
6 THE REPORTER: We are off the record.
7 (Whereupon, the proceedings at 5:29 p.m. were concluded.)

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