

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANON U.S.A, INC. and CANON INC.,
Petitioner,

v.

SLINGSHOT PRINTING LLC,
Patent Owner.

IPR2023-00309
Patent 7,290,864 B2

Record of Oral Hearing
Held Virtually: May 9, 2024

Before JO-ANNE M. KOKOSKI, GARTH D. BAER, and
JOHN D. HAMANN, *Administrative Patent Judges*.

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The above-entitled matter came on for hearing on Thursday, May 9, 2024, commencing at 1:00 p.m. EDT via Video-conference.

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

1:00 p.m.

JUDGE HAMANN: This is the video hearing in IPR2023-00309, Canon U.S.A., Inc. and Canon Inc., Petitioner v. Slingshot Printing LLC, Patent Owner. I'm Judge Hamann, also on the panel are Judges Kokoski and Baer. Let's begin with introductions on behalf of the parties. Who's appearing for Petitioner today?

MR. BREGMAN: That's me, Dion Bregman, Your Honor. And Jimmy Kritsas, Jimmy's going to be doing the bulk of the argument today.

JUDGE HAMANN: And for Patent Owner, who is appearing for Patent Owner?

MR. BORSOS: Mark Borsos, lead counsel on behalf of Patent Owner, with me is Rayiner Hashem. And as we spoke about earlier this morning, there is a pending *pro hac vice* motion for Mr. Hashem.

JUDGE HAMANN: And thank you for pointing that out, I will turn to that shortly before Petitioner begins their arguments. But let me set forward some background and suggestions for today's hearing.

First off, I remind the parties that there is a public line today, so members of the public may be joining, and we welcome those folks to the extent that they have joined. But I do remind the parties not to discuss any confidential information. We don't have a protective order in this case, so I don't believe there will be any confidential information. That being said, I have provided the reminder nonetheless.

This is also a video hearing, and to the extent that you get disconnected or have degradation, please, to the extent you can, let us know right away. If you still have some level of connection or reach out to the folks at helped you set up today's call, you should have that information.

1 We also ask that you endeavor to unmute yourself before speaking,
2 and certainly mute yourself when you're not speaking; that will prevent
3 background noise and allow for an easier presentation. We also remind the
4 parties that we have the documents and exhibits and demonstratives copies
5 available to us that we may be referring to.

6 So to the extent that in referring to a document, exhibit, or a
7 demonstrative or whatnot, please identify it appropriately by slide number or
8 exhibit number or page number or whatnot. That will help us follow along
9 and also provide for a clearer record.

10 We're going to begin with the Petitioner and per the oral hearing
11 order, each side will have one hour to present in total for their arguments.
12 We're going to begin with Petitioner as it bears the burden on patentability,
13 followed by Patent Owner's response, followed by any time that was
14 reserved for rebuttal and surrebuttal.

15 I will endeavor to give you a time warning, which may be five
16 minutes before your allotted time. But you may find it helpful to also track
17 your time, so you can better pace yourself. And also to the extent you need
18 to bleed over into any time that you have reserved for rebuttal or surrebuttal,
19 you can do that and we will just account for it accordingly and deduct that.

20 So with that, before we begin and turn to the Petitioner, let's turn to
21 the *pro hac* that Mr. Borsos, you mentioned. Before we do that, let me say
22 in looking at that document, we noted it doesn't appear that Patent Owner
23 has filed a power of attorney in this proceeding, which Counsel is aware
24 that's a necessary document. Mr. Borsos, can you represent to the panel that
25 you have authority to represent Slingshot Printing, LLC in this proceeding
26 and Patent Owner since the first time?

1 MR. BORSOS: Yes, I can. And I believe a power of attorney was
2 filed with respect to the patent. So although it may not be a record in the
3 IPR proceeding, there is a Patent Office record that we have power of
4 attorney.

5 JUDGE HAMANN: I'm not sure what you are referring to, but
6 generally you need to file it in the adverse IPR proceeding itself. With that,
7 can you also make a representation, and forgive me, the gentleman for the
8 *pro hac* you mentioned, his last name is?

9 MR. BORSOS: Mr. Hashem.

10 JUDGE HAMANN: Hashem. Now is Mr. Hashem, has Slingshot
11 Printing LLC provided you with authority to represent it in this proceeding?

12 MR. HASHEM: Slingshot LLC has provided me with authority to
13 represent it in this proceeding.

14 JUDGE HAMANN: Okay. Then we'll have, how we will proceed, is
15 we'll have -- if Patent Owner could promptly file in this proceeding, a power
16 of attorney for all counsel of record as well as updated mandatory notices
17 identifying all counsel. And with that, we will conditionally grant the
18 motion for *pro hac* pending those filings, and Mr. Hashem can provide
19 argument today.

20 MR. HASHEM: Thank you, Your Honor.

21 MR. BORSOS: Thank you, Your Honor.

22 JUDGE HAMANN: Any questions from Patent Owner before we
23 begin about that issue?

24 MR. BORSOS: Nope, nothing.

25 JUDGE HAMANN: Mr. Bregman?

26 MR. BREGMAN: No questions, thank you, Judge.

1 JUDGE HAMANN: Okay. Well then with that, I would ask that
2 everyone but Petitioner mute themselves. And Mr. Bregman or whoever's
3 going to first appear for Petitioner, how much time, if any, would you like to
4 reserve rebuttal?

5 MR. BREGMAN: Fifteen minutes, Your Honor.

6 JUDGE HAMANN: Thank you. You may proceed when you are
7 ready.

8 MR. BREGMAN: Thank you. Mr. Kritsas will take it from here.

9 MR. KRITSAS: Thanks, Dion. I will just go ahead and start sharing
10 the slides. Great.

11 So thank you, Your Honors. So what I'll be addressing here today is
12 the unpatentability of the '864 patent. So I'll jump ahead to Slide No. 2 in
13 our demonstratives, which is Exhibit 1018. And what we see here is what
14 we'll be discussing today is starting with a brief overview of the '864 patent.
15 And then following that, we're actually go into a discussion of claim
16 construction, because Patent Owner's proposed number of constructions for
17 certain terms, really in an effort to avoid the prior art that Petitioners have
18 provided in each of its Grounds 1 through 4. Following that, we'll go into
19 each of the grounds and have specific discussions of Patent Owner's
20 arguments with respect to each.

21 So going ahead to Slide No. 4, what we have here is '864 patent on the
22 left, as well as a representative figure from the '864 patent on the right.
23 What the patent discusses is its purported novelty, is really the concept of,
24 you know, trying to have a bondpad that connects to two different heater
25 arrays, or at least two different heater arrays on opposite sides of an ink via.

1 So you see that represented in Figure 3 on the right and you have the
2 black shape which is identified as 328, and there are two separate traces,
3 326, coming off of that bondpad, connecting the two separate heater arrays.

4 If we go to Slide No. 5, the patent has a discussion about what was
5 known in the prior art, and it describes prior art configurations, such as
6 shown in Figure 1 here, where you would have one or more bondpads, each
7 connected to a single heater array. You can see the power traces for these
8 prior art systems run down the length of the heater array and connect to one
9 of the bondpads.

10 On Slide No. 6, this is just another prior art embodiment that they
11 describe. In this one, this is for a multi-ink via, or a three-ink via chip.
12 Again, each of these has a bondpad that has a power trace that connects to
13 just one heater array.

14 Going to Slide No. 7, the patent describes, really the point of alleged
15 novelty is to save space on the heater chip. By combining the number of
16 power traces that connect to a single bondpad, they can reduce the number
17 of bondpads that are used on the chip, thereby saving space.

18 So if we go to Slide No. 8, here are the independent claims for the
19 '864 patent, Claims 1, 8, and 16. And each of these claims includes a very
20 similar recitation of this requirement. Claim 1, for example, requires the
21 bondpad, where the bondpad supplies power to at least a portion of the first
22 heater array into at least a portion of the second array. And Claims 8 and 16
23 include very similar recitations as well.

24 The primary reference that I'll be discussing on Slide 9, I relate to the
25 Benjamin '144 patent. And Benjamin really describes a very similar, in fact,
26 the same layout arrangement as to what's described in the '864 patent you
27 can see on the right side. It has power traces identified as 214, we've

1 highlighted two of them in orange. Each of those shows power traces that
2 are connected to two different heater arrays, one on each side of an ink via.

3 And we also have explicit disclosures in Benjamin that each of those
4 power traces are connected to the nearest bondpad, and that's shown in the
5 excerpt from Benjamin on the bottom left. Again, the bondpad singular is
6 used for receiving each of the different energy signals, Fire 1 through Fire 6.

7 With respect to our Grounds 3 through 4, on Slide 10, Uenishi also
8 describes similar advantages to those described in the '864 patent. Uenishi
9 disclosed a multi-ink via chip. And then it utilizes embodiments that can
10 shrink the chip size without increasing the size of the thermal inkjet head.
11 How does it do this? Well, Uenishi teaches using common electrodes,
12 which we've highlighted one of those in blue here. The common electrode is
13 connected to an electricity-feed terminal, that provides electricity to the
14 common electrode or the trace. And that provides power to heater arrays on
15 both the left side and on the right side of that common electrode.

16 So moving on to Slide 11, we really need to go into a discussion of
17 claim construction because Patent Owner has raised a number of claim
18 construction issues in an attempt to get around the prior art references in
19 Benjamin and Uenishi. They raise three different issues. One is they
20 propose a construction for bondpad that adds specific sizing limitations.
21 They also propose a construction for traces or power traces that also includes
22 a relative size limitation, when compared to the bondpad art. So those two
23 really go hand-in-hand together. And then the third --

24 JUDGE HAMANN: Counselor?

25 MR. KRITSAS: Yes?

26 JUDGE HAMANN: This is Judge Hamann. Let me sort of dive into
27 this, because I think I agree with you, this, I think, is something important

1 for us to discuss. In fact, in our DI, we even stated that the parties should
2 discuss these issues, because as you know, when there's a disagreement as to
3 what the plain and ordinary meaning is, we have to construe that to resolve
4 the disagreement. Before we dive into though, let me understand sort of
5 where this disagreement may apply. It seems to me as to the grounds that
6 are not based on Uenishi, it's not a question of what a bondpad is, it's more
7 of a question of where it is. Is that fair?

8 MR. KRITSAS: So that's exactly right. So there's really with respect
9 to the Benjamin references, I believe Patent Owner has agreed now that
10 there is at least, that there are bondpads for the fire lines. It's really they
11 dispute where those bondpads are located as well as the number of bondpads
12 for each fire line. So I would have to agree that the bondpad term would not
13 be an issue, pretty much would not be an issue for Grounds 1 and 2.

14 JUDGE HAMANN: And that would also hold for trace?

15 MR. KRITSAS: Correct. Trace is only raised by Patent Owner with
16 respect to the Uenishi references.

17 JUDGE HAMANN: Okay. And then, and as we turn to and you get
18 back to your presentation on the claim construction, let me point out like I
19 said, in the DI we raised and recognized at least with the extent to the
20 Uenishi grounds, that the dispute over what the plain and ordinary meaning
21 is is something that would need to be addressed.

22 And it seems like Patent Owner set forward its understanding of the
23 plain and ordinary meaning. And despite our words in the DI, Decision of
24 Institution, it looks like Canon just continues to state plain and ordinary
25 meaning and hasn't unveiled itself of explaining what that plain and ordinary
26 meaning is.

1 And so with that, the background, certainly if you can explain
2 Petitioner's argument as to what the plain and ordinary meaning is and how
3 we should construe bondpad as well as trace.

4 MR. KRITSAS: Sure. Happy to get into that right now, Your Honor.

5 So going to Slide No. 12, right here you have the different claims
6 where the bondpad term is identified. And we can see that each of these
7 claim limitations, the term bondpad is merely identified as something that
8 connects to a trace and that is able to with respect to Claim 1, it supplies
9 power.

10 But it's really, it's a portion for an interconnection between a trace and
11 a heater array, so that's clear from the claim here. And really, what we're
12 getting at here, is that the bondpad is simply what it says, it's a pad where
13 you can bond something to it. When we see in the Benjamin references, see
14 those flexible traces that shows the bonding location for those flexible
15 fingers. It's really just an area that allows, again, a connection to one of
16 these flexible circuits, for example, to allow a connection to something else
17 on the chip itself.

18 If we go to Slide 13, Canon, as Your Honor has noted, we proposed
19 again, sticking to the plain and ordinary meaning as understood by a person
20 skilled in the art. Where Patent Owner has really proposed importing a
21 number of different limitations here.

22 JUDGE HAMANN: Counsel?

23 MR. KRITSAS: Yes, Your Honor?

24 JUDGE HAMANN: Mr. Kritsas, this is Judge Hamann, let me
25 interrupt you real quick. What is the plain and ordinary meaning, as the
26 words point out, I just want to understand, for bondpad? That's sort of the

1 point. That's what we asked in the DI that Petitioner explain, because
2 clearly Patent Owner believes it has a different plain and ordinary meaning.

3 MR. KRITSAS: So I apologize, I thought I had explained it earlier.
4 But really what we had proposed is, it's a pad to which the trace can be
5 bound. So when we looked back at Claim 12, he refers to it's something that
6 is bound to a trace that connects to other structures on the chip. So that is
7 what we had intended to propose as the plain and ordinary meaning. And I
8 apologize if it wasn't as clear in the papers as the Board was looking for.

9 JUDGE HAMANN: And similarly, did Petitioner put forward what
10 the plain and ordinary meaning for trace is?

11 MR. KRITSAS: Your Honor, we think that trace is a self-explanatory
12 term. But the plain and ordinary meaning for that is really just an electrical
13 connection between one point and the other.

14 JUDGE HAMANN: And these constructions that you're explaining
15 now, these are in your papers, the Reply, for example?

16 MR. KRITSAS: Correct, Your Honor. I mean, we included a claim
17 construction discussion in our Reply from pages, at least pages 2 to 4 for the
18 bondpad term. But we also think it's implicit in the nature of the terms
19 themselves as well.

20 So unless there are any other questions, I just wanted to briefly
21 address Patent Owner's construction for bondpad. And I will note also that
22 neither party provided dictionary definitions on either bondpad or trace in
23 the record. So we're really relying on the claims and the intrinsic evidence
24 of this analysis.

25 So for bondpad, what Patent Owner has proposed is importing a
26 relatively large limitation. And really what they're doing here is they are

1 trying to import a sizing restriction from what we see on Slide No. 14, this is
2 Figure 3 from the patent.

3 And they're trying to look at this figure and say well, a bondpad must
4 be relatively large compared to a power trace, shown in this figure here. But
5 the problem is that one, they are taking a specific embodiment and trying to
6 import a limitation, which Your Honors are aware is improper to do.

7 The other thing that they're doing here is if we go to Slide 16, is, you
8 know, they are taking something that's not found in the claims either. And
9 this Figure 3 is actually a schematic representation of what a trace is, it's not
10 actually showing you what the widths of these particular traces are, it's really
11 just meant to show you a path of where the trace runs.

12 If you go to Slide 18, you don't have to take my word for it, you can
13 actually see. I asked Mr. Dietl, Patent Owner's expert, whether there's any
14 disclosure of a power, of a size restriction on the size of the bondpad relative
15 to the power trace; and he said no. The patent does not address the size of
16 the bondpad relative to the power trace. He said it's typically larger than a
17 power trace in his experience. But again, typically isn't, that's not always.

18 So it doesn't exclude from the scope of the claim, situations where the
19 power trace is actually larger than a bondpad. And so there really shouldn't
20 be any reason why the claim term should be construed to have any sort of
21 sizing restriction.

22 On top of that, on Slide No. 19, I also asked him, are the widths of the
23 traces depicted in Figure 3? And he said no, it's merely a schematic
24 representation of the trace path.

25 JUDGE HAMANN: Mr. Kritsas, this is Judge Hamann. I'm trying to
26 understand Slides, I think 19 and 20 that we were looking at. It's one thing
27 to say the figures don't have exact dimensions. But isn't there anything we

1 can take from the relative sizing of the bondpad versus the trace from those
2 figures?

3 MR. KRITSAS: Well, I think the point is, Your Honor, with respect
4 to Figure 3, we can't take anything from the relative size of the traces
5 because the size of the traces aren't actually depicted. So there's nothing
6 relative to look at here. And as Mr. Dietl acknowledges, the widths aren't
7 shown, and on top of that, it's just a schematic representation.

8 And if we actually go to Slide No. 20, I asked Mr. Dietl, so if the
9 bondpad or, sorry, if the power trace is wider than the bondpad it connects
10 to, is that still a bondpad under your definition? And he said yes, I don't
11 think there's any reason why that wouldn't be a bondpad.

12 And similarly, I think that logic would also apply to the concept of a
13 power trace. Whether a power trace is wider than a bondpad, doesn't stop it
14 from communicating current, it's in the bondpad and whatever it's connected
15 to. I mean, I think these, this admission here is dispositive of the issue.

16 JUDGE HAMANN: But the problem that I would suggest, Mr.
17 Kritsas, is the problem is that we need to try to provide some meaning, not
18 necessarily a full definition, but some meaning as to the construction. And
19 an expert, I'm not sure I view this an admission in the context of the claim
20 language, and in the context of the intrinsic evidence. There is certainly, and
21 you know, the expert slide that I think you referred to, talk about typically
22 the difference in size, you know, one or more, it's going to be a bondpad.

23 I have some understanding what a bondpad is and its purpose, and the
24 same with trace and its purpose as it relates to the spacing. And that's what
25 we're trying to get to. Now I understand Petitioner views Patent Owner as
26 being too limited potentially, in sizing. But don't really have anything direct
27 again from Petitioner clearly setting forth how a bondpad relates to a trace.

1 But the proper construction is at least that we need to construe it to resolve
2 disputes between the parties here.

3 MR. KRITSAS: Understood, Your Honor. And I really think that the
4 problem is, is that there really shouldn't be any sort of relationship between
5 bondpad and trace, as Patent Owner is proposing here. They are two
6 separate structures and two separate understandings.

7 You know, it's our position again, that a bondpad is an electrical
8 connection point, onto a chip, and that a trace is just a, it's a conductor that
9 allows for a transmission of that electrical contact to another portion of the
10 chip, that's all that a trace is. And to read more into it, we think is improper
11 as proposed by the Patent Owner.

12 JUDGE HAMANN: So it's Petitioner's position that one who is
13 skilled in the art, in view of the intrinsic evidence wouldn't view any size
14 limitation on bondpad whatsoever?

15 MR. KRITSAS: No, no, no. It's not that there's no limitation at all,
16 it's just a person skilled in the art would understand that a bondpad is a
17 structure that's used to connect to a, they're like connected onto a chip.
18 That's really what we've been trying to advocate for here. There's no
19 specific size limitations to it, especially a size limitation relative to a power
20 trace or another trace that it's connected to either.

21 JUDGE HAMANN: Okay. Let's focus on trace itself. I recognize
22 that's a different term, but there's also the question of what is the plain and
23 ordinary meaning of the word trace in the context of the claim and the rest of
24 the intrinsic evidence. And what size limitation, if any, would Petitioner
25 place on that?

26 MR. KRITSAS: I'm sorry, I guess I didn't quite appreciate your
27 question, Judge Hamann, could you please repeat it?

1 JUDGE HAMANN: There seems to be two terms, bondpad and trace.
2 And to a certain degree, we're treating, as with the sizing and what Patent
3 Owner suggests is within the plain and ordinary meaning, it's sort of focused
4 on size. And what Petitioner seems to say is, oh, you're trying to put
5 limitations.

6 I understand that argument, but notwithstanding that, yet you can't just
7 rely on plain and ordinary meaning with the dispute. We have to provide
8 some level of construction at least to resolve the dispute. And I'm trying to
9 understand what Petitioner said, you know, as to size limitations for trace for
10 example. The traces need to be on the chips, I assume they can't be as big as
11 a Buick.

12 I mean, is there, you know, what would one with ordinary skill in the
13 art understand trace to mean as, we already have its plain and ordinary
14 meaning in the context of the claims and include, you know, in and of itself,
15 as it relates to bondpads?

16 MR. KRITSAS: So with respect to trace, I mean it's our position a
17 person skilled in the art would understand what a trace is and I think that
18 we've, I've tried to emphasis this, it's a conductor that can connect between
19 two different portions of a circuit or on a circuit board. So for example, you
20 know, if the patent uses trace in some examples to connect between a
21 bondpad and heater arrays.

22 That certainly isn't the only example of a trace, but that's one example
23 of how a trace is used. So it's really utilizes a structure to connect -- a
24 conductor to connect two other structures on the chip set itself.

25 JUDGE HAMANN: So Petitioner I guess, argued that a trace can be
26 any conductive structure on a chip?

1 MR. KRITSAS: Yes, a conductive structure on the chip that connects
2 between two different components, yes.

3 JUDGE HAMANN: Thank you.

4 MR. KRITSAS: And I think also if we look at the claim itself, the
5 claim tells us, gives us some examples of what a trace is. So for example,
6 we look at Slide 22, for example, we can see that Claim 8 for example,
7 describes that there are traces that stem from a bondpad, and it describes that
8 a trace connects to either a first heater array and at least another one of the
9 traces connects to the second heater array. So again, we think it is
10 supported, our construction is supported in the claims and the intrinsic
11 evidence itself as well.

12 So I'd like to move on, I think we've talked a little bit about the size
13 requirements and gone back and forth on that. Going on to the last
14 limitation, the physically separated proximal to the bondpad term. On Slide
15 28, this term is addressed by Patent Owner both for the Benjamin reference
16 as well as the Uenishi reference.

17 We see on Slide 29, the physically separated proximal to the bondpad
18 term is found in Dependent Claim 3, as well as Dependent Claim 9. And so
19 on Slide 30 are each sides' proposed plain and ordinary, or at least the
20 constructions that were proposed.

21 Petitioner proposes that the claim simply requires that the physical
22 separation is the part of the trace that is near the bondpad for the term
23 physically separated proximal to the bondpad.

24 Patent Owner on the other hand, they've added an additional limitation
25 so the physical separation must be nearer to the bondpad than the heater
26 arrays. So they've included a reference to another structure that isn't
27 required by the claims, were really related to the trace itself.

1 So if we go back to Slide 29 very quickly, if you look at Claim 9, you
2 can see the claim terms here, there's no reference to the power, or excuse
3 me, the heater arrays. So it's our position that trying to reference heater
4 arrays as part of this analysis is an improper limitation when you look at the
5 claims. In Claim 3, while it does reference heater arrays, it's referring to the
6 fact that the bondpad supplies power to those heater arrays.

7 But when we actually look at the second half of the claim term, we
8 look at the analysis of what the power traces are. And when looking at the
9 subject power traces, it only specifically recites that they be physically
10 separated proximal to the bondpad, that's it.

11 So if we look at Slide No. 32, this is a summary of Petitioner's rebuttal
12 to Patent Owner's claim construction arguments here. We think it's an
13 improper incorporation, or importation of limitations in an attempt to
14 overcome prior art. It's also inconsistent with the claims themselves, for the
15 reasons I just discussed, as well as the dictionary definition that Patent
16 Owner provided.

17 Further, their construction injects ambiguity into the claims because it
18 asks the question of, well, where exactly are we referring to on a heater array
19 to make this proximity determination. As you know, an array of heaters is
20 not just a single point, it's actually, you know, a long array of multiple
21 heaters.

22 So do you pick the first heater, do you pick the last heater, do you
23 pick an average of where they're located to try and determine whether that
24 separation is closer to the heater array or closer to the bondpad itself?

25 JUDGE HAMANN: This is Judge Hamann. And looking back at
26 your Slide 30, where I think you set forward the constructions here, and just
27 looking at what Petitioner has provided here, the part of the trace that is near

1 the bondpad, focusing on the word near, how is that bounded in the intrinsic
2 evidence?

3 I recognize that Patent Owner's being near, it sort has two ends and it
4 sort of is more in that sense definitive. But I understand your point about
5 Claim 9, including heater arrays. So how do we deal with the term "near"?

6 MR. KRITSAS: Yeah, so our position is that the, you know, it's close
7 to or near is the analysis that is done. Our expert actually explained in his
8 deposition and as well in his supporting Declaration, how he as a person
9 skilled in the art, understood the term.

10 And so if we move ahead to Slide No. 34, Dr. Pond explained that you
11 look at a power trace, and you start at the bondpad, and then you end at the
12 last heater of that power supply. So that gives you a length of your power
13 trace.

14 And then next, he looks at where the separation point is relative to the
15 start and to the finish. So that you look at the beginning, the power -- the
16 bondpad, and you look at the end, which is the last heater in the array that
17 it's connected to.

18 And then, depending on where that separation is, if it's closer to the
19 start, being the bondpad, versus the finish, that's how you make a
20 determination as to whether something, the separation is near or proximal to
21 that bondpad.

22 JUDGE HAMANN: That seems to seem an awful like Patent
23 Owner's construction except it refers to potentially the last heater array that
24 the trace is connected to.

25 MR. KRITSAS: Yes, so the distinction is, is you know, the parties
26 agree that, you know, it's you know, proximal is a relative term. But the
27 dispute is what is it relative to. What Petitioner has proposed and what

1 Petitioner's expert has concluded, you look at a point of origin, and if we go
2 to Slide 33, this is actually supported by Petitioner's or Patent Owner's
3 dictionary, which defines proximal as situated nearer the point of
4 attachment.

5 And if you compare that with the antonym, distal, it defines it as
6 situated away from the point of attachment. So the point is, is the claim is
7 really focused on the trace being physically separated. And so we need to
8 consider the entirety of the trace to make a determination as to where that
9 separation is, whether it's nearer the bondpad or whether it's situated away
10 from the bondpad, as compared to the beginning point of origin here.

11 And I think I can clarify this as well if we look at, just jumping ahead
12 briefly to the Benjamin reference, I think there's a good, what we see in
13 Slide 58 of our demonstratives, Dr. Pond had done an analysis of the
14 Benjamin reference, and he outlined the entire length of the trace, one of
15 Benjamin's traces.

16 And you can see he's identified the distance from the bondpad to the
17 separation in green. And then if you compare that with the overall length of
18 the trace, you can see that the separation is much closer to the bondpad than
19 it is to the distal end of that trace.

20 JUDGE HAMANN: Thank you.

21 MR. KRITSAS: Great. So let me just check my time real quick.
22 With that being said, unless there are any other questions about the -- one
23 other thing I will briefly add is, you know, on Slide 39, one thing we wanted
24 to reiterate is, you know, what Patent Owner is advocating for is cutting off
25 the trace as soon as it gets to the heater array, and only making a
26 determination at that point.

1 But that's actually not how these traces work, they actually extend
2 down the length of the array to all of the heaters that they are providing
3 power. So it's our position that it's improper to ignore that remainder portion
4 of the trace when analyzing the term proximal, physically separated
5 proximal to the bondpad.

6 Going on to Ground 1, starting at Slide 41, briefly, Patent Owner
7 raises two arguments with respect to the Benjamin reference. As I
8 mentioned earlier, they seem to concede that Benjamin does disclose fire
9 line bondpads, and they acknowledge that Benjamin also discloses the U-
10 shaped power traces. Really, their concern comes down to whether
11 Benjamin has one power trace for each fire line or multiple, or excuse me,
12 one bondpad for each power trace, or multiple bondpads.

13 So I, one of the things we asked Mr. Dietl, Patent Owner's expert, was
14 whether he would agree, whether it would be, if it could be one bondpad
15 that's utilized for each fire line in Benjamin. He agreed yes, you could have
16 just one bond pad for it. But his concern was that there also might be two.
17 That's really what the argument boils down to there.

18 And our expert, Dr. Pond, he did a thorough analysis of Benjamin's
19 disclosures. He analyzed what we see here on Figure 25, this is the flexible
20 circuit that connects to Benjamin's heater chip. And you can see, it's slightly
21 excerpted, but we've identified the fire context for Fire 1 to Fire 4. And
22 drawn down to where those connection points end up with the -- on the chip
23 itself.

24 And if we go ahead to Slide No. 46, what we see here is, you know,
25 Dr. Pond had identified on the right where those bond pads would be located
26 based on the flexible circuit context on the chip. But we also asked Patent

1 Owner's expert, Mr. Dietl, if he agreed if this is where the bondpad would be
2 located for each specific fire line.

3 I asked him, you know, if we look at the bottom of Figure 22, the
4 bondpad for Fire Line 214D would be located along the side, 1700D of the
5 printhead die, is that right? And he said yes, the bondpads for that side of
6 the data groups and the fire groups would be along the edge of the die,
7 1700D. So there's really no dispute that there's at least one bondpad, and no
8 dispute as to where those bondpads are on Benjamin's chip.

9 And if we go to Slide 47, we also see that Patent Owner raised an
10 argument that, okay, well, sure, we know where the bondpad is, we know
11 where the fire line is, but there's a gap between the bondpad and the fire line
12 that's not accounted for and there's no disclosure of that.

13 So what we see here is, I asked Mr. Dietl, well, you know, wouldn't
14 there have to be at least a trace connecting the bondpad to the fire line for it
15 to operate? And he said yes, yes, there would need to be at least one trace
16 connecting between the bondpad and that U-shaped line.

17 And then the last thing I will address here, Your Honors, is even if, on
18 Slide 49, even if Benjamin '144 doesn't provide the disclosure for a single
19 bondpad and for a trace connecting to each of those fire lines, that's
20 explicitly taught by the Benjamin '703 reference, which is incorporated by
21 reference by Benjamin '144.

22 Briefly, on Slide 50, this is the figure that shows that, we have the
23 single fire line bondpad that connects to the fire line. And then Benjamin
24 '703 teaches that that fire line connects to all of the heaters within a
25 particular fire group.

1 And then the last thing I want to address is briefly to the extent Your
2 Honors want argument on this, on Slide 66, there was a typographical error
3 with respect to the incorporation by reference incorporating Benjamin '703.

4 But we think that this is a harmless error, because if you look at Slide
5 67, the Federal Circuit has instructed that the standard is one of reasonably
6 skilled in the art to determine whether the host document describes the
7 material to be incorporated by reference with particularity.

8 If we go to Slide 66, we see that the correct title was referenced, the
9 correct assignee was identified for Benjamin '703, and even the correct filing
10 date was identified. So a person with skill in the art looking at this would
11 have simply needed to, he could have found the Benjamin '703 reference in a
12 number of ways, including simply looking at the applications that were filed
13 on the same day by the applicant with the specific title that's referenced and
14 they could have found it.

15 And that's shown in Slide 68, you can see the commonality between
16 the assignees, the filing date. And in addition, on Slide 69 we see that the
17 application number that was cited is actually the divisional of Benjamin
18 '703, which itself incorporates Benjamin '703 by reference and includes the
19 same specifications as Benjamin '703. So at this point, I just want to briefly
20 state on Slide 71, we're not going to discuss Ground 2, we're going to rely on
21 our papers.

22 And that's because Patent Owner does not raise any independent
23 arguments with respect to Ground 2 that are not already addressed in Ground
24 1. So with that, I will turn over the slides, unless there is a question.

25 JUDGE HAMANN: Just one quick question, Mr. Kritsas. Did the
26 Petitioner make the argument that it doesn't matter whether it's one or two

1 bondpads that's connected to, in response to Patent Owner's argument
2 regarding that in light of the claim?

3 MR. KRITSAS: So, Your Honor, if we look at the claims, it requires,
4 so very briefly --

5 JUDGE HAMANN: I mean, if Petitioner didn't argue that two is
6 okay, that's fine, I'm just trying to understand. I didn't see that argument, I'm
7 not saying it's argument that should be made, I'm just asking if it was made?

8 MR. KRITSAS: Yes. Your Honor, it wasn't explicitly made that two
9 bondpads would have been sufficient. And we think it's frankly, it's not
10 necessary because it's explicitly disclosed in Benjamin '703.

11 JUDGE HAMANN: Thank you.

12 MR. BREGMAN: All right. Why don't we jump into Ground 3. And
13 actually just before I get there, one point to make is that the patent actually
14 never shows you a single bondpad with a trace that's separated. That's only
15 written in the text, there's no figure that shows that.

16 And by the way, the text never, ever mentions the word proximal to
17 the bondpad. So while we can't discuss written support here, there's no such
18 support in the patent, by the way, for that limitation in the claim.

19 Let's jump into Uenishi ground, so that is starting with, let's start with
20 Slide 77. And the primary argument that Patent Owner, Slingshot, makes is
21 that Uenishi does not disclose the bondpad structure that supplies power to
22 the heat arrays, and no bondpad that supplies external power to the heat
23 array. If we jump to Slide 78, let's see what Uenishi actually says. So it
24 says that it has electricity feed terminals, 26A to 26E, are formed
25 respectively to them, connecting to the common electrode.

26 So breaking this down, it's got electricity feed terminals, and
27 electricity feed meaning it feeds electricity. It's got terminals, a terminal is

1 just something you connect, make an electrical connection to. So it's got
2 electricity feed terminals, that is very clear that both have bondpads, that's
3 what you would connect an external power source to provide electricity, to
4 feed that electricity to the heater arrays, which is what those electricity feed
5 terminals connect to. They connect to the common electrodes, but then
6 connect to the heater arrays.

7 If you look at Slide 79, this is clear in the figures. You can see 26A is
8 the bondpad or the electricity feed terminal that's shown in yellow, that
9 yellow connection connects through the circuitry on the, this is all built on
10 their chip, obviously, so it's in a semi-conductor format, it connects to those
11 electrodes in blue.

12 And you can see very clearly now, Your Honor, why Patent Owners
13 are trying to say that the bondpad needs to be relatively big, relatively wide,
14 or relatively big compared to relatively narrow traces. This is what they're
15 trying to exclude, they're trying to exclude this embodiment.

16 They are trying to say oh, no, no, look -- look, they look different.
17 The bondpads here are small and the traces big, therefore if we say that the
18 trace needs to be narrower than the bondpad, well we can get rid of this
19 reference.

20 But there's nothing implicit in the term and there's nothing in the
21 patent that says, by their own admission, by their expert's own admission,
22 that the bondpad needs to be big compared to a trace or that a trace needs to
23 be narrow compared to a bondpad. They are just physical structures.

24 A bondpad, something that you connect electricity to, you connect
25 some signal to, and then a trace is just something that you move the signal
26 from one point to another point on, as a conductor. And that's exactly what
27 Uenishi shows, it's got this bondpad, these electricity feed terminals, receive

1 electricity, feed that electricity along these conductors in blue to the heater
2 arrays. Exactly the same. So what's --

3 JUDGE HAMANN: Mr. Bregman?

4 MR. BREGMAN: Yes?

5 JUDGE HAMANN: If I could take you to Slide 84, your Slide 84?

6 MR. BREGMAN: Yes.

7 JUDGE HAMANN: I know we're asking lots of questions, see so
8 trying to be efficient with time, so this I think is helpful to focus on.

9 MR. BREGMAN: Yes.

10 JUDGE HAMANN: I'm trying to understand Petitioner's argument
11 that one of ordinary skill in the art would understand an electrode to be a
12 trace in the context of the patent and claims?

13 MR. BREGMAN: Right, so I mean an electrode is, sorry a conductor,
14 right, that's a conductor. The electrode we'll come back to, what do they call
15 it? I think they call it a common, just trying to find the wording, common
16 electrode, right, these five common electrodes, 23A to 23E.

17 So electrode, remember this is brought up in a semi-conductor
18 manufacturing style, so this is all built on some silicon substrate, and you're
19 building up layers, and you're building traces, you're building points that you
20 can connect to, terminals that they call it in here.

21 So here are these electrodes are just a conductor that conducts
22 electricity from the point, really the yellow electricity feed terminal, down
23 either side of the -- of the via, and then connect to the -- to the heater arrays.

24 So electrode is nothing more than a trace, it's a trace built in a semi-
25 conductor substrate that passes electricity from one point to another.

26 Conductor, trace, electrode, whatever you want to call it, that's all that it is.

27 There's nothing magic about a trace that it has to be narrow. Because if a

1 trace had to be narrow, if I had a thick trace on a circuit board, is it no longer
2 a trace? Of course, it's still a trace.

3 I could build on a circuit board, I can ensure to have an enormously
4 fat trace and no one in their right mind would ever say that that's not a trace.
5 It's just a conductor from Point A to Point B, that's what it is, built in a
6 semi-conductor substrate, and that's exactly what this is. It's an electrode, a
7 conductor, a trace you can call it whatever you want. That's what it is,
8 there's nothing magical about it, and certainly, nothing that requires relative
9 dimensions of the trace to the bondpad.

10 Remember, what they thought was novel here, was that you can
11 connect two heater arrays on either side of the via, to be a single bondpad, so
12 you can shrink the chip size. That's exactly what's shown. You've got a
13 single electrode, in all of our references, a single electrode that splits and
14 connects to a bondpad, so you've got either one bondpad that connects to
15 both sides, to two heater arrays, that was what they thought their novelty was
16 on it, they didn't even answer.

17 Other people had come up with this long before they did it, that you
18 could have a single bondpad connecting to heat arrays on both sides of a ink
19 via. They certainly didn't invent a trace, there's nothing new about a trace.
20 They certainly didn't invent a bondpad. They certainly didn't invent that the
21 one was thicker than the other, that was simply invented by them to avoid
22 this prior art.

23 The claim itself, simply says a bondpad, traces connecting the
24 bondpad to the heat arrays. And that's exactly what's in Uenishi, and in
25 Benjamin for that matter, you have a bond pad that splits either side of the
26 via and connects to heat arrays on both sides, as simple as that.

1 But the other argument they make is that, of course, that the
2 separation of the trace needs to happen proximal to the bondpad, which by
3 the way, they have no support for in respect. That does not, you've got to
4 look at the trace. The phrase is "A trace physically separated, proximal to
5 the bondpad." That's the phrase to be interpreted.

6 So you look at the trace, you've got to look at the whole trace, I'm not
7 just going to look at it, a third of the trace, the top third of the trace. I look at
8 the trace, and then I say in the trace, let's see where it's physically separated.
9 Is it separated close to the bondpad or is it separated far from the bondpad?
10 That's the entire analysis.

11 Of course it's in this and in Benjamin, in Uenishi and Benjamin, the
12 trace, the electrode, the conductor is separated close to the bondpad, not far
13 away from the bondpad. It's not a -- it's not a relative term that it has to be
14 closer, it's not like 51 percent, it's a little bit closer, it's closer.

15 It's a term that's used in patents all the time, as we know, proximal and
16 distal. It just means to be close or near to, and would a person of ordinary
17 skill in the art, looking at this figure, think that the separation of their trace,
18 I'm going to look at the whole trace, happens near the bondpad. And of
19 course it does, it's right up there near the bondpad compared to the rest of the
20 -- of the electrode. So that's --

21 JUDGE HAMANN: Mr. Bregman?

22 MR. BREGMAN: Yes, sorry, go ahead.

23 JUDGE HAMANN: You have one minute left in your initial
24 allotment, but obviously you have 15 reserved also.

25 MR. BREGMAN: So I mean, I think that's really the main points.
26 For the other grounds, they don't raise any like, Ground 4, they don't raise
27 any additional arguments. It really comes down to whether Your Honors

1 believe that a figure that is a schematic that they're expert has admitted is a
2 schematic, where they're expert has admitted that even if the bondpad was
3 small compared to the trace, it would still be a bondpad by their definition.

4 So, you know, there are multiple admissions by their expert that the
5 size, the relative size doesn't matter in a schematic. And of course, we know
6 that you would never import a schematic into the claim, a preferred
7 embodiment into the claim, and of course, the term bondpad and trace, don't
8 have size requirements.

9 Not only do they not have size requirements, they don't have size
10 requirements relative to one another, which is what they are trying to do
11 here. That the bondpad has to be relatively big compared to the trace, and
12 the trace has to be relatively narrow compared to the bondpad. That is done
13 with the sole purpose of excluding the prior art. That's not how a person of
14 ordinary skill in the art would ever understand a bondpad, or how they
15 would understand a trace.

16 Those are both extremely common terms, especially in chips,
17 especially in electronics, where a bondpad is something that you connect,
18 connect some external circuitry, it's a terminal, a point of contact that you
19 connect electricity to. And then of course, a trace is just a conductor along
20 the electrical device that moves electricity from Point A, or a signal from
21 Point A to Point B. So with that, let's save whatever we have left, which I
22 think is about 14 minutes for rebuttal.

23 JUDGE HAMANN: Thank you for your presentation. Mr. Hashem if
24 you can begin for Patent Owner, but Patent Owner can begin when it's ready
25 to proceed. But before that, let me ask how much time would you like to
26 reserve, if any, for surrebuttal?

27 MR. HASHEM: May I please reserve ten minutes for surrebuttal?

1 JUDGE HAMANN: You may. Begin when you are ready, thank
2 you.

3 MR. HASHEM: All right. Let me see. I can just put this on full
4 screen.

5 Thank you, Your Honors. I want to just jump into the claim
6 construction arguments. And I'm sure Your Honors will redirect me if we
7 want to talk about something else.

8 So just to begin, I would like to address the claim construction of
9 bondpad. And so what, you know, the reason we think and as Your Honors
10 recognize in the Institution Decision is important. You know, bondpad and
11 trace are not nonce words, right, which you can add any, they can mean
12 whatever is convenient at the moment. The skilled artisan would understand
13 bondpad to have a particular meaning, a skilled artisan would understand a
14 trace to have a particular meaning.

15 And particularly with reference to what Mr. Bregman just said, you
16 know, one thing, you know, he said is that the inventors here, of the '864
17 patent didn't invent traces, they didn't invent bondpads, you know, that's
18 certainly correct.

19 But what they were doing is that they were addressing invention in a
20 particular context, right. They were addressing invention where you have a
21 limit to the number of drop generators that can be powered from a single
22 bondpad, right, that's right in the patent, you know. There's a power limit of
23 about an amp. And it's also talking about the complexity of routing, right.
24 You have many bondpads, that adds chip area, you have many traces, that
25 also makes routing complicated. And so it's important to understand what
26 bondpad and trace mean, because they're, you know, the context in which
27 the inventor was inventing the invention.

1 So I'd like to just start out, you know, it's not clear to Slingshot what
2 Canon's proposed construction is. It seems like they have a proposed
3 construction that means that a bondpad is just somewhere you connect
4 something else on the chip. And I think that is, you know, incorrect, for a
5 couple of reasons.

6 If bondpad means anything, and we'll have to get into the sizing points
7 in just a second, but bondpad means that it is a point of connection to
8 something external to the chip, right. And this is actually, if you look at
9 column 1, lines 48-50 of the patent, it says an electrical current is applied to
10 the bondpad from its external electrical connection to the printhead.

11 And our expert, Mr. Dietl, also explained the bondpad is where you
12 make an external connection, right. So it's not just any point on the chip,
13 right, where something is connecting to something else. But it's a point
14 where there's an external connection to the chip. Now this is where the sizes
15 become important, because the trace is, you know, and Your Honors know,
16 on the chip are formed through lithography, right, they're very small.

17 Whereas any time you're connecting to something off the chip, right,
18 you need to be able to place it without requiring, you know, an impossible
19 degree of precision. And so Slingshot is not trying to, you know, import
20 kind of arbitrary size limitations into the claims; but rather, proposing a
21 construction that simply reflects how a skilled artisan would understand the
22 term. Keeping in mind that bondpad has the function of connecting
23 externally, whereas trace has the function of conducting electricity internal
24 to the chip.

25 And the size limitation, you know, relatively large compared to other
26 things on the chip or relatively large compared to things on the trace, simply
27 reflects that skilled artisan's understanding that the bondpad is where you are

1 making an external connection. It also is in the specification where the
2 specification makes clear that the motivation for this invention is reducing
3 the number of bondpads which take up a lot of space on the chip, right.
4 Again, suggesting that, you know, the bondpad is at least relatively large
5 compared to other things on the chip.

6 JUDGE HAMANN: Mr. Hashem?

7 MR. HASHEM: Yes?

8 JUDGE HAMANN: This is Judge Hamann. And obviously looking
9 at your Slide 11, I understand the argument that Patent Owner puts forward
10 for bondpad as to size, at least to the extent that it has to be sufficiently large
11 to facilitate external connections, et cetera. But trace is not listed here. I
12 think in the papers Patent Owner described trace as somewhat relatively
13 narrow. And to Petitioner's argument, why is a wide trace, for example, on a
14 chip excluded or why would that in some way have to be relative to a
15 bondpad?

16 MR. HASHEM: Yes, so my apologies. These are the two kind of,
17 we've been kind of considering bondpad and trace together and so I didn't
18 put this separately on the chart. But in our papers we explained, a trace
19 according to Canon is basically anything that conducts electricity. And we
20 believe that's not how a skilled artisan would understand it. That would be
21 the word "conductor," right. There's a word "conductor" that means
22 anything that conducts electricity.

23 And trace is kind of important, and it's not just distinguishing the
24 Uenishi reference, but because a skilled artisan would understand a trace to
25 be something different than a conductor. If you look at Exhibit, I believe it
26 is Exhibit 1017, which is the third Benjamin reference, right, which is not
27 part of the combination as Benjamin '064, it's the patent that Canon

1 submitted in their Reply just to address the issue of parasitic resistance.
2 That reference actually has very, very wide conductors.

3 And they call them conductors, right, they called them conductors.
4 Uenishi calls them a common electrode, right. And you know, just as in a,
5 you know, a kind of large electrical circuit, right, an electrode is something
6 different than a wire. They both carry electricity, but at a physical level, the
7 shape of the electrode is quite relevant, right.

8 Any conductor, depending on what your shape is, is going to have
9 different properties, right. There's going to be parasitic resistance, there's
10 going to be parasitic capacitance, there's going to be lots of physical
11 properties. And so we believe that the claims are talking about traces, which
12 have particular electrical properties.

13 They're not talking about, you know, electrodes or something else,
14 that which, you know frankly, the other references that are in the record,
15 called those things something else.

16 JUDGE HAMANN: Counsel, and just to reference, you referenced
17 electrode and whatnot, and obviously that's terminology used in Uenishi. I
18 don't believe Patent Owner has challenged that a bondpad or trace is taught
19 on the grounds that involve Benjamin, but it's more the location. Is that an
20 accurate assessment?

21 MR. HASHEM: Yes. And I'm happy to jump to that, Your Honor,
22 with the reservation that maybe I will return to proximal. But yes, we, you
23 know, there is as the Board identified in the Institution Decision, in column
24 75 there is a passing reference to "the bondpad." So there is, you know, and
25 there's bondpads for the data lines.

26 But we believe that the issue really comes down to the configuration
27 of bondpads. And that takes me back to, you know, what is the invention

1 here, right. And I think a very important aspect of the invention that Canon
2 is overlooking, is that claims, of course, recite powering portions of two
3 heater arrays using a single bondpad.

4 Well, you know, of course, if you, you know, wanted to, right, if there
5 was no physical limit on why, you know, on connecting as many heater
6 arrays as you want to a bondpad, you would power all of the heater arrays
7 through one bondpad, right. But that's not, you know, the patent makes it
8 clear that that's not the case.

9 If you look at column 5, lines 17 through 24, the '864 patent says
10 usually bondpads are current limited to providing no more than
11 approximately 1 amp of current. The minimum number of bondpads
12 required to power the heater arrays is determined by the amount of current
13 required to fire the maximum number of heaters simultaneously.

14 And so the whole reason, so when you're a skilled artisan reading
15 these disclosures, you understand that there are limitations on how many
16 heater arrays can be, or sorry, how many drop generators can be connected
17 to a single bondpad.

18 And in Benjamin '144, it actually discloses them and Mr. Pond, or Dr.
19 Pond, agrees there's a hundred drop generators in the exemplary
20 embodiment connected to one bondpad. And so a skilled artisan looking at
21 Benjamin '144, which is not about power distribution, right. Benjamin '144
22 is a reference that is directed to a multiplexing, right. They're trying to
23 reduce the number of input pads.

24 And I will get to this in a moment, but input pads means something
25 clearly different than bondpads. But Benjamin '144 is trying to reduce the
26 number of data lines between the printer and the print path. And the way
27 they do that is by using this multiplexing mechanism where you have

1 address lines and data lines and fire lines. And by, you know, enabling a
2 particular configuration of address lines, data lines, and fire lines, you are
3 able to control hundreds of drop generators with a relatively small number of
4 signals.

5 And so, but Benjamin isn't, a skilled artisan would understand reading
6 Benjamin, right, even if there is a disclosure or a passing reference to a
7 bondpad somewhere. Benjamin '144 isn't necessarily teaching anything
8 about bondpads, or that they can't necessarily assume that because there is a
9 reference to a bondpad, or you know, mention of a bondpad in the reference,
10 that there's any particular configuration, right.

11 But to come back to Your Honor's point, yes, you know, Slingshot's
12 position is that the claims require a particular configuration of bondpads to,
13 you know, heater arrays. And that configuration is simply not taught in
14 Benjamin '144, nor would it be obvious. So I just want to briefly, while
15 we're still talking about Benjamin, I would like to address, so it seems fairly
16 -- well, I will start at the beginning.

17 We, you know, agree that there is a reference to a bondpad, but I think
18 it's important to look back at the Petition and look at what the Petition and
19 the expert, Dr. Pond, initially identified as the bondpad, right. So the
20 Petition says that the bondpad is synonymous with Benjamin '144's interface
21 path. If you look at column 11, lines 9 through 12, it says, "The fire lines
22 are electrically coupled to external supply circuitry by appropriate interface
23 pads, see Figures 25A through 25B."

24 If you look at 25A and 25B, the interface pads are the purple
25 highlighted areas, right. And we know that they can't be the bondpads,
26 because 25A and 25B don't show the die, right. The bondpads are on the

1 die, but they're not shown in this figure. And the spec says that the interface
2 pads are shown in the figure, right.

3 So the bondpads can't be the interface pads, because they're not shown
4 in Figure 25 whereas the interface pads are. So their original theory did not,
5 you know, hold water, right. They had to kind of, you know, go to --

6 JUDGE HAMANN: Mr. Hashem?

7 MR. HASHEM: Yes, Judge?

8 JUDGE HAMANN: This is Judge Hamann. I'm trying to understand
9 looking at your Slide 17 and the portion excerpted here from Benjamin '144,
10 I'm trying to understand your statement. I may not get it exactly correct, that
11 this teaches that the interface pads are illustrated in Figures 25A and 25B.
12 I'm not sure I follow that argument.

13 MR. HASHEM: So I believe, Your Honor, if you look at the
14 correspondence, we have the text from the specification on the right from
15 column 11, lines 9 through 12, it says, "The fire lines, 214A to 214F, are
16 electrically coupled to external supply circuitry by appropriate interface
17 pads." And then it has a citation that says, "See Figures 25A and 25B."

18 So in our reading, that sentence implies that the interface pads are
19 illustrated on Figures 25A and 25B. But the die is not on those figures,
20 right, it's not illustrated in those figures. So we believe that the term
21 interface pad insofar as the spec suggests that is shown on those figures must
22 be referring to the purple shaded areas.

23 JUDGE HAMANN: What reference numeral does Benjamin '144
24 provide for interface pads as shown on Figures 25A and 25B?

25 MR. HASHEM: I believe, Your Honor, I think it's 2002 and 2000. I
26 believe it's 2002 are the interface pads.

27 JUDGE HAMANN: It said, I thought they said it was a contact?

1 MR. HASHEM: So, yes, Your Honor, I believe that's correct. So I
2 believe that the term, the spec is using the term "contact" synonymously
3 with interface pad. But insofar as interface pads are, you know, shown in
4 this image, they can't be the bondpad because the bondpads are not shown in
5 this image.

6 But we understand Your Honor's determination in the Institution
7 Decision about the column 75. So we don't want to dwell on this point, but
8 we think it illustrates that Canon's expert is adopting a hindsight driven view
9 of how to get to -- get to the claims. So if we go to page '144, what we see is
10 what does Benjamin '144 actually disclose, right.

11 It shows a U-shaped fire line, and the fire line is, you know,
12 assuming that those are on opposite sides, the two sides of the U-shape are
13 connected to heater arrays on opposite sides of a via. What it doesn't show
14 in this picture or any other pictures is where the bondpad is.

15 And so Canon's expert actually kind of takes a very multi-step
16 process of inference to literally, you know, write the claims into the blank
17 spaces within the figures. So for example, if we start with what their expert
18 does, Dr. Pond, is starts with these fire line interface pads or contacts, right,
19 2000, and traces them down and purports to trace them down to, from the
20 purple area, down to the yellow area.

21 And the first problem is that there is in the image, a break that
22 is denoted there, right. And it is, you know, in patent drafting it's very
23 common to indicate that a break shows some discontinuity in the
24 presentation.

25 And if we look at column 77, rows 60 through 30, the specification
26 says, "It should be noted that the relationship between the lines described
27 with respect to Figures 4 and 8 and 11 and 12." So those figures are talking

1 about the lines on the die, right, so it's talking about certain lines on the die.
2 And the contact areas E06 through E, so E0 through E6, need not be one-to-
3 one.

4 So what the specification is saying, at least with regards to the contact
5 areas E0 through E6, there's not necessarily a one-to-one relationship
6 between the interface pads that are being shown here in purple, and certain
7 lines that are shown on the die, right.

8 That's not referring to the fire lines, we understand that the fire lines
9 are separate from the enable lines, which are E0 through E6, but we think
10 that the specification is indicating that the patent drafter in Benjamin did not
11 really intend to depict any particular correspondence, right, between
12 interface pads and certain things that are on the die itself.

13 Now the next kind of leap that Dr. Pond makes, is in Figure 25, right,
14 because he is now tracing down from the interface pads, right. The problem
15 he has is that the Figure 25 doesn't show the die. So he takes a different
16 figure of Benjamin, and superimposes it onto Figure 25, this is from
17 paragraph 95 of Dr. Pond's Declaration as you can see on Slide 19 of our
18 slides.

19 And notice what he's done here, he has superimposed a figure, but it's
20 different than the outline of the die area that is shown in Figure 25. So the
21 black outline, the bigger black outline, is shown in Figure 25 of Benjamin,
22 and that shows where the die would go.

23 But Dr. Pond has taken a different die image, right, from Benjamin
24 and placed it in an area that does not line up with the Figure 25 outline of
25 where the die would go, right. He placed it -- and we'll get to that in a
26 second because it relates to the proximal limitation. But he has placed it,

1 you know, kind of where it's convenient for him to put it. And so he's
2 making yet another inference about how these connections happen.

3 And finally, Canon's expert simply just never tells you, and this is
4 very important for, you know, obviousness or even just a skilled artisan
5 reading the disclosure of Benjamin. It never, you know, a central concern of
6 the '864 patent is getting enough power to those drop generators, right.
7 You've only got about 1 amp to work with, you know.

8 Dr. Pond doesn't say no, no, you can do way more than 1 amp, right.
9 He really gives no explanation of why a skilled artisan would assume that all
10 of the drop generators that are connected to this fire line, right, in Figure 22,
11 there's a hundred drop generators connected to this fire line, they're all
12 powered by a single bondpad.

13 And so that, you know, key explanation of why a skilled artisan would
14 either draw this inference, or if we're talking about combining Benjamin
15 '703, which discloses a bondpad, right, and '144, which discloses a much
16 more complicated system.

17 If we're talking about why a skilled artisan would expect success in
18 combining a one bondpad embodiment with this, you know, constructed
19 Benjamin '144 that has hundreds of drop generators in each fire line, he
20 doesn't explain why a skilled artisan would expect that one bondpad could
21 supply sufficient power.

22 If Your Honors have no more questions on that, I would like to return
23 to the proximal limitation?

24 JUDGE HAMANN: Please, thank you.

25 MR. HASHEM: Just to actually, I would like to address the claim
26 language, okay, here we are.

1 So as Your Honors recognize, the claim construction issue here is
2 about, you know, when you say proximal, right, the dictionary definition that
3 is cited in Canon's slides actually says "Proximal means nearer to," right,
4 nearer to something than something else. The word "nearer" or the phrase
5 "nearer to" necessarily implies that there's two ends.

6 And their construction, although they present on, I think, page 20 of
7 their slides, a construction that just says near to the bondpad, their
8 construction isn't really near to the bondpad, right. Because their expert
9 applied a construction and it's different than what they say on the slide. So if
10 you look at their expert's, Dr. Pond's deposition, at Exhibit 2005, page 21,
11 lines 2 through 10, Dr. Pond says, "I didn't know how to define the heater
12 arrays for purposes of the proximal construction. I didn't know how to
13 define the heater arrays, so I decided instead that the claim is really talking
14 about the power trace," right.

15 So their actual construction is closer to the bondpad than to the end of
16 the power trace, right. It's not a scenario where we are adding a terminal and
17 they're not, right. We just have two different terminal points.

18 And if you look at the claim language of Claim 3, we think it's very
19 clear that what the claim is talking about is proximal to the bondpad relative
20 to the heater array. And so the claim says the heater chip of Claim 1,
21 wherein the bondpad supplies power to the first heater array. So it's talking
22 about power flowing from the bondpad to the heater array.

23 And the point about physically separated proximal to the bondpad is a
24 dependent part of that phrase, right. And it says, by power traces physically
25 separated proximal to the bondpad. In the context of the first part, it seems
26 very clear from just the claim language, that what it's talking about, these are

1 the two endpoints, right, the bondpad to the heater array, and were
2 separating proximal to the bondpad.

3 So, you know, to give you a very simple analogy, if I say that the
4 silver line goes from northern -- from Dulles Airport to D.C., right, and what
5 is, you know, proximal to Dulles Airport, ordinarily the ordinary meaning
6 one would understand that is, you know, from Dulles Airport to D.C., right,
7 the Foggy Bottom, the first stop in D.C., and you'd be, you know, closer to
8 Dulles Airport.

9 It is true that there is a, you know, part of the line that keeps going
10 through D.C. and into Maryland, but, you know, in ordinary parlance, we'd
11 be talking about from Point A, you know, to Point B. And the additional
12 point about the claims is Canon points out is that, you know, well, if you
13 look inside the heater array, there is a trace, and the trace continues inside
14 the heater array, and there's multiple heating elements inside the heater
15 array.

16 And that is true, but you have to interpret the claims in the context of,
17 you know, the claim language and the figures. So, you know, the claim
18 language doesn't talk about the heating elements. It doesn't talk about what's
19 inside the heater array, right. It talks about power from the bondpad to the
20 heater array, right. And so there's no reason to think that when you are
21 talking about that line segment, they're also talking about, you know,
22 different parts of the trace that are inside the heater array.

23 The second point is, if you just look at the figures that, you know, are
24 in the patent Figure 3, which is on this slide, it is the Claim 3 is illustrated in
25 the figure by a line segment that goes from the bondpad to the start of the
26 heater array.

1 So insofar as there's any ambiguity about what the claim means, right,
2 reference to the figure, a skilled artisan reading the claims in light of the
3 specification would understand that what proximal means is closer to the
4 bondpad, right. And, you know, Slingshot's position is it's closer to the
5 bondpad than the heater array just to give definition to the word proximal.

6 But it's not talking about what's inside the heater array, right. The
7 claim in view of the image is talking about the space between or the line
8 segment between the bondpad and the heater array where it ends with the
9 arrow.

10 JUDGE HAMANN: Mr. Hashem, this is Judge Hamann. I'm trying
11 to understand in the context of Claim 3 here. It seems like when you think
12 heater arrays back and forth, it really seems like the argument is, you know,
13 physically separated, closer to the bondpad than the first heater array, even
14 though there's two listed. Because that's the shorter distance, at least it is as
15 illustrated.

16 MR. HASHEM: Yes. And I think in the, that's true in the context of
17 this embodiment. I think in different embodiments, you know, if the
18 bondpad was along the bottom, right, it might be different. But we still think
19 that the operative limitation is closer to the bondpad than where the heater
20 arrays start. But I mean that is a fair point that depending on exactly where
21 the bondpad is located relative to the heater array, one or the other heater
22 array could happen first.

23 That being said, that's also true of their construction. Because their
24 construction, I mean, if you -- so their expert had posited a construction
25 closer to the bondpad than the end of the trace. But there's actually two
26 traces, right, because the trace separates. And so if you have a trace that
27 starts at the bondpad and continues and separates, and it goes to one, you

1 know, heater array and continues, goes to another heater array and
2 continues, is it closer to the start of the -- is it closer to the bondpad than the
3 end of one trace or the end of the other trace, right, where is the separation
4 point? And so with, Your Honor, there's a little bit of -- the construction,
5 neither construction is perfectly precise.

6 JUDGE HAMANN: Also, how does Patent Owner account for Claim
7 9, which Petitioner referenced earlier that doesn't contain, at least a
8 recitation of the heater arrays in Claim 9 itself?

9 MR. HASHEM: So Claim 9 is referring to the heater chip of Claim 8
10 wherein the at least two traces are physically separated proximal to the
11 bondpad. But if we go to Claim 8, it says, "A bondpad having at least two
12 traces stemming from the bondpad wherein at least one of the traces is
13 operatively connected to the first heater array and another one of the traces is
14 operatively connected to the second heater array."

15 So in this context, you still have the same two starting points, right.
16 You have two traces stemming from the bondpad and being connected to the
17 first heater array, right, just like in Figure 3, right, so the arrow. And then
18 operatively connected to the second heater array just like in Figure 3 with
19 the arrow. And so in Claim 8, which has to be read kind of in view of Claim
20 9, it's talking about, you know, closer to the bondpad in view of Claim 8
21 which shows the two arrows being connected to the heater array.

22 JUDGE HAMANN: Thank you.

23 MR. HASHEM: So I would like to address the proximal limitation in
24 the context of Benjamin. So as, and I won't kind of belabor the point of the
25 connection, but I would like to focus on Slide 19 of Benjamin. So we
26 believe, Your Honor, that we, sorry that Canon, or that Slingshot prevailed

1 kind of either way. Under our construction, if you look at, I'm sorry, I'm just
2 sort of jump between slides, but if you look at Slide 21.

3 If you look at the distance between their kind of putative bondpad,
4 and the distance between the heater arrays or from the separation point of the
5 heater array, we believe that even if, if to be clear, this picture that's shown
6 on Slide 21 is annotations that their expert added. We added the red
7 annotations, but their expert added the yellow that's showing the bondpad.

8 Even under -- under our construction, the separation point would be
9 closer to the heater arrays than to the bondpad. And, I mean, if you look at
10 Benjamin, it shows the separation happening about as close to the heater
11 arrays as you can get. But the kind of bigger point here, and I would, you
12 know, sorry to flip between slides, but I would like to flip back to Slide 7,
13 sorry, Slide 19, showing the drawing of Dr. Pond from paragraph 95 of the
14 Declaration.

15 As you recall, this is a superimposition of, I believe, Figures 21 and
16 Figures 25. And Figure 25 doesn't show the die, but it has kind of an outline
17 where the die would go. And then Dr. Pond took, you know, a different
18 figure and superimposed it, but didn't put it where the outline shows that the
19 die would go, right.

20 And that's critical for this particular limitation, because Dr. Pond is
21 saying that the red annotations were added by Canon, I'm sorry pardon me,
22 by Slingshot, the rest was in Dr. Pond's Declaration. Dr. Pond is saying that
23 the gaps here between this contact area where presumably the bondpad is.
24 And the fire line is a certain distance compared to, even under his
25 construction, right. Even, you know, under his view of where the separation
26 might, must happen, you know, at the edge of the fire line.

1 He's making a determination about what is the relative distance
2 between that gap and the end of the fire line. And there's just no basis for
3 doing that. If he had put the bondpads closer to the edge of the outline,
4 right, where Figure 21, or Figure 25 from Benjamin shows that the die
5 should go, he would get a different answer, right.

6 And so, we believe that regardless of the construction, that Canon has
7 a kind of fundamental substantial evidence evidentiary point, which is
8 insofar as, you know, proximal has any meaning, there is no just evidence in
9 Benjamin or, you know, a skilled artisan, right. Dr. Pond did not say that
10 well, you know, a skilled artisan would understand that a bondpad is usually
11 X number of micrometers from the edge and the fire line would start Y
12 number of micrometers from that.

13 All that Dr. Pond is relying on is superimposing two images from
14 Benjamin that do not contain any measurements, that do not contain any,
15 you know, that do not even say that they are drawn to scale, right. That do
16 not say that Benjamin itself has not referred to them as ever being
17 superimposed.

18 And on top of all of that, he draws the die in the wrong place, right.
19 In addition to that, he's also assuming that the die, right, the area that we are
20 looking at, and I'm going to just flip back now to Slide 18 of our
21 presentation, which is just showing the die image, Figure 22 of Benjamin.

22 There is a side, I believe, I find these labels are confusing, 1700C,
23 there's a side 1700C, and then the fire line starts at 1702A. As I mentioned,
24 Benjamin is focused on showing its multiplexing embodiment, right, how
25 you can control many, many drop generators from a just a handful of input
26 lines.

1 There is no reason to believe that one, this is drawn to scale, and two,
2 that there isn't other things between side 1700C and the fire lines that aren't
3 depicted here, right. It, you know, in any patent drawing if you're focused
4 on one particular thing, you are not going to be, you know, you are going to
5 try to make the image as big and clear as possible, and you're going to
6 shrink, or you're going to kind of omit things that are not shown, right. So
7 there's no reason, and Benjamin certainly doesn't say anywhere that there is
8 any -- that we know the distance from side 1700C to the beginning of fire
9 line 1702A.

10 The other thing I will add, just to show, so Benjamin here has -- if you
11 -- sorry -- Benjamin, sorry, Dr. Pond has drawn where he thinks that a
12 bondpad would be in this image, and he's drawn it like very remarkably
13 large.

14 Just one thing, the bondpad here is shown as being almost as wide, or
15 almost as wide as the U-shape, right, which is much wider than it needs to
16 be. If you look back on Slide 18, right, if you kind of, the bondpad isn't
17 shown here, but it takes up almost this entire area here, near the label 214A.

18 He's drawn this huge bondpad, that's bigger than the address
19 generator, right, which is an entire component of Benjamin's chip. And
20 there's, you know, no principal basis for drawing it that way other than
21 wanting to minimize the distance between the bondpad and the fire line,
22 right.

23 It just is another example of how Dr. Pond's measurements are kind of
24 based on, you know, arbitrary things drawn on the image. If Your Honors
25 don't have anymore questions about Benjamin, I'm happy to turn to Uenishi.

26 So Your Honors, and Uenishi is, I think, where some of the claim
27 construction issues become certainly more important. I'll start with

1 bondpad. So the reason that, excuse me, as I explained earlier, the reason
2 that Patent Owner believes it's important to construe bondpad is because
3 bondpad, you know, a skilled artisan would understand a bondpad to mean
4 something, right.

5 And it's particularly critical here because as I understand Canon's
6 construction, a bondpad is just any circuit, any part of the circuit that
7 connects to any other part of the circuit, right, or provides a connection point
8 to some other part of the circuit.

9 And our position is that a bondpad specifically has to provide an
10 external connection, right. And the reason that the size limitation is
11 important, is for two reasons. One is if the bondpad is shown on the image
12 as being much, much smaller than a power trace, it's probably not a
13 bondpad.

14 And that is exactly the problem in Uenishi, is Uenishi does not call the
15 component 26C, that's a little tab, a bondpad, right, it's not called a bondpad,
16 it's called a terminal. It doesn't say, it says that it supplies electricity to the
17 racetrack, right, cathode, or the racetrack electrode. But it doesn't say it's an
18 attachment point for some external connection, right.

19 And the fact that it's, you know, the size is so disproportionate, Dr.
20 Dietl explains that looking at that, a skilled artisan would not conclude that
21 26C is showing a bondpad. Because in this situation, you would just
22 connect the electrode directly to, you would connect the external wire
23 directly to the electrode, which is much bigger. So it's not a matter of saying
24 that, you know, a bondpad must necessarily always be a certain size, but
25 form follows function, right.

26 And here the function is an external connection. Uenishi doesn't say
27 that 26C is making an external connection. And what is shown in Uenishi,

1 makes it seem like that this is a terminal, maybe it's the terminal end of some
2 other circuit, but certainly nothing that suggests that you would attach some
3 external wire to that point in 26C.

4 Addressing the proximal limitation, there is actually a couple of
5 different problems. So under our construction, if you look at the proximal
6 limitation here, so this racetrack shape, there's a real question, and Dr. Dietl
7 pointed this out, is a skilled artisan looking at this would not be able to tell
8 you where this circle separates, right.

9 It's a -- it is a racetrack, it is connected at both ends, where does the
10 separation happen. And it's important to keep in mind that, you know, a
11 skilled artisan looking at Uenishi, would understand this in the context of
12 why is -- what are we doing with the separation, right.

13 As the patent discloses, the reason that you separate the traces is so
14 that you can control the parasitic resistance of the different traces separately.

15 And the reason it has to be proximate to the bondpad is the earlier you make
16 that split, right, the more control you have. It's a cumulative thing, right.
17 The voltage drop is cumulative all the way from the bondpad to the last
18 heater.

19 And so the sooner that you make that split, the sooner you can start,
20 you know, for example, adjusting the width of the trace, the separated traces,
21 to ensure that there is a similar voltage drop by the time you get to both ends
22 of the heater array. And it's not clear where, you know, this separation
23 happens in something that's a circle. So I think that's the first point.

24 The second point is even if you look at their images, right, their basic
25 view of the word separation is that it separates right at the bondpad, right.
26 You have a racetrack connected to a little tab, and they're saying that the tab

1 is the bondpad, and they're saying that the racetrack is the trace. And the
2 separation happens basically as soon as the tab and the trace connect.

3 But that can't be it, right, because if you look at the claim, the claim
4 says that there is a bondpad and there is a trace, right. And we're not saying
5 that the separation happens as soon as the trace starts, right. There's a trace,
6 and then it separates, right.

7 And so the starting point here, right, at the very beginning of 26C,
8 where the putative bondpad turns into the common electrode, can't be the
9 separation point, right. If the separation point is anywhere, it's, you know,
10 where these two legs are, right.

11 And the legs in Uenishi -- and that makes sense, right, because the
12 point of separating is to be able to independently control the two sides of the,
13 rather the two traces, and that starts here in Uenishi, right, if you did that
14 here, you know, on the two legs of the racetrack, and it's as close to the
15 heater array as you can get. The separation happens right up at the point of
16 the heater array. So I would believe that, you know, for that reason, Uenishi
17 doesn't disclose either embodiment.

18 If Your Honors have no more questions on Uenishi, I would just like
19 to briefly address a couple of supposed admissions.

20 Canon relies very heavily on supposed admissions by Dr. Dietl. And I
21 think, Your Honors, please look at their citations and the corresponding
22 testimony, because we think that, you know, there is a lot of putting words in
23 the expert's mouth that he didn't really say. So for example, you know, just
24 address a couple of them.

25 Canon says that, you know, Dr. Dietl says, well, you know, the '864
26 patent doesn't address the size of the bondpad relative to the power trace,
27 right.

1 That's several, in their slides they have several places where they say
2 well, Dr. Dietl said a bondpad could be any size in comparison to a power
3 trace, right. And he was responding to hypothetical questions and this is in
4 his deposition, Exhibit 1015 on about pages 59 through 61. He is addressing
5 hypothetical questions like could you theoretically have a bondpad that's
6 bigger than a power trace, right, would you call it a bondpad?

7 But the question for our purposes is not kind of what could
8 theoretically -- is what a skilled artisan would understand the term to mean,
9 right. And a skilled artisan would understand the term bondpad to be an
10 external connection point that's relatively large compared to the other things
11 on the chip. And a power trace could be something that's relatively smaller.
12 So I think with that, unless Your Honors have any further questions, I will
13 preserve the rest of my time.

14 JUDGE HAMANN: I don't believe there are any further questions. I
15 think you used 24 minutes, so you have 16 left. And for Petitioner, you have
16 14 minutes for rebuttal, you can begin when you're ready.

17 MR. KRITSAS: Also unmute, because that would be helpful as well.
18 And just to confirm, you can see my slides, correct, Your Honors? Great.

19 So I really want to address head-on the whole issue of Benjamin and
20 the bondpad and Patent Owner's proposed constructions for bondpad. So
21 really whatever Your Honors decide on a construction for bondpad. I just
22 want to be clear that Benjamin '144 is explicit that it teaches a bondpad with
23 respect to each of its fire groups associated with each of the fire signals, Fire
24 1 through Fire 6.

25 And again, this is directly in the reference, it calls out the bondpad,
26 singular, associated with the fire resistors 52 nearest that bondpad for each
27 of those specific energy signals. So, you know, regardless of the

1 construction that's determined, we have an explicit disclosure here in
2 Benjamin '144.

3 And, you know, on Slide 42, I also want to point Your Honors to,
4 Your Honors, here are Dr., excuse me, Mr. Dietl, I kept hearing Dr., it's
5 actually Mr., I did ask him not hypothetical, not something out of context, I
6 was asking specifically about the Benjamin reference here. And I asked him
7 if he agrees that there could be one bondpad being utilized for each of the
8 fire lines. He said yeah, there could be one bondpad.

9 He didn't say anything about oh, no, no, there's too high of an
10 amperage, you would never be able to power all those heaters. He said yeah,
11 you could use one bondpad, but it also, you could have utilized two. So a lot
12 of what you heard about not being able to power all of these bondpads, is
13 directly contradicted by their own expert here.

14 And the other thing, really quickly is even if -- even if you find that
15 Benjamin doesn't disclose a single bondpad for each of the fire lines, or that
16 there is some issue about the placement or the analysis of Dr. Pond, again,
17 please look at Slide 50, the explicit disclosure of Benjamin '703. It
18 explicitly teaches a single bondpad on the edge of the chip, just like Mr.
19 Dietl testified as to where he believed the bondpad would be, connected to a
20 single fire line that comes off of that, and then would be used to power each
21 fire group.

22 A person skilled in the art would have -- would have readily
23 incorporated that to the extent they were unable to determine it based on
24 Benjamin '144's other disclosures. And I know we talked about the fact that
25 Benjamin is incorporated, Benjamin '703 is incorporated by reference into
26 Benjamin '144, but even if -- even if there is some issue with the
27 incorporation by reference, we also provided a number of other independent

1 reasons for why a person skilled in the art would have been motivated to
2 incorporate the '703 reference into Benjamin '144.

3 Those are addressed in our Petition, as well as in our, excuse me,
4 Reply Brief. And I have that on slide, excuse me, Slide 60 for a summary of
5 where in our Petition as well in the Reply Brief we go over those, all of our
6 motivations to combine that the Board can rely upon. But the next thing I
7 want to address --

8 JUDGE HAMANN: Counsel, this is Judge Hamann. Just real quick,
9 when we are looking at Benjamin, I believe, '703 was it?

10 MR. KRITSAS: Yep.

11 JUDGE HAMANN: How does its teachings in Petitioner's arguments
12 support the approximate location --

13 MR. KRITSAS: So it's --

14 JUDGE HAMANN: -- the limitations of 3 and 9?

15 MR. KRITSAS: Yes, so what Benjamin '703 supplies is it supplies a
16 single bondpad with a power trace that is connected to each of the fire
17 groups. And it also shows that the bondpad is located along the edge of the
18 chip. And Mr. Dietl testified that it's common, and in fact, you know,
19 typical, that you're going to have these bondpads located at the edge of the
20 chip.

21 And again, in order for something to be attached to or contacted to the
22 bondpad, it needs to grip onto it, and the best place to do it is on the edge.
23 So when we get to the combination, when we have the location of the
24 bondpad on the edge of the chip, as well as the trace connected to those U-
25 shaped fire lines, then we can do the analysis of the proximal to the bondpad
26 limitation from there.

1 JUDGE HAMANN: This is Judge Hamann. I'm trying to better
2 understand Patent Owner's argument that typically it leads to the U-shaped
3 traces that, you know, that's more of a schematic in the sense that it's not
4 necessarily going to be indicative of where the separation would occur as it
5 relates to the bondpad?

6 MR. KRITSAS: Well, I guess I want to raise two things. One, the
7 schematic illustration, and I will go to Slide 53 briefly. The schematic,
8 Patent Owner relies on schematics from Figure 53 to depict where fire lines
9 are located.

10 And that's actually their entire reliance on the whole analysis of the
11 concept of their proximal to the bondpad limitation is looking at the layouts
12 here of these traces. Our position is that these schematics don't show the
13 width of the traces.

14 And the same thing with Slide 54 though is, that yes, these are
15 schematics of where the traces are located and they give us an indication of
16 where they are, and from that we can make the determination of whether the
17 separation is proximal to the bondpad. So I want to address that schematic
18 issue first.

19 The other issue I want to point to is, you know, Patent Owner keeps
20 repeating multiple times that the, you know, in Slide 52 that the references,
21 that the Benjamin references don't contain a teaching like the '864 patent
22 regarding the advantages of separating traces proximal to the bondpad. So
23 this was in their Patent Owner Response briefly, and I also heard it raised
24 earlier today.

25 But on Slide 53, I want to emphasize, there is not a single teaching in
26 the '864 patent about any advantage, about separating the trace proximal to a

1 bondpad. The only teachings we have in the patent are related to having two
2 traces that connect to two different heater arrays from a single bondpad.

3 That's the advantage that's taught and it's shown here at column 5,
4 starting at line 64. "So that it may be advantageous to utilize two separate
5 power traces from a single bondpad to efficiently balance the series
6 resistance of the power traces." It also says that later on, "Although not
7 illustrated, it should be appreciated that a single power trace may extend
8 from the bondpad and then branch into two traces."

9 There is nothing in here about proximal and why proximity would
10 have any bearing on this issue. The whole advantage is related to the fact
11 that you have two separate traces going to two separate heater arrays, that's
12 it. In fact, the term proximal isn't used anywhere in the written specification
13 except for the claims. So all of this association of proximity and the benefits
14 and the advantages, it's not in the patent and you really shouldn't rely upon
15 it.

16 But the other thing I want to point out is, even if you do feel like that
17 this proximity is an issue, Benjamin teaches that. So on Slide 54, Benjamin
18 explains it came up with the idea that having fire groups that are laid out in a
19 special way to achieve the suitable energy variation. It says that right at the
20 top here.

21 And that instead of having all of these pre-charged firing cells in a fire
22 group along the entire length of one side of an ink feed slot, the pre-charged
23 firing cells are located along half the length of each of the apposing sides of
24 an ink via.

25 Exactly the same thing as taught by the '864 patent, we're going to
26 separate our trace from one into two traces, and utilize those two traces to
27 reduce -- to have suitable energy variation. And again, we know it's coming

1 from one bondpad because Benjamin tells us that, that each of these heating
2 resistors in each fire group are associated with the bondpad.

3 So I really want to dispel that, this whole concept that Patent Owner's
4 been trying to attribute to proximity. There's no disclosure in the reference,
5 and all of these advantages aren't even claimed in the claim, so you really
6 shouldn't be focusing on this, this concept of energy variation. But
7 nonetheless, Benjamin '144 teaches that all the same.

8 Let's see. The other thing I wanted to address is I also heard Patent
9 Owner state with respect to the plain construction of traces, that traces are
10 different from electrodes and that traces have particular electrical properties
11 that are different than electrodes. This is the first time we're ever actually
12 hearing this argument.

13 They've never presented this argument before and we think it's
14 improper to be trying to now at the 11th hour, argue that traces and
15 electrodes are somehow different because they have different properties or
16 perform different functions.

17 The last thing and then I think that if the Board is going to consider
18 that argument, the Petitioner would request additional briefing on that to be
19 sure we'd have a fair opportunity to address that issue.

20 JUDGE HAMANN: Mr. Kritsas, just to be clear, what, you're just
21 referencing, obviously, the new argument, that it is that you said Patent
22 Owner made regarding the electrodes, is that correct?

23 MR. KRITSAS: Correct, Your Honor, yes.

24 JUDGE HAMANN: Okay.

25 MR. KRITSAS: You know, I think at this time, I'll allow Mr.
26 Bregman to chime in on remaining arguments with respect to the Uenishi

1 reference, unless Your Honor has questions further on the Benjamin
2 combination?

3 JUDGE HAMANN: No, there's four minutes left.

4 MR. BREGMAN: Let's just quickly look at the Uenishi reference, if
5 you can pull that up, Jimmy? If you can pull up the colorized, sorry, the
6 colorized version from our slides would be the best one to look at? Yes, so
7 this one, yes.

8 So, you know, we heard a couple moments ago from Mr. Hashem that
9 the little yellow electricity feed terminal is not receiving electricity from an
10 external source. So first there is nothing in the claim that requires electricity
11 from an external source, I'll point that out, that's in the claim construction.

12 But of course, an electricity feed terminal is for feeding electricity, it's
13 built into the term, it's called an electricity feed terminal. And of course, it's
14 a bondpad, all those things along the edges are bondpads. They have
15 different names, they call them all different types of terminals, there's a data
16 terminal, there's an electricity feed terminal, there's all sorts of terminals.

17 Those are bondpads that you would find on the edge of a circuit, of
18 any circuit that you could find in the wild that has an edge connector, has
19 bondpads like that. So there's nothing unique about that, those are
20 bondpads, whether you call them terminals or bondpads, it's one in the same
21 thing.

22 I also heard something about the electricity, that even if electricity
23 comes in at that point or power comes in that point, it doesn't immediately
24 split up, and it only splits up, there's only separation at the very tip of the ink
25 via.

26 I mean, that's just not how electricity flows, it takes the path of least
27 resistance and it will flow directly from the bondpad along the path of least

1 resistance down to wherever the, wherever electricity is being drawn from it.

2 Remember that these, this is just one side, there's often a return, there's a
3 ground that's connected to the other side of the heater arrays.

4 And the heater array is not one monolithic thing, they show it as a
5 monolithic block in their patent. But a heater array is an array of lots of
6 different heaters. They just show it with a schematic like a block because
7 it's easy to draw like that. But there is an electrode or a trace or a conductor,
8 whatever you want to call it, that runs the length and in parallel, each one of
9 those heaters draw power from it on one input, and then there's obviously a
10 ground that returns that power so that it can operate.

11 So of course there is a separation near the bondpad here, it's not a
12 separation anywhere else. The plain term that's being construed is the same
13 whether it was in their Claim 9 or in any other claim. It's the subject of that
14 part of the sentence is the trace, the trace is physically separated proximal to
15 the bondpad. Proximal means close to, it's not closer to, it's close to the
16 bondpad.

17 So what is close to the bondpad? That's what a person of ordinary
18 skill in the art has to determine. And anyone looking at this figure, if you
19 agree that the yellow dots is a bondpad or a terminal, of course there is
20 separation close to the bondpad as compared to the rest of the place.

21 One of the other arguments they make, is well they can't be connected
22 to an external source because it's covered by a -- by a nozzle plate.

23 Jimmy, if you can go down to the section of the spec that deals with
24 this?

25 The spec actually says that that nozzle plate covers everything except
26 for that terminal. And that's in our briefing. I don't know if Jimmy, you can
27 find it quickly, here it is.

1 It says the thin plate material and covers all the region except the
2 drive circuits and the electrode feed terminals. So it's not covering the feed
3 terminals, those feed terminals are exposed because, of course, it's a terminal
4 that you connect to an external source of electricity, an electricity feed
5 terminal. And so with that, I think we've hit our time, Your Honors, unless
6 you have any questions.

7 JUDGE HAMANN: I just have one question, if you go back to the
8 previous figure you were showing with the color, I believe it's Slide 84 of
9 the Petitioner's. I'm just trying to understand what you said, how the current
10 would flow obviously got that it's smaller than a 23 or 26 but the terminal --

11 MR. BREGMAN: Can you zoom in a little bit, Jimmy? I don't know
12 if you can zoom in on that?

13 JUDGE HAMANN: The terminal is, the terminal that's yellow there?

14 MR. BREGMAN: Right.

15 JUDGE HAMANN: How does the, obviously, current, how would,
16 well Petitioner stated how current would flow from that terminal, you know,
17 as to the electrode and just that app?

18 MR. BREGMAN: Yes, the current will come in, will be fed in,
19 electricity will be fed in per the name of the electricity feed terminal, at that
20 electricity feed terminal in yellow. It will then flow down to the blue
21 immediately, it splits immediately and then flows around. It's wide because
22 you want to have as little resistance as possible, so you want it to be wide to
23 pass as much electricity as possible to the different firing resistors.

24 And then all the way along the length, down the length of this here,
25 you're going to have thousands of little resistors in their chambers where ink
26 is fed into from the ink via. The ink gets heated up by the resistor and it
27 needs power to do that, so it gets power from this, it heats it up, and then it

1 ejects it out as a little bubble, which pops obviously as it goes out and sprays
2 in colored ink.

3 JUDGE HAMANN: Sure. So current flows down both sides of the
4 electrode?

5 MR. BREGMAN: Right, yep, yep. So current is actually flowing
6 down, it goes all the way down then, it's taking at the top and flows all the
7 way down. That's one side of what's connected to the heater. And then the
8 other side, of course, there's still current goes to ground.

9 JUDGE HAMANN: Okay. Thank you. And thank you for your
10 time. With that, that concludes Petitioner's arguments. And Mr. Hashem,
11 let me, you had 16 minutes before and I took an additional two minutes, so I
12 will allot you 18 minutes for arguments, and I assume Mr. Bregman's fine
13 with that.

14 MR. HASHEM: Thank you, Your Honor. Let me just go back to
15 Acrobat. So I just want to kind of, I'm sorry, excuse me.

16 So I just wanted to start with the point where we're talking about
17 Benjamin '144, the disclosure in column 75 of Benjamin '144. Mr. Kritsas,
18 you know, emphasized that that is talking about, it says the words "the
19 bondpad." But if you read carefully, it's at the bottom of column 75, it says
20 that each feeding resistor is supplied by a bondpad and that's how Canon's
21 house counsel also characterized it.

22 The fact that each heating resistor is supplied by a bondpad is not the
23 question in the claims, right. The question is, are the heating resistors in the
24 arrays on different sides of the via supplied by one or more bondpads, right.
25 And our position is they are supplied by more than one bondpad, based on
26 electrical requirements.

1 And so even if the claim is referring to "the bondpad" in the singular
2 for a particular resistor, I mean, there's no dispute, I think, that any given
3 heating resistor is connected to only one bondpad, right. It's the question of
4 the portions of the arrays, that's the question for the claims.

5 So the second point, they focus on our expert's, you know, supposed
6 concession where he says in Exhibit 1015, as shown, I think I have their
7 slides up here. Sorry, please disregard the Slide 60. They focus on Dr.
8 Dietl's statement that, you know, he says could be one bondpad, I think that
9 is being taken out of context.

10 They asked him a hypothetical question about whether it could be one
11 bondpad or two, but Dr. Dietl doesn't have the, you know -- Slingshot
12 doesn't have the burden of proof here, right. They have the burden of proof,
13 Canon does, of saying -- of showing that a skilled artisan would understand
14 that you could power that fire line through a single bondpad, and they just
15 didn't do any analysis.

16 And so they asked Dr. Dietl, it was like well, could there be one
17 bondpad, could there be two. So what, you know, there could be one, there
18 could be two, he's speaking in general terms, right. He's not conceding that
19 it could be powered by one bondpad, the whole fire line. He's just saying
20 that that is the point of dispute, it could be one, it could be two. There's not
21 actually disclosure in Benjamin, and there's not actually a clear statement by
22 Dr. Pond why there would be a one, or why a skilled artisan would
23 understand that there is one.

24 And I want to focus on Benjamin '703 very -- that leads me to
25 Benjamin '703. Benjamin '703 just discloses a bondpad and a fire line, right.
26 And everybody knows that there is bondpad, nobody is saying that the '864

1 patent invented bondpads, but it doesn't get you anything else, right. It
2 discloses, it shows a bondpad, it shows a bondpad connected to a fire line.

3 But what it doesn't show you is a bondpad connected to a fire line
4 that's on powering more than one heater array on opposite sides of a via.
5 And that's really important because what you have in Benjamin '144 are
6 heater arrays on opposite sides of vias. And what you have in Benjamin
7 '703 is a bondpad.

8 But there's, you know, Canon has provided no reason why a skilled
9 artisan would understand that you could combine those, right. And power
10 both sides of the heater array from a single bondpad given the power
11 limitations, which their expert just doesn't address. If you look at Slide 60 of
12 Canon's where they're talking about their motivation to combine arguments,
13 right.

14 Their arguments are well, there's analogous art -- analogous art, they
15 are, you know, there's a reasonable expectation of success. But if you look
16 at the underlying, you know, declaration of Dr. Pond, these are completely
17 conclusory assertions that don't actually address the power limitation issue
18 that's disclosed clearly in the specification of the '864 patent.

19 I'd like to address the point about schematics. Your Honor, it's true
20 that Slingshot does rely on the schematics, particularly the Figure 3 of the
21 '864 patent to show, you know, relatively where is the separation happening.
22 And that's because the '864 patent is actually talking about separation.

23 In contrary, I heard several times from Canon's counsel that the '864
24 patent doesn't talk about the separation or the proximal limitation, which is
25 just not correct. So I would draw Your Honors' attention, I'll mention -- it's
26 mentioned several times.

1 But if you look at column 1, lines 57 through 60, it says, "According
2 to another aspect of the invention, the bondpad may supply power to the first
3 heater array and the second heater array portion by power traces physically
4 separated proximal to the bondpads."

5 But I think the more, most -- and it says that again at column 2, lines
6 40 through 42. But I think the most important portion is in columns 5 and 6
7 from line about 64 of column 5 to about line 6 of column 6. It says, "Further
8 as shown in the exemplary embodiment of Figure 3, the power traces 326
9 are physically separated as they meet the bondpad.

10 As is shown, it may be advantageous to utilize two separate power
11 traces from a single bondpad to efficiently balance the serious resistance of
12 the power traces. This ensures adequate power balancing to the heater
13 arrays.

14 Additionally, the chip of routing a power traces from a single bondpad
15 may also be positioned close together, and more closely than conventional
16 power traces stemming from different bondpads." And so what the patent is
17 talking about here, is you've actually got two competing considerations,
18 right.

19 You, as soon as you split the power trace, you are able to precisely
20 control the resistance, right, the voltage drop, as you go along the trace by
21 controlling the width of the trace. And so you want to do that as early as
22 possible.

23 But on the other hand, if you split it as early as possible, that makes
24 routing a lot more complicated, right. And you will see in several places in
25 the patent it talks both about the need to have even, you know, balancing of
26 the voltage to different sides of the heater array.

1 But it also talks about the complexity of routing, right. It makes
2 routing more complicated to have the split happen earlier. And what the
3 patent specifically discloses, a specific insight of the patent, is that it turns
4 out that when you split a bondpad, right, multiple power traces from a
5 bondpad near the bondpad, you can rep those more closely to each other
6 than if they were from different bondpads, right, and that's not certainly
7 something that's disclosed in Benjamin. And the patent specifically
8 distinguishes that from what was "conventional."

9 Finally, just to quickly address Uenishi, counsel for Canon mentioned
10 that, well, you know, nothing in the claim requires electricity to come from
11 an external source. We believe that's really, it's not expressly in the claim,
12 but we believe that that's what bondpad means. And certainly that's what the
13 specification says if you look at column 1, and I apologize, I forgot the exact
14 line number, but it says that the electricity is applied to the bondpad from
15 external power source, right. So the bondpad is the reason that external
16 electricity must be applied.

17 And the last point I would like to cover very briefly, Your Honor, is
18 there was an argument that, you know, we had a new argument that an
19 electrode cannot be a trace. I think I just phrased it a little bit differently. I
20 believe our expert said that the trace would be relatively narrow, and it's
21 getting to the same point, right.

22 The reason our expert said that the trace is relatively narrow is
23 because ones of skill in the art understand a trace to be something relatively
24 narrow, it has particular electrical properties, and things that are different
25 than a trace are not called a trace, they are called something else.

26 And so I was, Your Honor, simply just referring to that argument
27 which is in our briefing and which our expert did address. Our expert did

1 say that one of skill in the art, would not consider the common electrode of
2 Uenishi to be a trace for various reasons, but among them the fact that it's
3 much wider than a trace.

4 So, Your Honor, if you -- if the panel doesn't have any further
5 questions, I will happily yield the floor.

6 MR. KRITSAS: Your Honor, I just want to raise one objection. I
7 don't want to provide any other arguments, but just raise a new objection to a
8 new argument that we just heard. Up until this point, Patent Owner has not -
9 -

10 JUDGE HAMANN: Yes.

11 MR. KRITSAS: I apologize, Your Honor, may I raise an objection?

12 JUDGE HAMANN: This is Judge Hamann. If you believe there's a,
13 if you believe there's a new argument, just state what is the new argument
14 and state that just briefly what it is, I don't want an explanation or anything
15 further. And so that's the extent I will let you object now.

16 Generally, I don't think it's helpful, but we can determine your
17 arguments on our own, but if you can be very brief and just identify it. And
18 I don't want argument, just --

19 MR. KRITSAS: No argument, Your Honor. Just very briefly, I heard
20 an attack on the combination of the motivation to combine Benjamin '144
21 with Benjamin '703 based on the lack of analysis of whether a single
22 bondpad can provide power to multiple heater arrays. That argument was
23 never addressed by Patent Owner in any of its papers.

24 JUDGE HAMANN: Thank you. Mr. Hashem? I assume you have
25 nothing further, and to be frank, I probably should not have let that objection
26 be heard.

27 MR. HASHEM: I have nothing further, Your Honor.

1 JUDGE HAMANN: Okay. Obviously, Patent Owner disagrees, I
2 assume.

3 With that, I thank the parties for their time and their arguments. We
4 are going to adjourn but I ask the parties to stay on the line afterwards to
5 check with the court reporter to see whether there is any questions that the
6 court reporter has as to spellings or whatnot. And with that, the hearing is
7 adjourned. Thank you.

8 (Whereupon, the above-entitled matter went off the record at 3:06
9 p.m.)

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