

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2025-00221 (Patent 11,664,889 B2)
IPR2025-00222 (Patent 9,232,158 B2)

Record of Oral Hearing
Held: March 24, 2026

Before KRISTEN L. DROESCH, SCOTT A. DANIELS, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

IPR2025-00221 (Patent 11,664,889 B2)

IPR2025-00222 (Patent 9,232,158 B2)

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The above-entitled matter came on for hearing on Tuesday, March 24, 2026, commencing at 10:32 a.m., via video teleconference.

P R O C E E D I N G S

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JUDGE DROESCH: We'll go on the record now, and we'll start from scratch. Good morning. We're convened for oral arguments for IPR2025-00222. I'm Judge Droesch. And joining me virtually are Judge Daniels and Judge Laney. There is a panel change order that is being issued as we speak by the chief judge or the vice chief judge that is swapping myself, Judge Droesch, in for -- in place of Judge Meyers.

So again, the panel is Judge Droesch, Judge Daniels, and Judge Laney. All right. After this hearing, we will hear the second hearing, which will be IPR2025-00221. Hopefully, we will have whatever technical difficulties ironed out by that time.

So we'll start again with appearances for both parties, for those who will be arguing today. If anyone else is attending in person or remotely but will not be speaking, please identify them as well, for example, in-house counsel or other corporate representatives.

Counsel for Petitioner, will you please present your appearances?

MR. O'BRIEN: Certainly. David O'Brien for Tesla. With me as lead counsel, Jon Bowser, and other counsel.

JUDGE DROESCH: Thank you.

JUDGE DANIELS: And can we turn on the microphone? Because it's hard to hear?

MR. BOWSER: This is Jonathan Bowser, lead counsel. Also in attendance is Mr. Ashraf Fawzy of Tesla and Mr. Paul Margulies of Tesla.

JUDGE DROESCH: Okay. All right. Counsel for Patent Owner?

MR. THEISS: For Patent Owner, Brandon Theiss, and also Dan

1 Golub who will be making his way here virtually for the second hearing.

2 And we're being assisted by Ms. Heather Kane (PHONETIC).

3 JUDGE DROESCH: Okay. And there are no other panels

4 -- counsel with you?

5 MR. THEISS: That's correct.

6 JUDGE DROESCH: Okay. Thank you. All right. Following the
7 hearing, please make sure the court reporter has accurate spellings of your
8 names, as well as any other additional information to ensure the accuracy of
9 terms, references, or case citations that will be discussed today.

10 All right. Per the oral -- per the order regarding the oral hearing,
11 Petitioner has allotted 60 minutes for his presentation. Petitioner will go
12 first. And Petitioner may reserve some time for rebuttal, but that may not
13 exceed half the total argument time. Following Petitioner's presentation,
14 Patent Owner also will have 60 minutes to make his presentation and may
15 reserve some time for rebuttal arguments that should not exceed half of the
16 total argument time.

17 A couple of more quick reminders to begin -- before we begin. To
18 aid in the preparation of the hearing transcript, and so the judges appearing
19 virtually can follow your presentation, please identify your demonstrative
20 slides by the slide numbers and remember that your argument should be
21 limited only to those arguments presented in your briefs. And at all times,
22 please make sure it's clear which challenges and claims you are addressing at
23 all times. And if you have any objections to opposing counsel's arguments,
24 please hold your objections until it is your turn at the podium.

25 Counsel for Petitioner, would you like to reserve some of your
26 time for rebuttal?

1 MR. O'BRIEN: I would, Your Honor. Let's reserve 30 minutes.

2 JUDGE DROESCH: Counsel for Patent Owner, would you like to
3 reserve some of your time?

4 MR. THEISS: Yes, Your Honor. Fifteen minutes, please.

5 JUDGE DROESCH: Okay. All right. Counsel for Petitioner, you
6 may begin your presentation when you are ready.

7 MR. O'BRIEN: Is this mic working?

8 JUDGE DROESCH: If there's a green light on, it should be
9 working.

10 MR. O'BRIEN: Are you picking up my voice now?

11 JUDGE LANEY: Yes.

12 MR. O'BRIEN: Thank you. May it please the Board, we
13 introduced so I'm going to get right into it. I'm going to start at Slide 2. I'm
14 going to be referring to the physical slides. No presentation slides, but I'll be
15 identifying this as we go through. So the claim's terms and grounds in issue
16 here are summarized really on the first four slides in your deck. The term
17 integration time appears in Claims 1, 9, and 15; while an expressed
18 presentation of different integration times, one different from the other,
19 appears in Claims 11 and 16.

20 "During a frame," that phrase appears only in Claim 2. Sensors,
21 optics, components, channels and combining limitations are all undisputed in
22 this proceeding. Control and integration time of each sensor, we'll call that
23 -- well, that's part of Limitation 1.3 -- is really the principal dispute here.
24 And that will be my initial focus today.

25 Let's skip forward to Slide 5. So we have two obviousness
26 grounds, Matsushima and Yu, in view of Miyazaki. As I previewed, our

1 principal dispute involves Limitation 1.3. With the exception of Claim 2, all
2 of the disputed issues center on control and integration time of each sensor
3 language in 1.3. I'm going to begin with how Grounds 1 and 2 each render
4 obvious Limitation 1.3.

5 I'm now on Slide 6. I'm also going to initially focus on integration
6 time and on a pair of requirements that IV seeks to smuggle into Limitation
7 1.3. Our record demonstrates that IV's purported requirements are
8 extraneous. But the record also shows or also demonstrates that IV's
9 purported requirements are met by both grounds. So to preview those IV
10 requirements include independent control and different integration times.

11 I'm now at Slide 7, focusing on integration time. Integration time
12 presents in the context of the larger limitation. Again, a processing
13 component configured to control and integration time of each sensor. So
14 what does integration time mean?

15 Turning to Slide 8, we construe integration time according to --

16 JUDGE LANEY: Counsel?

17 MR. O'BRIEN: Yes, Your Honor.

18 JUDGE LANEY: Real quick, just because I want to have context
19 and better understanding.

20 MR. O'BRIEN: Certainly.

21 JUDGE LANEY: And I understand you're saying that the Patent
22 Owner is trying to smuggle in the limitation. And before we get in, I just
23 want to have a little bit more context to understand why it matters. And
24 more specifically, what would - how does their construction affect your
25 contentions? And the reason I asked is -- well, first, let me start there. I
26 mean, how do you think that it impacts -- what about their construction

1 undermines your contentions, even if we were to accept their construction?

2 MR. O'BRIEN: So that's why I led with "we opposed but it doesn't
3 matter." Each of our grounds fully contains disclosure of the erroneous or
4 extraneous requirements that IV would impose on the references. I'll differ
5 with you, maybe ever so slightly, it's not clear to me that they've offered any
6 specific construction of any specific term in the claims to include those. But
7 their intent to require those extraneous requirements of the prior art grounds,
8 I think, is --

9 JUDGE LANEY: Okay.

10 MR. O'BRIEN: Is that --

11 JUDGE LANEY: Real quick, your answer gives me a little bit of
12 pause. Then if that's true, then why are we engaging in a claim
13 construction? And I just want to crystallize it. I understand your position is,
14 hey, heads, we win; tails, we win because our evidence satisfies it with
15 whatever they say, right?

16 So help me understand -- and I don't need -- at this point, I'm not
17 asking you to get into the specifics, just help me understand the -- their
18 construction and just a broad overview, but we have that and how you think
19 a different construction applies and how we have that, just broadly. And
20 then that -- then you can -- I'll stop, and we can go into your construction
21 argument.

22 MR. O'BRIEN: Certainly. Let me sort of clarify, make sure that
23 we're not passing ships in the night here. Which term are you asking about
24 construction of?

25 JUDGE LANEY: Integration time.

26 MR. O'BRIEN: Okay. So integration time, we are proposing a

1 construction. And we show that on the slide, yes, the other side does
2 advance its own construction. We don't know what the additional words
3 mean. They haven't articulated what role they play in the case. And we
4 don't believe they play a role in the case. But we do know that the term
5 integration time is explicitly defined in the specification, and we do know
6 that it was construed by the GM --

7 JUDGE LANEY: Construed.

8 MR. O'BRIEN: So that's what we --

9 JUDGE LANEY: We're fighting -- this is a construction over
10 construction, I get it. I just want you to crystallize for me before we get into
11 deciding the construction of the construction where the dispute is and why it
12 matters.

13 MR. O'BRIEN: The honest answer, Your Honor, is I don't know.
14 I don't know what they mean by those terms. They haven't articulated what
15 it means. They haven't articulated what --

16 JUDGE LANEY: No, no. I'm not interested in what they mean. I
17 know you can't predict. But your understanding of what the dispute is and
18 how it impacts your case -- in other words, you're obviously fighting what
19 they're saying, regardless of not understanding what they're meaning. When
20 you understand them to be saying, you lose. If I'm right, I want you to
21 crystallize for me why -- what you're fighting about, what you think they
22 think you lose, or what -- I mean, because your briefs certainly don't just
23 simply throw the hands up and say, well, I don't know how this impacts
24 anything, I'm just going to bear along and say what I say.

25 You fight back and forth. I just want you to crystallize, okay,
26 they're saying this is -- for example, scene, they're saying scene is -- let's

1 take the institution decision. At the institution stage, they said it covers
2 scene, not a still and an image. And we obviously, at institution stage, didn't
3 buy that. And now, it appears they're shifting a little bit. And they're
4 saying, well, don't focus on image or still, focus more on the fact that it has
5 to be a duration of time. That's how I understand things have shifted a little
6 bit. Is that a fair understanding, at least at that point?

7 MR. O'BRIEN: Partially, yes. And from my perspective, Your
8 Honor, partially maybe not. Certainly, the argument on "scene," I think,
9 they have dropped. You'll have to ask them if they've dropped it, but that's
10 what I --

11 JUDGE LANEY: Right.

12 MR. O'BRIEN: -- understood from the briefing. In terms of -- I
13 don't -- duration is more a concept that comes up in a -- we've offered a
14 construction of -- during a frame, that's a temporal aspect of limitation that
15 actually is not in play in integration time here.

16 JUDGE LANEY: But I thought that's -- so I -- and that's why I
17 want to crystallize the dispute before I hear --

18 MR. O'BRIEN: Fair enough.

19 JUDGE LANEY: -- your argument so I know how it applies. So I
20 understand their point about scene. And going back to the term integration
21 time is that this is supposed to be, as the name suggests, integration, right?
22 You're supposed to be taking integrating, over a period of time, this
23 information.

24 And so what they're saying is, as I understand it, generally -- and
25 obviously, they'll correct me, but I want to make sure you and I are on the
26 same page. What I understand the dispute to be is it can't just be an instant.

1 It's got to be an integration of information that occurs over some time.

2 MR. O'BRIEN: To the extent that the act of integration time is
3 required. And I would not say that it is required in Claim 1. But in terms of
4 definitionally for integration time, yeah, we do not have a dispute whether
5 integration time is an instant or a period of time. That is not dispositive in
6 this case.

7 JUDGE LANEY: What is the dispute? Crystallize the dispute for
8 me. What is the dispute, as you understand it, between you and Patent
9 Owner?

10 MR. O'BRIEN: From our perspective, the dispute centers around
11 whether the prior art grounds teach 1.3. And it sort of starts and stops there.
12 And I think we establish that very clearly on the record. It's not clear to us
13 that there is any meaningful dispute in far -- in so far as construction is
14 concerned on Limitation 1.3.

15 JUDGE LANEY: And you say that because you're taking what the
16 -- both of you are suggesting that you're taking what the court construed
17 integration time to mean, i.e., the time the image sensor collects and
18 integrates signal from the scene.

19 MR. O'BRIEN: That is exactly what we are understanding the
20 term to mean.

21 JUDGE LANEY: Okay. So it's not really so much a claim
22 construction issue. It's an application of the facts issue.

23 MR. O'BRIEN: That's how we see the case, Your Honor.

24 JUDGE LANEY: Okay. I will stop and let you go for a while.

25 MR. O'BRIEN: All right. Well, with it -- no problem, I'm glad we

26 --

1 JUDGE DANIELS: Before you do that -- sorry, Counsel-- let me
2 just follow up with one quick question. So it seems to me that -- is it fair in
3 this case, from your perspective, to say that these two claim constructions
4 that I'm looking at on Slide 8 are essentially -- can be distinguished, but
5 there's no real difference between them?

6 MR. O'BRIEN: I have not discerned a difference. And I don't
7 believe the other side has explained the difference, Your Honor. So yes.

8 JUDGE DANIELS: Thank you.

9 JUDGE LANEY: Now, just to put a finer point on that. And the
10 reason there's no difference is because the Court's construction says the time
11 the image sensor collects and integrates signal from the scene. Patent
12 Owner's proposed construction, the time interval during which the image
13 sensor collects and integrates signal from the scene. When it says the time
14 and the time interval during which -- I mean, by saying the time, you're
15 indicating that it's -- I mean, time is an interval; is that fair?

16 MR. O'BRIEN: The time is at least an extent, yes.

17 JUDGE LANEY: Yeah. We're not taught -- I mean, nothing
18 happens, especially in electronics when you're letting charge, you know
19 -- like when you're using sensors, it's got to accumulate. And so that's not a
20 nano instant of time. I mean, that -- there are obviously some interval,
21 regardless of how big or small it is.

22 MR. O'BRIEN: That would be consistent with our understanding
23 the case as well, Your Honor.

24 JUDGE LANEY: Okay. Good. All right. So start for me -- I'm
25 sorry -- again.

26 MR. O'BRIEN: All right. No problem. So consistent with that

1 focus on the facts of the case or the application of the art to the claims, I'm
2 going to skip ahead to Slide 17, focusing on Matsushima. So it's undisputed
3 in this record that Matsushima addresses -- or discloses, rather, two
4 independent imaging systems, distinct optics components, distinct sensors,
5 and a processing component. I've laid out some of the relevant pictures and
6 disclosure here. We're going to discuss those as we get further in the case.

7 I'm going to go to slide 19 at this point, and you see a picture
8 again. It's undisputed that Matsushima describes a processing component
9 configured to control integration times of sensors using an electronic shutter
10 per sensor. It's also undisputed that each distinct sensor has a shutter drain
11 and shutter gate and an electronic shutter function -- I'm now branching to
12 the right-hand side of the slide -- that controls the accumulation time of the
13 charge accumulated by each sensor via shutter gate pulses.

14 Control of charge accumulation time is control of integration time,
15 as charge is the signal from the scene in a CCD image sensor. Each sensor
16 has its own CCD drive circuit. If you'll notice, those are Circuits 20A for
17 Sensor 18A; and 20B for Sensor 18B. And notably, in terms of a Patent
18 Owner admission, Patent Owner does not dispute that Matsushima describes
19 electronic shutter hardware elements at each CCD.

20 I'm now flipping to Slide 20. Here we have the, I guess, extreme
21 correspondence or striking correspondence between the words of the
22 Limitation 1.3 and the disclosure of the reference. And I'm going to speak
23 from the perspective of Matsushima. Like, you'll see the mapping to the
24 language of the claim. Matsushima --

25 JUDGE LANEY: In doing that, real quick, when you talk about
26 the control --

1 MR. O'BRIEN: Yes.

2 JUDGE LANEY: -- can you highlight for me or explain to me
3 your understanding of how that control occurs? And in particular, what I'd
4 like to know is your understanding of whether or not each of the sensors or,
5 you know, the shutter function, the CPU -- does the CPU have to send a
6 separate signal to control each of the shutters, or does the CPU send one
7 signal? Does one signal go to all -- you understand my question?

8 MR. O'BRIEN: I think I see where you're going. There are two
9 -- let me move forward to Slide 22, just -- we're going to be talking to a
10 diagram. And this is a pretty good presentation of the diagram. You'll see
11 the processing component is highlighted for you, at least a portion of the
12 processing component is highlighted in purple. That's all processing. You'll
13 notice that, as I said, the CCD control circuits are specific to -- distinct to
14 independent legs of the control loop here. The control loop involves the
15 charge that's accumulated on the sensor, it's sampled through the CDS
16 circuit, it's converted from analog to digital and in 60A the integration
17 circuit integrates that up here in Matsushima to an illumination level.

18 There's a specific term in the case, and I'll -- subject luminance is
19 the term that Matsushima uses. That is fed through the CPU and back to the
20 independent control circuit for the sensor to control its integration time.
21 You'll see there's two --

22 JUDGE LANEY: And what's the independent control circuit
23 which -- you're saying the whole thing? So I'm with you that the sensors and
24 all the, you know, hardware part is separate and independent. And as I
25 understand, one of the things we have to get down into that I need your help
26 with is understanding because -- well, let me start off, you agree with Patent

1 Owner's representation and I believe your representation that you accept the
2 ruling that we previously made, and you're not fighting the ruling that we
3 previously made.

4 I understand you and Patent Owner have a different understanding
5 of it, but just the starting point is our previous ruling in the previous IPR
6 institution decision, correct?

7 MR. O'BRIEN: Absolutely, Your Honor. Our understanding --

8 JUDGE LANEY: Okay.

9 MR. O'BRIEN: Yes.

10 JUDGE LANEY: So we have an independent control of each
11 sensor, of the plurality of sensors. Now --

12 MR. O'BRIEN: Your Honor, just to be clear --

13 JUDGE LANEY: Yes.

14 MR. O'BRIEN: -- our understanding is that you established a one-
15 to-one correspondence between sensors and optics components. You
16 construed in that regard Limitation 1.2 of the claim and determined that
17 Toyota's approach to the claim, which required a combined -- or which
18 involved a combined optics component, did not meet that limitation. That's
19 what we understand.

20 JUDGE LANEY: Right. I understand those facts in the previous
21 IPR are completely different than this facts, which is evidenced by the fact
22 that nobody's fighting over whether or not we have separate, independent
23 plurality of sensors and stuff, right?

24 MR. O'BRIEN: Right.

25 JUDGE LANEY: The issues, that was more of a hardware
26 question. This one is directed a little bit more towards the processing, the

1 operation part.

2 MR. O'BRIEN: I think that's --

3 JUDGE LANEY: Fair?

4 MR. O'BRIEN: Yes, Your Honor.

5 JUDGE LANEY: Okay. And so here we have the -- I mean, in
6 this case, the principle -- and as you represent, the only claim element in
7 Claim 1 that's at issue is a processing component configured to control and
8 an integration time of each sensor, right?

9 MR. O'BRIEN: Yes.

10 JUDGE LANEY: And the fight between you two appears to be the
11 fact that it says control and integration time of each sensor. Patent Owner is
12 focusing really hard on the fact that it has to be independent, separate, and
13 we do make representations that support their position in the early IPR,
14 which nobody's fighting over what we said.

15 And obviously, initially in our institution decision in this matter, I
16 think one of the things we understood at the time but where we wanted to
17 flush this out for a further trial is the understanding that you can still have
18 -- even if you have separate independent sensors and optic structure, you can
19 still have separate independent control, even if you're sending the same
20 signal to the different sensors.

21 And so in reading the prior art, it seemed as though you had a CPU
22 that had to send a separate control signal to each of the different ones. In
23 other words, it wasn't just one control signal that went to all. Each one of
24 the optic components and sensor structure had to get its own signal in order
25 to control the integration time, even if the time -- the amount of time that it's
26 going to allow it to accumulate energy was the same. Do you understand

1 where I'm coming from at this point?

2 MR. O'BRIEN: I think so. I would say that I think the other side
3 is disputing whether there is independence. We would -- let me -- that is not
4 true. There is no dispute, I think, on this record in terms of independence. I
5 think their only dispute has to do with different integration times. Our
6 record very clearly shows that the references teach that. So even that
7 imagined distinction is not in play.

8 JUDGE LANEY: Well, the claim certainly doesn't say anything
9 about the different integration times, at least Claim 1. I understand there's
10 dependent claims that address that. But Claim 1 says nothing about being
11 different integration times right?

12 MR. O'BRIEN: We agree.

13 JUDGE LANEY: So before we get to that point, I -- what I'm -- so
14 I think what you just said helps me. Show me the -- why it is exactly that
15 there's independent control, setting aside the time, just -- in fact, show me
16 independent control and why you're saying that evidence establishes
17 independent control.

18 MR. O'BRIEN: Sure. Let me see if I can help out with that
19 anchoring from Slide 22. I think on this record there is no dispute that
20 Matsushima describes independent imaging systems. We sort of set that as a
21 baseline. There's no dispute that Matsushima describes distinct paths for
22 controlling the integration time of an individual sensor distinct from the
23 other sensors. And there's also no dispute that Matsushima teaches an
24 electronic shutter on each sensor for controlling the integration time of that
25 individual sensor distinct from the other sensor.

26 In the illustration on the slide, you'll see those components. You'll

1 see the separate and independent CCD drive circuits, one for each channel in
2 terms of -- it's illustrated to the side. You'll also see the separate and
3 independent integration circuits, which whose job is to capture -- is to gather
4 the data to determine the subject luminance for that channel.

5 So each of them is controlled independently. What I have queued
6 up to discuss next is how it is also queued up -- it is also designed to control
7 them with different values. But as we're discerning here, that's yet a further
8 imported requirement. On the independence, I think we can see it there in
9 the circuit diagram -- or in the block diagram and in the independence of
10 those circuits. So those two legs which control each of the imaging systems.

11 JUDGE LANEY: What is TG, 28?

12 MR. O'BRIEN: TG is the timing generator. You'll see there's both
13 a coordination between the two and a pipeline phenomenon through the
14 channels. Image is integrated in the sensor. It is sampled in the correlated
15 double sampling circuit. It is then converted from analog, still at this point,
16 to digital and eventually the integrated as well. But then it also meets up
17 with its counterpart from the other imaging channel to be combined in this
18 circuit.

19 So there's a pipeline that goes through this circuit, and the timing
20 of these circuits needs to be managed. It does not indicate, in any way,
21 shape, or form an identity of integration time control.

22 JUDGE LANEY: Okay. So in other words, on 28, TG, that
23 timing circuit - or 18A could be affected by different timing signal than
24 18B?

25 MR. O'BRIEN: Absolutely, Your Honor.

26 JUDGE LANEY: Okay.

1 MR. O'BRIEN: And we would -- now we would expect that -- we
2 would be happy to talk about how we know that from Matsushima.

3 JUDGE LANEY: No, no. I just -- okay. You can keep going.

4 MR. O'BRIEN: Okay. Well, I was going to go and talk about
5 different integration times. So I was going to go to Slide 25. And that's sort
6 of that point.

7 JUDGE LANEY: Good.

8 MR. O'BRIEN: So the petition explains that Matsushima teaches
9 different integration times for different regions of a scene. The expert
10 explains that a POSITA would understand that Matsushima -- that in
11 Matsushima, integration times of the image sensors would have different
12 values -- it sort of goes to the point you were asking -- for different subject
13 luminances for the different fields of view. So here in Matsushima, each of
14 those sensors covers a different field of view.

15 You'll see on the right-hand side of the slide a presentation of that.
16 The drawings themselves teach different subject luminance for different
17 channels. And here's why. You'll see the one I've highlighted in yellow,
18 that's a wider angle. That's angle alpha, but it's the wider angle field of
19 view. It encompasses the most luminous object in the solar system, the sun.
20 The other one does not.

21 So, you know, proof there on this -- in the picture, one has a very,
22 very large subject luminance, a greater subject luminance, and the other one
23 has a smaller one. So then why that plays out, we go ahead and explain to
24 you. I've now turned to Slide 26. It's a busy slide, but it brings together all
25 of the components of this: the analysis to the left, the circuit diagram, and
26 then the image frames and the fields of view.

1 Our expert explains to you -- I'm on the left side -- that in
2 Matsushima, the integration times of the image sensors -- the red in the slide,
3 18A and 18B -- they would have different values for the different subject
4 luminances of their different fields of view. He also explains that this is
5 because the first subject luminance of the wider shooting angle is determined
6 independently from the one for the narrowing one. Those are the two
7 integration circuits. Again, separate, 60A and 60B.

8 Finally, in the first image sensor, which images the larger -- the
9 wider field of view --

10 JUDGE LANEY: You meant 18A and 18B --

11 MR. O'BRIEN: Did I say -- yeah, 18A and 18B. Thank you, Your
12 Honor.

13 JUDGE LANEY: Okay.

14 MR. O'BRIEN: 60A and 60B for the integration. It's 18A and
15 18B for the sensors. But in the wider one, which encompasses the sun, we
16 would expect -- not only we would expect, we know there's a higher subject
17 luminance. We can see it there in the slide. And for the other one, it's going
18 to be a lower subject luminance; therefore, different integration times.

19 So here, we've demonstrated that 1.3 we spoke earlier about --

20 JUDGE LANEY: Real quick --

21 MR. O'BRIEN: Yes.

22 JUDGE LANEY: -- when you go straight from that to therefore,
23 close that gap a little bit more. I understand your -- let me -- better yet, let
24 me explain what I'm thinking, and that way you can see how large the gap is
25 so you can help connect the two.

26 MR. O'BRIEN: Absolutely.

1 JUDGE LANEY: I understand what you're saying is in the
2 broader view that includes the sun, the sun's bright, so you're going to have a
3 lot more light coming into that focus for that particular sensor. And so your
4 time is going to have to be a little bit smaller. Otherwise, your sensors will
5 get -- basically, for lack of better way -- overstimulated.

6 MR. O'BRIEN: Yeah, oversaturated.

7 JUDGE LANEY: And B, you're more focused on the individual
8 that's in the picture and the flower. And so you're not having your -- the
9 focal point isn't so much directed with the sun, so much light, so it's going to
10 be a longer period of time is what you're saying. The very fact that you're
11 focusing on an area that doesn't include the bright sun means you're going to
12 necessarily have a smaller amount of time than if you're focused on an
13 image that includes the sun. Because of the brightness of the sun, it's
14 necessarily going to have to be a shorter period of time.

15 MR. O'BRIEN: I wouldn't argue it in terms of necessarily follows,
16 Your Honor. I would argue that's what the reference teaches. And I would
17 also point out that that's what -- it's easier to -- or it's helpful to explain
18 pictures over a thousand words. So I've done it here in terms of pictures.
19 But textually, in this -- in the specification, paragraph 23 of Matsushima
20 describes exactly that, that the integration time is calculated based on the
21 subject luminance. So yes, bright --

22 JUDGE LANEY: And it says the integration time for each sensor?

23 MR. O'BRIEN: It does.

24 JUDGE LANEY: Because I think that -- isn't that Patent Owner's
25 point is it talks more integration time looking at the whole image, not so
26 much on a sensor by sensor image?

1 MR. O'BRIEN: They don't have any basis to demonstrate that,
2 Your Honor. I understand that that is their argument. That's not how the
3 circuit is designed, which is why I was illustrating the circuit for you. You
4 wouldn't have a separate integration circuit for each side if you were going
5 to throw one of them away and just use one of them. You wouldn't have
6 separate control circuits to interface with the two sensors if you're going to
7 send the same signal to both sensors.

8 JUDGE LANEY: And which paragraph -- could you highlight
9 again for me the paragraph you pointed me to that you said --

10 MR. O'BRIEN: Sure.

11 JUDGE LANEY: -- speak directly to this?

12 MR. O'BRIEN: So if you go to -- paragraph 23 says that the
13 respective imaging optics, respective, by the way --

14 JUDGE LANEY: Hold on, just for the record, paragraph 23 --

15 MR. O'BRIEN: 23.

16 JUDGE LANEY: -- Exhibit 1007?

17 MR. O'BRIEN: Yeah. And we concentrated on 23, 24. 33 and 34
18 are pretty focused on that point. But in terms of the control loop from
19 subject illuminance through to integration time, I think the textual
20 description there is pretty clear. And it's described in the context, again, of
21 each sensor.

22 JUDGE DROESCH: Counsel?

23 MR. O'BRIEN: Yes, Your Honor.

24 JUDGE DROESCH: I just want to let you know that you've gone
25 into the time that you wanted to reserve. But we can proceed, as you --

26 MR. O'BRIEN: Yeah. I'll bleed into it a little bit. Judge Laney,

1 are there other issues that you would like me to get to? I have a relatively
2 deep deck here, and I'm happy to branch to whatever issues you find the
3 most helpful.

4 JUDGE LANEY: So far, this has been very helpful. How about I
5 do this, I'll keep my mouth shut and give you some time to hit whatever you
6 -- the high points you want to make sure you hit?

7 MR. O'BRIEN: Okay. This is your hearing, you know, honestly,
8 not mine. So I will branch forward a little bit. We have two grounds here.
9 And I want to tread a little bit of the same ground, so to speak, with respect
10 to the Yu reference, just to give you a framework there. I'm jumping ahead
11 to Slide 33. So again, relative to 1.3, Yu alone as well as Yu in combination
12 with Miyazaki render obvious Limitation 1.3.

13 I'm now on Slide 34. The claim is the same operative limitation.
14 The processing component limitation is in play. The same construction is in
15 play. I would note for Your Honors that the prior art teachings of Yu with
16 respect to Claim 9 and its dependents are entirely uncontested by the Patent
17 Owner here. IV seems to represent something different in its slides, but I
18 think the record is very clear on that.

19 Let me jump to 35. Yu is a similar system, but its thrust is same
20 field of view. So images covering the same field of view but spectrally
21 varied. So red, green, blue, undifferentiated white. They are captured using
22 multiple image sensors. Each has its own lens, and each of those images are
23 captured simultaneously and then combined. So a lot of ways very similar
24 to what we were discussing in Matsushima.

25 I've now turned to slide 36. It's undisputed that Yu --

26 JUDGE LANEY: Real quick on that, just a quick question on the

1 --

2 MR. O'BRIEN: Yes, Your Honor.

3 JUDGE LANEY: Slide 34 or is that the -- Slide 35.

4 MR. O'BRIEN: Yes, Your Honor.

5 JUDGE LANEY: Would this one also, like the previous one,
6 focus on different points within the image? Because it seems like since
7 they're different colors, they would all be focused on the same thing.

8 MR. O'BRIEN: You're actually -- you're correct on that, Your
9 Honor. They have the same field of view --

10 JUDGE LANEY: Okay.

11 MR. O'BRIEN: -- but they have different spectral components of
12 the image that they separately capture. And the key point here is that the
13 different spectral components have different intensity. And therefore, the
14 control loop for red versus blue versus green versus all colors of the visible
15 spectrum is different. And they are separately and independently controlled,
16 and there is a distinct exposure time and therefore -- or integration time at
17 foot in Yu and in Yu in view of Miyazaki.

18 So on Yu, it's undisputed -- independent sensors, it's undisputed
19 that each is respectively and independently controlled to expose the same
20 imaging target. And it's undisputed that each is separately controlled with a
21 different exposure time.

22 I'm going to skip ahead to Slide 38.

23 JUDGE DANIELS: So Counsel, just before you leave Slide 35,
24 just from a circuit standpoint, it looks like -- it looks like the processor
25 would deliver via circuit 332, different control times, different aperture
26 times -- whatever it is, the integration times -- to the separate control circuits

1 via 332; is that correct?

2 MR. O'BRIEN: That's how we would understand it, Your Honor.

3 JUDGE DANIELS: Okay. Perfect. Thank you.

4 MR. O'BRIEN: So on Slide 38 each sensor has on-sensor
5 exposure time control. You'll see the sensors here are 302, 304, 306 and
6 308. Each sensor also has its own control circuit. Those are the control
7 circuits that Your Honor was referring to as coupled via 332 -- the signal
8 from 332, that each control the exposure time based on the intensity image
9 in its associated channel.

10 So in this image scene, if there was an awful lot of red and less
11 green, the red would have greater intensity. And therefore, there'd be a
12 possibility of that image becoming saturated, and the integration time will be
13 dialed back for the red as compared to the green. So different times.

14 JUDGE LANEY: So can you speak to the -- when you're doing
15 this -- and maybe this overarches on the last one. And I think one of Patent
16 Owner's points is that -- it's talking about that control during. And I know
17 during is in the other claim. I think one of their points is that this integration
18 is dynamic I guess is what they want to say.

19 Instead of setting an integration time beforehand and that's all it is,
20 it can't change, and whatever comes out comes out versus while you open
21 the shutter, you can adjust that integration time so that -- as you pointed out
22 just there -- and that's what triggered me on it -- is the fact that, okay, this
23 image, wow, this has a lot more red. So I'm going to know to reduce my
24 shutter time, my integration time for that red circuit. Can you just touch on
25 that, please?

26 MR. O'BRIEN: Yeah. I think you parsed that exactly correctly,

1 Your Honor. In Yu, because the intensity of the components is varied, the
2 feedback loop in YU is to ratchet down the amount of time for a channel
3 which is saturated. They describe a histogram process identifying if there's
4 an awful lot of the image that is in the high end of the coding space, and
5 therefore we don't have a large dynamic range that's in an absolute sense
6 being represented. And therefore, dialing it back to make a better use of that
7 dynamic range.

8 That's exactly what Yu does in the spectral components and in
9 what Matsushima does in the field of view components, so.

10 JUDGE LANEY: Thank you.

11 MR. O'BRIEN: Yes, Your Honor. I'm going to reach a stopping
12 point and sit down and then be responding. But I do want to just make the
13 perhaps final point, subject to what you want to talk about, that we have
14 demonstrated on this record that Yu teaches all of this.

15 We also demonstrate to the extent that IV disputes that the control
16 of exposure time performed on sensor, which is what Yu teaches -- that to
17 the extent that they dispute that that is integration time or that is control of
18 integration time, we have demonstrated through the Miyazaki reference that
19 a person of skill in the art would look to Miyazaki and find the on-chip
20 electronic shutter control absolutely describes and is expressed in the
21 reference in terms of charge accumulation times and all the other things that
22 are characteristic of integration time and therefore the combination as well.

23 Yu has it entirely. But Yu and Miyazaki has it sort of belt and
24 suspenders. And with that, I'm going to go ahead and pause, subject to any
25 questions, or reserve my time.

26 JUDGE DROESCH: It doesn't look like there's any additional

1 questions. Thank you, Counsel.

2 MR. O'BRIEN: Thank you, Your Honor. Your Honor, how much
3 time do we have?

4 JUDGE DROESCH: You have used about 10 minutes into your
5 reply.

6 MR. THEISS: Okay. Just bear with me for one second, Your
7 Honors.

8 JUDGE DROESCH: While you're setting up Counsel, you -- will
9 you confirm that you wanted 15 minutes for rebuttal?

10 MR. THEISS: Yes. My intuition is I'm probably not going to use
11 my entire time, but yes.

12 JUDGE DROESCH: Thank you. I just wanted to confirm that I
13 had it correct.

14 MR. THEISS: Yeah. I'm ready to proceed whenever you are,
15 Your Honors.

16 JUDGE DROESCH: Go ahead, Counsel, when you're ready.

17 MR. THEISS: Your Honors, we just had a conversation about
18 what integration time meant. Petitioner seems to suggest that there's a
19 difference between the District Court meaning of integration time and what
20 IV's position is of integration time in (INDISCERNIBLE). We do not see
21 there being a difference. The position that IV is taking in this proceeding is
22 that there's an expressed definition in the patent.

23 If I can direct Your Honors to the patent itself, in column 4, line 3.
24 It's highlighted in pink on the screen right now. The amount of integration
25 -- I'm sorry, the amount of integrated photo charge is directly related to the
26 time the image sensor collects and integrates signal from the scene. If you

1 look at our briefing, that's exactly the language we use.

2 And the reason why integration time in the context of the patent is
3 important is the patent explains why integration time is important because it
4 is different than exposure time. If we look at the patent itself, continuing on
5 column 4, approximately line 37, which is highlighted in green --

6 JUDGE LANEY: Are you referring to your slides, or are you just
7 referring to the patent?

8 MR. THEISS: I'm referring to the patent specifically, Your Honor,
9 because there was this discussion about our claim construction being
10 inconsistent. And I'm referencing the patent specifically to show how our
11 position in the IPR proceeding throughout our briefing is consistent with
12 what's in the patent. So I'm presenting the patent.

13 JUDGE DROESCH: Counsel, I'm not sure my colleagues can see
14 the green highlighting. Could you give them the column and line numbers?

15 MR. THEISS: Absolutely, yes. I --

16 JUDGE LANEY: Start at the beginning, the first one and then this
17 one.

18 MR. THEISS: Yes, Your Honor. The first citation was on the
19 patent itself, which is EX 1001. It is appearing on column 4, line 3, and I
20 read up to line 6. So it said, "The amount of integrated photo charge is
21 directly related to the time the image sensor collects and integrates signal
22 from the scene." That also appears in our slides. It appears in our Patent
23 Owner response. It appears in our sur-reply. That is what we maintain
24 integration time is because that's what the patent says it means.

25 Where this becomes important, related to our discussion today and
26 the references that Petitioner was just speaking to, is if we go further down

1 in column 4, starting at line 37, we start to introduce the term exposure. And
2 we explain how exposure is different than integration time. Specifically, it
3 says exposure is the amount -- is the total amount of light allowed to fall on
4 a sensor during the process of taking a photograph. Exposure control is a
5 control of the total amount of light incidents on a sensor during the
6 processing of taking a photograph.

7 But here's where it becomes important, Your Honors. In contrast
8 to exposure control, which is used in conventional digital cameras to manage
9 dynamic range, the digital camera systems of an embodiment use integration
10 time control to control the electrical signal is integrated on a charged storage
11 device, capacitance, within a sensor pixel, as described herein. Your
12 Honors, we were just talking about the Yu reference --

13 JUDGE LANEY: Hold on. Before we jump there -- this seems to
14 be very important.

15 MR. THEISS: I completely agree, Your Honor, yes.

16 JUDGE LANEY: Okay. You're going to something else, and it
17 would be helpful -- is there a figure you can kind of walk me through -- if
18 you want me to really understand this, walk me through a figure so that I
19 fully appreciate the distinction you're making between exposure, integration
20 time. And then take that figure and show me on their figures how this
21 difference is illustrated.

22 MR. THEISS: Unfortunately, Your Honor, we do not have a
23 figure that illustrates that. Our expert explains in his deposition -- I'm sorry,
24 in --

25 JUDGE LANEY: Well, I mean, it doesn't have to fully -- I just
26 want you to point to me to the structures or things that they may be relying

1 upon, and you say, well, no, that's exposure. When they're talking -- when
2 they point to this and talk about time relevant to this, they're not talking
3 about integration time, they're talking about exposure. And that's a red
4 herring, and that's something -- you understand? I mean, I need you to bring
5 --

6 MR. THEISS: Absolutely.

7 JUDGE LANEY: -- this a little bit more concrete into light.

8 MR. THEISS: Absolutely.

9 JUDGE LANEY: Because it's a very difficult concept to
10 understand the complete difference between integration time, which has to
11 do with the shutter speed and stuff, and exposure time which also seems to
12 have something to do with shutter or how much light you're letting in and
13 not.

14 MR. THEISS: Yes, Your Honor. I believe Figure 1, which is
15 from our patent, is helpful for this discussion.

16 JUDGE LANEY: Okay.

17 MR. THEISS: It shows a common digital camera. Just to walk
18 through what's shown in a common digital camera, light enters through an
19 aperture in -- which is labeled as 150. The light then passes through a series
20 of lenses, I believe that's identified as 110, then passes through a filter, 112.
21 And then ultimately, it comes in contact with a CCD sensor.

22 Your Honors, exposure is the control of the light being incident on
23 the CCD. So it is everything that I just walked through in the camera, from
24 the light entering through the aperture -- so that could be the physical,
25 mechanical shutter that closes through the lenses -- up until the light impacts
26 the CCD. And then we get to integration time, so integration time is after

1 the light is incident on the CCD.

2 It relates to how do we read those values off? There's the
3 discussion of integration requiring a temporal component. It's how long do
4 we leave our window open to say, okay, we collected a photon. How many
5 photons did we collect in this time period? So to make it as --

6 JUDGE LANEY: So let me make sure -- let me just -- baby steps
7 for me, because I want to make sure I understand this. Exposure, so 150
8 may have a mechanical shutter, right?

9 MR. THEISS: Yes, Your Honor.

10 JUDGE LANEY: And so a person clicks it, that shutter opens for
11 whatever period of time it's been adjusted to. All that light that rushes in,
12 that's exposure?

13 MR. THEISS: Yes, Your Honor.

14 JUDGE LANEY: Integration time, you're saying is, well, however
15 time they let it in -- let's just form a round number. And I know this isn't
16 realistic, let's just say 10 seconds. You have that -- the sensor back on the
17 plate, 116. Now, that sensor may choose to say, well, I'm only going to have
18 integration time of 2 seconds out of that 10, or I may have all 10 seconds or I
19 may have seven, I may have 2, whatever -- for each of the whatever number
20 of sensors, each one's going to decide exactly how much of that exposure it's
21 going to let accumulate.

22 MR. THEISS: I agree 100 percent, Your Honor. I would just
23 make one minor correction on the integration time could be 20 in your
24 hypothetical.

25 JUDGE LANEY: It could be even after the shutter closes?

26 MR. THEISS: Yes, Your Honor.

1 JUDGE LANEY: Okay. All right.

2 JUDGE DANIELS: So let me -- what -- I'm a little confused as to
3 why we're talking about exposure. Is it in the claim or something?

4 MR. THEISS: No, Your Honor. It's highly relevant related to the
5 Yu reference that speaks of automatic exposure control, which is -- opposing
6 counsel was standing up here saying, it teaches every element. And Yu does
7 not speak in any way, shape, or form related to integration control. It talks
8 about exposure control. And those two things are not synonymous.

9 JUDGE DANIELS: Okay. Let me -- so not only are they not
10 -- from what you just discussed with Judge Laney, it seems that they're
11 essentially -- I mean, they're related because they may work together in
12 certain cameras. Oh, actually, let me ask this, do all digital cameras have to
13 have an exposure, an aperture that controls? I'm assuming an aperture is
14 what controls exposure time, at least I'm using it that way. So do all digital
15 cameras have that?

16 MR. THEISS: Your Honor, I'm not prepared to speak to all digital
17 cameras, but I will say that most digital cameras will. That aperture control
18 can be implemented a couple of different ways. It can be implemented
19 electronically or mechanically. But I believe that the majority of cameras,
20 digital cameras, will have some sort of aperture control. But I really don't
21 know the complete spectrum to answer that question, Your Honor. I
22 apologize.

23 JUDGE DANIELS: Okay. But what I take away from your
24 discussion with Judge Laney is that is, basically, these are different
25 variables. How long that sensor is turned on is different than how long the
26 exposure or the shutter speed or shutter time, whatever we want to call it,

1 right?

2 MR. THEISS: Yes, Your Honor. And if you look at our expert
3 declaration on that matter, Dr. Saber explains that in considerable detail, yes.

4 JUDGE DANIELS: Thanks.

5 MR. THEISS: So now, I would like to actually go to our slides.
6 I'm directing the Board to Slide 2 that has the claim language. And there's
7 three independent claims that are at issue in this case. Claim 1 says control
8 and integration time of each sensor. Claim 9 has different language. Claim
9 9 says determine an integration time of each channel -- of the plurality of
10 channels. And Claim 15 says identify an integration time for each of the
11 plurality of channels.

12 Your Honors, based on what Petitioner is offering, specifically of
13 Claims 9 and 15, those elements would be rendered superfluous. Because
14 Your Honors, if there was only one integration time, why would you
15 determine it for each channel of the plurality of channels? Similarly --

16 JUDGE LANEY: Say that statement one more time.

17 MR. THEISS: Yes, Your Honor.

18 JUDGE LANEY: If --

19 MR. THEISS: If there was only one integration time for the
20 system, why does the claim language say determine an integration time of
21 each channel of the plurality of channels? Under Petitioner's construction or
22 understanding -- application of the references I think would be a better way
23 to characterize it. Yu would just say determine an integration time because
24 there is only one integration time. But that isn't --

25 JUDGE LANEY: But I thought Petitioner's argument was that
26 there are not just one integration time. That's what I was trying to -- I mean,

1 he seemed to be very clear that -- in the sample we talked about, you have
2 the one independent sensor that's looking at a -- that's focused on a bigger
3 picture that includes the sun. It's going to have a different integration time
4 than the other independent sensor that's focused on just the individual. So
5 they are saying there are multiple integration times.

6 MR. THEISS: Absolutely, Your Honor. And I believe Counsel
7 was slightly mistaken with what he was quoting from Matsushima
8 specifically as it relates to paragraph 23 and going into 24, Counsel said here
9 that the reference teaches that there's an independent control of each of the
10 sensors in paragraph 23. Why don't I actually pull that up so we can look
11 through what it actually says? Give me one second to go to that slide,
12 please.

13 JUDGE DROESCH: Can you tell us the slide number as well?

14 MR. THEISS: Yeah. I'm going to be going to Matsushima
15 directly.

16 JUDGE DROESCH: Oh. Which exhibit --

17 JUDGE LANEY: So Exhibit 1007?

18 MR. THEISS: Yes, Your Honor. I plan to go to Exhibit -- there
19 we go. So if we go to paragraph 23 of Matsushima -- which I apologize it's
20 not showing on the screen. Give me one second to move it to the screen.

21 JUDGE LANEY: That's all right. I can't see your screen anyway.

22 MR. THEISS: Then I'll just read it --

23 JUDGE DANIELS: I have it. We can pull it up.

24 JUDGE LANEY: We changed the panel.

25 MR. THEISS: That's perfectly fine. I'm reading paragraph 23 of
26 Exhibit 107, "The subject image formed on the light sensor receiving surface

1 of CCD 18A, 18B via the respective imaging optics are subjected to the
2 signal charge conversion by each sensor in the CCD that corresponds to an
3 amount of incident light. The accumulated signal charges are retrieved from
4 the CCD drive pulses applied by the CCD drive circuits and are sequentially
5 output from CCD 18A and 18B," so we scroll to the top, "as a voltage
6 signal, analog signal image corresponding to each charge."

7 Your Honor, it doesn't say anything about how this - where the
8 signals are controlled by or how they are controlled. Where we get that
9 answer is if we move on to paragraph 34. And if we read from paragraph 34
10 of Matsushima, starting at the top, it says, "For AE control," so automatic
11 exposure control, "the subject luminance image EV value is determined
12 based on integration of the RGB signals in a single frame by the integration
13 circuits 60 A and B. And the aperture value and the shutter speeds are
14 determined based on" the EV value – "this EV value."

15 Then we continue reading, "The aperture 17A and 17B are driven
16 via the drive circuit, 52A and 52B. The CCD A and B charge accumulation
17 time is controlled using an electronic shutter to reach the determined shutter
18 speed." The determined shutter speed, Your Honor, there is only one
19 determined shutter speed for both sensors. It doesn't say a respective shutter
20 speed, which is what I believe Petitioner would like it to say. It doesn't say
21 that.

22 JUDGE LANEY: It doesn't say that it's not either, though.

23 MR. THEISS: Well, Your Honor, it's very clear when it is making
24 respective signals and respective components to identify them as A and B. It
25 doesn't do that here, Your Honor. And we have a repetition of the same
26 language in paragraph 35 which says the final aperture value and the shutter

1 speed for imaging is then determined based on the EV. The aperture 17A
2 and B are then driven --

3 JUDGE LANEY: Are you saying the EV would be the same for
4 each one?

5 MR. THEISS: I'm saying the determined shutter speed, which is
6 what they are applying in the parlance of Matsushima --

7 JUDGE LANEY: Hold on real quick.

8 MR. THEISS: Yeah.

9 JUDGE LANEY: But the Petitioner's point -- and you can correct
10 me if I'm wrong, and Petitioner can get up and correct me. But I thought the
11 key part of that is the fact that it says the subject luminance is determined
12 based on the integration of the signals, right? So we're looking at the
13 luminance. And that is going to be a factor in determining the value, the
14 shutter speed, right?

15 MR. THEISS: So for clarity here, Your Honor, in Matsushima, we
16 have a slightly different usage of the word shutter speed, perhaps because of
17 its translation. But we have to use it consistent to what it says. It says, in
18 other words, the CCDs have a so-called electronic shutter function that
19 controls the accumulation times shutter speed of the charge accumulated by
20 each sensor. So yes, Your Honor, each sensor -- we do not dispute -- has the
21 capability of adjusting its accumulation time. The dispute, fundamentally,
22 Your Honor, is what value is that set to.

23 Judge Laney, you had asked opposing counsel to crystallize the
24 issue for you. And I cannot distill it and crystallize it any more clearly than
25 this. IV's position is that a value needs to be determined for each sensor
26 independent. You need to have a value for the integration time determined

1 for Channel 1, Channel 2, Channel A, Channel B.

2 It doesn't really matter what you call it. There has to be a value
3 and an analysis and a signal that is sent to control that particular integration
4 time of that sensor independently. And that independent --

5 JUDGE LANEY: You're saying the determined -- so you're saying
6 the integration time has to be independently determined?

7 MR. THEISS: Yes, Your Honor. And I believe that specifically --

8 JUDGE LANEY: So let's go back to your Slide 2.

9 MR. THEISS: Yeah.

10 JUDGE LANEY: Let's start with Claim 1.

11 MR. THEISS: Yes, Your Honor.

12 JUDGE LANEY: It says configured to control an integration time
13 of each sensor, right?

14 MR. THEISS: Uh-huh.

15 JUDGE LANEY: In integration time, normal parlance is simply
16 one or more integration time. So it can cover one or it can cover multiple
17 integration times. It doesn't say as used -- I mean, look, we've got -- in the
18 context of this claim, we have a plurality of optics, plurality sensors. We
19 were all about the structure being a plurality.

20 But then when we talk a processing component configured to
21 control and -- it's saying an integration time. That could be one integration
22 time, it could be two integration times three. I don't understand where you're
23 getting that it has to be more than one integration time.

24 MR. THEISS: Your Honor, specifically the word each. If you
25 look at --

26 JUDGE LANEY: Well, no, for each sensor, you have -- yes, I

1 agree with you, each sensor is going to have to have an integration time. I
2 don't see you really disputing that the prior art discloses that each sensor gets
3 an integration time. I understand what -- your dispute, as you just
4 crystallized, is that each sensor doesn't have an integration time that's
5 specifically determined for that sensor. Yes, it gets an integration time. It's
6 just not one that's been determined specifically for that sensor is your -- is
7 Patent Owner's argument.

8 MR. THEISS: That is, Your Honor, an argument, Your Honor,
9 which is specifically distilled, specifically when we get into the dependent
10 claims where we specifically recite that those integration times have to be
11 different. But as it relates to in Claim 1, if we were to take the construction
12 that only one integration time were to meet the claim limitation, there would
13 be no reason for the additional words of each sensor to appear in the claim.
14 There would be no reason for those words to appear.

15 JUDGE LANEY: Why do you say that? Because each sensor is
16 indicating the fact -- as I think we said in our previous institution decision,
17 it's indicating that that processor has to be able to control each sensor
18 independently.

19 MR. THEISS: Correct, Your Honor.

20 JUDGE LANEY: Okay. And in controlling that independently, it
21 doesn't mean that each one has to have -- in order to have independent
22 control, it does not necessarily mean that each one has to have a different
23 integration time. Case in point, let's just say a hypothetical, you have a
24 situation where the conditions are such that even if -- let's take
25 hypothetically your situation where you have a integration time that's being
26 separately evaluated for each sensor separately and independently. And it

1 just so happens that integration time is the exact same number, so two
2 seconds.

3 What you're suggesting to me is the fact that each one has two
4 seconds, that it wouldn't be covered by this because that integration time is
5 the same for each one. But that's not really what you're saying. What you're
6 saying is that each integration time, regardless of what that time is, has to be
7 a separately, independently determined time.

8 MR. THEISS: Yes, Your Honor. That is Patent Owner's position.
9 Otherwise, the claim for Claim 1 would read control and integration time of
10 the plurality of sensors. It says each sensor. Specifically, if we look to then
11 Claim 9 or Claim 15 -- let's talk about Claim 15, identifying an integration
12 time for each of the plurality of sensors. Your Honor, I would say that
13 -- why would you determine values for each of the plurality of channels if
14 you didn't want to determine them independently? The word each has to
15 have some meaning. Because if we were to strike out the word each from --

16 JUDGE LANEY: No. I think each -- what I think each does is it
17 says, yes, you have to provide a time to each one. In other words, you can't
18 have a single -- if we look at the figure -- so looking at -- going back to
19 Exhibit 107 -- where are those figures? Here we go. So if we go back to -- I
20 hate the Japanese locking set (PHONETIC) I -- all right. So I'm on Exhibit
21 1007, page 10, which is the figure -- Petitioner Figure 1.

22 MR. THEISS: Yes, Your Honor.

23 JUDGE LANEY: So what I understand the claim work to be
24 doing in having the independent control is you have 60A and 60B instead of
25 just having 60, period, and 60 being used for all the separate sensors. And I
26 think that's what -- Petitioner's argument is. Why do you have 60A and 60B

1 if they're not independent or they're not controlled independently? If you
2 just needed one 60, why wouldn't you just have 60 that gets splintered off to
3 both? I mean, if all it's doing is saying this is the amount of time it's used to
4 control the accumulation time, why do you have two, that's one for each
5 sensor?

6 MR. THEISS: Your Honor, that actually lends itself to a very easy
7 technical explanation. There is no room --

8 JUDGE LANEY: Okay.

9 MR. THEISS: There's no requirement in Matsushima -- actually,
10 it's almost inherent in Matsushima that the CCDs are of different sizes. You
11 have a wide angle lens. You have a telephoto lens. The whole point of
12 Matsushima is to stitch the two together. It seems very reasonable that you
13 would have CCDs of different sizes. You cannot use the same CCD
14 controller for CCDs of different sizes. So it's very reasonable that you could
15 have CCD A controlling an 800 by 800 array and CCD B being a 400 by
16 400 array.

17 JUDGE LANEY: But doesn't that also -- your response to that
18 seems to lend itself that, yeah, then you would have separate, independent
19 controls of the integration time because they're different. The different sizes
20 are different. So why wouldn't you just control them separately and
21 independently?

22 MR. THEISS: Well, Your Honor, because the timing element is
23 the critical element there. It's that they would be set to integrate over the
24 same value, which is the reason why Matsushima's entire existence is to
25 limit the boundary between the telephoto lens and the wide angle lens.

26 And I believe we provide considerable documentation and

1 examples of why that was a well-known problem in our briefing. That on
2 that boundary, if you have dramatically different exposure values or
3 integration times, you -- we'll just call it -- I'm sorry, I meant to say exposure
4 times, you get a absolutely awful-looking picture, and then you would have
5 to do additional things to it.

6 The issue here, Your Honor, is that when you have the same
7 integration time, it simplifies everything that is downstream of it. Dr. Saber
8 speaks considerably about how having the integration times being the same
9 is actually desirable for a lot of reasons. And I think the fact that there are
10 different control circuitry for the two CCDs in Matsushima is a bit of a red
11 herring because they're just two different sensors. And I think the sort of the
12 intent of Matsushima was to use off-the-shelf components to synthesize this
13 product. That doesn't get --

14 JUDGE LANEY: No. That still tends to lend itself to having
15 independent - integrating circuits that are independent, have their own
16 information, their own stuff. Now, again, I understand -- that's where I get
17 this is -- so that time, we're not really focused on time. The time can be the
18 same for both.

19 MR. THEISS: With --

20 JUDGE LANEY: So if in fact the way they're determined -- I'm
21 just talking under your argument. You don't really care what the time is.
22 What you care about is the fact that each one is separately, independently
23 from its own independent values determines its own integration time.

24 MR. THEISS: That is Patent Owner's position, yes. As it relates
25 to the apparatus claim, the apparatus needs to have that capability, yes, Your
26 Honor. As it relates to the method claims, specifically 9 and 11, our position

1 is that they're expressly there, that you have to determine those values, yes,
2 Your Honor.

3 JUDGE LANEY: And I think -- at one level, I don't think
4 Petitioner really is fighting you that hard on that. I think they're fighting you
5 on the fact that the evidence shows by the structure, by the different
6 variables that a skilled artisan reading this specification of Exhibit 1007
7 would recognize you have separate, independent integration circuits, 60A
8 and 60B. And through the configuration, through the different conditions, it
9 would recognize that you provide separate integration times.

10 MR. THEISS: Well, Your Honor, Dr. Saber comes to the exact
11 opposite conclusion. I'll direct you to his declaration of paragraph 121,
12 which we highlight on Slide 11. We do not think that is what a person of
13 ordinary skill in the art would --

14 JUDGE LANEY: What exhibit number? I'm sorry.

15 MR. THEISS: That was 2017. It's demonstrative slide 11.
16 Specifically, we quote that section in the sur- reply, on pages 15 through 16.
17 But the general point here, Your Honor, is that what Matsushima actually
18 says in the text is that the CCD A and B is controlled using electronic shutter
19 to reach the determined shutter speed. They have the same value. They
20 always have the same value. They can't take a different value because
21 they're --

22 JUDGE LANEY: Show me the strongest -- other than the fact that
23 you say the determined shutter speed, what -- why does that necessarily
24 mean the same value, always the same value? You're getting all that from
25 the fact that it says the determined shutter speed, when you just identified
26 two separate independent structures? I mean, that's what I'm getting

1 confused.

2 The sentence says in full, the aperture 17A, 17B are driven via the
3 drive circuits, 52A and 52B. And the CCD 18A and CCD 18B charge
4 accumulation time is controlled using an electric shutter to reach the
5 determined shutter speed. Why is it that the determined shutter speed is one
6 single shutter speed versus perhaps different shutter speed, but one for the A
7 and one for B?

8 MR. THEISS: Well, Your Honor, I believe --

9 JUDGE LANEY: Why isn't that a proper understanding?

10 MR. THEISS: I believe paragraph 35 provides the answer to your
11 question.

12 JUDGE LANEY: Okay.

13 MR. THEISS: Paragraph 35 reading in the middle, it says, the
14 final aperture value and shutter speed for imaging is then determined based
15 on the imaging EV. The aperture 17A and 17B are then driven to a final
16 aperture value when the release button is fully pressed and the charge
17 accumulation is controlled by the electronic shutters at the determined speed.

18 Your Honors, there is only a recitation of the final aperture values,
19 the charge accumulation time, the imaging EV. That is the way that
20 Matsushima works, it determines one value.

21 JUDGE DANIELS: So Counsel, why do you need two separate
22 circuits? Because I was looking at that circuit diagram, it looks like two
23 separate circuits to me, despite the fact that there's a timing issue. But that's
24 always going to be an issue when you have multiple sensors. So they're
25 separate circuits, why wouldn't they provide separate aperture values and
26 shutter speeds?

1 MR. THEISS: Because the reference says that it provides it based
2 -- to reach the determined shutter speed. The reference teaches what it says
3 on the page. Petitioner has been very clear that they're not making an
4 inherency argument. And even if they were making an inherency argument,
5 inherency would require it must necessarily be there. And Your Honors, it's
6 not necessarily there. It's not explicitly there. Could it possibly --

7 JUDGE LANEY: But it says the final aperture value in shutter
8 speed for imaging is then determined based on the imaging EV. So that goes
9 back to the illumination -- the illuminance, right?

10 MR. THEISS: Yes, Your Honor.

11 JUDGE LANEY: The imaging EV value is related to the subject
12 luminance, right?

13 MR. THEISS: Agreed.

14 JUDGE LANEY: Okay. And then it shows -- as Petitioner points
15 out, one of the sensors is focused on a completely different -- not completely
16 different, that's not fair -- on a different focal point than the other sensor,
17 right?

18 MR. THEISS: Yes, Your Honor, that's the way Matsushima
19 works.

20 JUDGE LANEY: You would agree with that. Okay. And so do
21 you agree with Petitioner those two sensors would have different
22 luminances?

23 MR. THEISS: They would have different amounts of light energy
24 hitting their sensors, yes, Your Honor.

25 JUDGE LANEY: So why isn't the natural thing that flows is that a
26 skilled artisan would have a different integration time for the sensor that has

1 a different illumination than the other sensor --

2 MR. THEISS: Because of the difficult --

3 JUDGE LANEY: -- a different subject illuminance than the other
4 one?

5 MR. THEISS: Well, because, Your Honor, the reference doesn't
6 speak to it specifically. And a skilled -- a person of ordinary skill in the art,
7 as Dr. Saber explains, would understand that by changing the integration
8 times, it makes it much harder to stitch the images back together again.

9 JUDGE LANEY: But the reference doesn't speak to what you're
10 saying either -- specifically either, right? I mean, I don't -- you haven't
11 pointed-- you're trying to make inference from the fact that it says the final
12 aperture value and shutter speed. And you're saying because it says, the
13 value in shutter speed, that it's got to be one. It's only one is what you're
14 telling -- I mean -- or at least you're saying that should be extremely
15 compelling evidence for us, and that we should not find for Petitioner
16 because the evidence is so compelling that it's just one and there's no
17 determination made.

18 Whereas Petitioner comes and they point out, we've got separate
19 circuits, we've got -- everything about these sensors are separate, distinct,
20 and independent. They have to have a CPU that sends a signal that -- one
21 signal for A, one signal for B. They're controlled. They even have different
22 subject luminances because they're focused on different things. They derive
23 from that -- a skilled artisan would then recognize that they have different
24 integration times. You're saying, well, no, they're wrong because it says the
25 final aperture value and shutter speed.

26 And I guess what I need from you is, do you have more that

1 supports the fact that the final aperture value and shutter speed is only one?
2 I mean, what else in this specification tells you we're only going to use one
3 value, one shutter speed for everything and determine it not based on an
4 independent basis?

5 MR. THEISS: So Your Honor, I need to just address one issue.
6 As Patent Owner, it is not our burden to prove anything. It is their burden --

7 JUDGE LANEY: No. But I've just made it clear to you that the
8 Petitioner has come forward with some pretty good evidence. Now, the
9 burden shifts. You never have the burden of persuasion, but you definitely
10 get shifted the burden of production. And right now I'm asking you for a
11 burden of production.

12 MR. THEISS: Yes.

13 JUDGE LANEY: So what production do you have that overcomes
14 their production of evidence?

15 MR. THEISS: Yes, Your Honor. I would direct you to the
16 abstract of Matsushima specifically, when it's identifying what the problem
17 is in Matsushima. So this is on page 1 of Exhibit 1007. It says, problem, to
18 provide a digital camera that can prevent unnatural regions, even when a
19 telephoto captured image is combined in a center of a wide-angled captured
20 image and that can obtain images at various magnifications using a simple
21 configuration.

22 The hypothetical configuration that Petitioner is putting forth with
23 different integration times is not a simple configuration. As Dr. Saber
24 explains, the simple configuration is to use the same integration time. There
25 is no evidence in the record that supports why, how, where in Matsushima it
26 inherently or expressly discloses the values being different. And that is

1 fundamentally what is in the dependent claims, that it is not in dispute that
2 depending -- the dependent claims require the values to be different.

3 JUDGE LANEY: Wait, I thought that is in dispute. I mean, I
4 don't think the values -- I don't think -- I think you and I just talked about
5 that. The values themselves don't have to be different. Maybe the
6 dependent claims have different values, right?

7 MR. THEISS: That's what I said, Your Honor. I was directing
8 you to --

9 JUDGE LANEY: Oh, I missed the dependent claims. Okay.
10 Yeah.

11 MR. THEISS: Yeah. I said Dependent Claims 11 and 16, putting
12 a finer point on that. And to your point, yes, I agree with you. In the case of
13 system Claim 9 and method Claim 16, we are determining the values or
14 identifying the values of those integration times. And then when we get into
15 the dependent claims, we're specifically stating what those values are.

16 So to the extent that we are broadcasting a single value to all of the
17 CCDs and Your Honors are of the belief that that meets the claim limitation,
18 they're then going to have the same integration time and therefore not meet
19 the limitations of Dependent Claim 11 and 16 specifically.

20 JUDGE LANEY: Well, I mean, just so you're clear, I mean I have
21 -- I'm pressing because I think these are close issues. I'm just trying to help
22 you flush it out for me. I don't know exactly -- I don't know where I come
23 down on it yet.

24 MR. THEISS: Absolutely. That's why we're here, Your Honor.
25 These are not easy issues. These truly are not.

26 Since we're on Slide 3, I'd just like to talk about the meaning of

1 Dependent Claim 2 since we're here, during a frame. And during your
2 discussion with Petitioner's counsel, there was a bit of a discussion about
3 this claim sort of tangentially. Specifically, I want to make this very clear
4 on what IV means by during a frame. The integration time needs to be
5 changed while the image is being acquired. That's what during a frame
6 means.

7 In the parlance of the patent, it's a rolling shutter. Meaning that as
8 you are reading the data off, you are also changing the integration time.
9 Petitioner has taken the position that during a frame just means you set it and
10 then you use that value, which would effectively take the meaning of the
11 word during a frame and make it meaningless. If you just say during a
12 frame is some period of time while you're acquiring the picture, you
13 wouldn't need during a frame.

14 JUDGE DANIELS: Counsel, is that explained in the
15 specification?

16 MR. THEISS: Yes, Your Honor. Rolling shutter is named
17 expressly by name. I don't have the citation in front of me this second. But
18 if you search the -- Exhibit 1001 for rolling, it comes up. I could do that for
19 you right now, if it makes your life easier.

20 JUDGE DANIELS: Just how about on reply? I don't -- or when
21 you get back up. We can --

22 MR. THEISS: That's absolutely fine. I can provide that citation. I
23 apologize for not having at the tip of my tongue. But I really think that
24 Figure 7, as we're talking about what our invention is, is really important.
25 And we have the language, select an integration time -- I'm looking at Slide
26 4, which is a reproduction of Figure 7 -- for each sensor camera channel

1 from a range of integration times. Then we have integrate photo signals
2 from each camera channel to form a single frame of data and correct,
3 combine determined. The determined step --

4 JUDGE LANEY: So what --

5 MR. THEISS: Yes.

6 JUDGE LANEY: I'm sorry.

7 MR. THEISS: I'm just going to talk about the determine step at
8 the end, which is 710, which says determined integration time control
9 settings that provide optimum dynamic range on subsequent frames of data
10 using information of the resulting image. So we have that idea that these
11 values need to be determined. They're not preset.

12 JUDGE LANEY: Yeah. Can you help me better understand how
13 the prior art -- is there anything more you have from their references that
14 establishes that this determination is not being made? Because the problem
15 -- again, as I understand Petitioner's argument is they believe they've set
16 forth sufficient facts and evidence showing that this integration time is
17 determined.

18 You heard the exchange with Petitioner. We talked about that one
19 example where it was read. And as soon as it determines it's too much red, it
20 knows to adjust it. And so I'm just saying that their position is that they do
21 have sufficient evidence.

22 MR. THEISS: Well, Your Honor --

23 JUDGE LANEY: I would like -- I'm sorry.

24 MR. THEISS: I was just going to clarify one thing, on the red,
25 green, blue distinction is the Yu reference, which we haven't had a chance to
26 chat about.

1 JUDGE LANEY: No, I understand. But we dovetailed into this
2 too. We talked -- I mean, both of them, we talked about the fact that we are
3 making a determination, it is being evaluated to establish integration time. I
4 just would like you to speak a little bit more about what -- the facts and the
5 evidence, other than just those two -- I mean, is all you have those two
6 paragraphs relying on the value, the speed? Is there anything more that you
7 can offer or show that the reference does not provide separate integration
8 times for each of the sensors or determine a separate integration time for
9 each of the sensors.

10 MR. THEISS: Yes, Your Honor. I believe you're conflating two
11 of their independent grounds. There is not a proposed combination of
12 Matsushima and Yu. As it relates to --

13 JUDGE LANEY: No, I understand that.

14 MR. THEISS: As it relates to Yu specifically, Yu does not speak
15 in any shape or form about integration control. It talks about exposure
16 control. They rely upon an additional reference. Sorry, let me just pull up
17 the thing because I'm struggling on the word. My apologies, give me one
18 sec. Miyazaki, thank you.

19 Miyazaki, to combine those references, I went to Slide 18 there to
20 trigger my brain on how to pronounce the reference. Yu does not teach
21 integration control at all. Instead, they rely upon this additional reference,
22 Miyazaki, that is a complete red herring, where it takes sequential images in
23 small amounts of time after each other and picks the one that looks the best.
24 It's a single system where you have a single sensor.

25 And then in the case of this ground, with the combination with Yu,
26 Yu doesn't have any integration control at all. They are combining Miyazaki

1 with it. And Miyazaki uses mechanical shutter and a digital shutter as sort
2 of a coarse and fine refinement and wants to graft all this structure into Yu,
3 where Yu just doesn't have it there. It's just that there's no reason to -- you
4 would add all this extra hardware, all this everything to add to Yu, where Yu
5 just doesn't have that concept of integration control.

6 As it relates to the reference we were originally talking about, the
7 Matsushima -- I apologize that the names are very similar. I believe, Your
8 Honors, the strongest explanation I can provide is in our briefing; and
9 specifically, when we rely upon Dr. Saber's testimony. And Dr. Saber
10 explains in great detail how Matsushima works. And Matsushima --

11 JUDGE LANEY: And I appreciate that. I mean, he explains how
12 it works. But again, he's also relying on -- he's explained the way it works
13 based on his interpretation or reading it like you've read it, right? He's not
14 being pushed -- and maybe he did during cross-examination. And we don't
15 -- I just don't -- if that's all you have, I mean -- I don't think you're
16 contending that it doesn't structurally have all the components of the
17 independent claims. Structurally, all the components are there. You agree,
18 right?

19 MR. THEISS: I think that's a reasonable position, yes, Your
20 Honor. We're not disputing that.

21 JUDGE LANEY: Okay.

22 MR. THEISS: But the critical element here and the critical
23 distinction, as we've been talking now for about a half an hour, is on the
24 determination of those values. And quite --

25 JUDGE LANEY: There's no dispute that it -- I mean, it
26 determines an integration time, right? Not necessarily for each of the

1 plurality of channels or sensors, but it determines an integration time.

2 MR. THEISS: Yes, Your Honor. That is fundamentally what I
3 said when I stood up here at the very beginning of my time and I said I'm
4 going to crystallize this issue for you, that is fundamentally the issue that we
5 are talking about with regard to the independent claims.

6 JUDGE LANEY: Okay. So the only fundamental issue is that
7 there's not an integration time that's determined for each of the sensors?

8 MR. THEISS: As it relates to the independent claims, absolutely,
9 as we had that further discussion regarding Dependent Claim 2, that during a
10 frame limitation, which is not addressed anywhere. And specifically, when
11 we go into the dependent claims, where there's the specific recitation that the
12 integration times be different. That's where our conversation really is just --

13 JUDGE LANEY: And where do you get that different from,
14 though -- I mean, the dependent claims. I'm sorry.

15 MR. THEISS: I apologize, on Slide 3, we're referencing
16 Dependent Claim 11. It's relatively shorter. It's less than. So a first
17 integration sensor is less than the second integration sensor, at least one
18 channel is relatively shorter than the integration time. The values in all of
19 the references are the same. And Yu doesn't --

20 JUDGE LANEY: What do you think the weakness of their
21 argument -- let's say hypothetically -- well, let's just -- what do you think the
22 weakness of their argument is, a skilled in the artisan and the fact that it's
23 going to have different -- I forget the exact wording, luminance exposure or
24 -- what's the word? It's one of these things. The fact that each of the sensor
25 is going to have different lighting that will affect -- that has an impact on
26 integration time, therefore a skilled artisan would know to have a different

1 integration time for each of the sensors. What do you think is the weakness
2 in that argument?

3 MR. THEISS: As we started our conversation with as it relates to
4 exposure versus integration time and how exposure relates to the light that is
5 incident so the light coming in. The control of things like lenses, filters,
6 aperture. Those can address the differences in those lighting conditions, and
7 that's what Matsushima explains to us. The integration time though is a
8 completely independent value. That relates to the readout. That is what
9 happens after the photons are incident on the CCD. So to answer your
10 question as concretely as I can, Your Honor, is that in the reference, in the
11 Matsushima reference, we have a teaching to address the
12 (INDISCERNIBLE) Counsel that the lighting is different. Yeah, the way
13 you would -- a person of ordinary skill would appreciate that you fix the
14 lighting being different is you change the aperture. You put a filter in there
15 and make sure there's -- that there's a little bit less light that is hitting the
16 CCD sensor. It does not necessarily flow then that you would change the
17 integration time. The integration time is how you read the data. And
18 reading the data off at different rates is really hard. And that is what Dr.
19 Saber says.

20 JUDGE LANEY: Okay.

21 MR. THEISS: And just touching on the Yu reference just briefly,
22 to reinforce, Yu does not even discuss integration time. It discusses
23 exposure. And those are just not the same things.

24 JUDGE DROESCH: Counsel, can I just interrupt? I just want to
25 let you know that you're going into your time that you wanted to reserve.

26 MR. THEISS: I was actually going to conclude with that, unless

1 you had any further questions.

2 JUDGE DROESCH: Are there any additional questions?

3 JUDGE LANEY: Thank you very much.

4 MR. THEISS: Thank you, Your Honors.

5 JUDGE DROESCH: Thank you very much.

6 MR. O'BRIEN: All right. Your Honors, I'm going to try to hit a
7 few points here, and then I'm at your disposal for -- go ahead, Your Honor
8 -- follow-up questions.

9 JUDGE LANEY: Oh, I was just clearing my throat. I'm sorry.

10 MR. O'BRIEN: Are we ready?

11 JUDGE LANEY: Yes.

12 MR. O'BRIEN: Okay. I think IV's counsel tried to set up a false
13 distinction for you between exposure and integration time. The references
14 don't speak in terms of exposure or exposure control. They speak of
15 controlling exposure time on a sensor. So just put that aside for a second.
16 Now let me help you out with the general concepts of exposure and aperture
17 and shutter speeds and things of that sort.

18 We have dealt with this in our record. And I would point you to
19 the background section of Exhibit 1003 that's cited in the petition and
20 throughout this record. But in particular, beginning with paragraph 41 and
21 continue -- I mean, Exhibit 1003, Your Honor. Beginning with paragraph
22 41, we have a detailed discussion and an explainer for you on exposure.

23 So exposure is a multidimensional concept for controlling the
24 amount of signal that gets registered on a sensor or on a film image. The
25 items that opposing counsel was referring to in their background section
26 were distinguishing that world from film sensors to the digital sensors.

1 CCDs, I think, was all really was in play, but also CMOS in this day and age
2 of digital cameras.

3 So in the world of exposure, one has control of the size of the
4 opening, that's the aperture. One has control of the amount of time during
5 which photons impinge on a piece of film or arrive at an electronic sensor.
6 And one also has the sensitivity of the underlying medium. If it's film, it
7 would be its ISO, if you're a photographer. If it's a image sensor, a
8 semiconductor image sensor, it will be its amplification of the charges that
9 are accumulated. That's what exposure is.

10 And so they send you down a false journey of saying that because
11 the word exposure appears in our discussion of Yu that it's of that world.
12 The words in and the disclosure of Yu are about on-sensor, digital sensor,
13 control of exposure time. So that is on the semiconductor, how are you
14 controlling the accumulation time of charge. That is integration time. And
15 that's the point that we made, that Yu alone --

16 JUDGE LANEY: Are you saying -- can you not control the
17 accumulation of time through exposure?

18 MR. O'BRIEN: I'm sorry. Say that again.

19 JUDGE LANEY: Can you control the accumulation time simply
20 using exposure?

21 MR. O'BRIEN: Generally, there is no control of exposure in one
22 chunk. One controls either the size of the opening, so the flux arriving, or
23 the time that that flux arrives which is a time. So I think Yu jumped from
24 exposure to exposure time, which I think is helpful for --

25 JUDGE LANEY: Okay. I'm saying can you use exposure to
26 control the accumulation time?

1 MR. O'BRIEN: One can use exposure time to control the amount
2 of time that charge is integrated, yes. For example, that's what --

3 JUDGE LANEY: Okay. But you understand the invention
4 -- that's not what the invention is about, right? The invention would be
5 about controlling the accumulation time separate and apart from exposure.

6 MR. O'BRIEN: Okay. Can I direct you to the record, Your
7 Honors?

8 JUDGE LANEY: Sure.

9 MR. O'BRIEN: So if we go to 1003 --

10 JUDGE LANEY: Okay.

11 MR. O'BRIEN: -- I'm going to direct you to page 24 and
12 paragraph 42. This is the background description for you of what exposure
13 is. Full stop, exposure, not exposure time, not aperture control, not control
14 of exposure. Exposure, which is what they are -- which is the false errand
15 that they are trying to distinguish for it. This has nothing to do with what
16 our references are about. This has to do with the false dichotomy that
17 they're trying to create.

18 Exposure is controlled by varying apertures, by varying time, and
19 by varying sensitivity. That is what they are distinguishing when they're
20 talking about mere exposure control versus integration time. But when one
21 controls the time on the sensor, that is integration time. It is not varying
22 exposure. It is not varying ISO. So when we look to Yu and we look to the
23 digital image sensor world that Yu is versus the exposure aperture and ISO
24 world that they are trying to set up as a straw man for you, our reference,
25 Yu, absolutely teaches on-sensor control of exposure time which is control
26 of integration time. So that's point number one.

1 This entire section provides great detail for you as background to
2 be able to understand those concepts and to be able to distinguish between
3 the sort of talismanic word that they want to throw out as exposure being
4 one thing and integration time being another. They're not. On-sensor
5 control of exposure time at an electronic shutter in the semiconductor chip is
6 control of integration time. So that's one point I want to make.

7 Second, I think Your Honors --

8 JUDGE LANEY: Let's put a fine tune, just make sure I
9 understand.

10 MR. O'BRIEN: Yes, Your Honor.

11 JUDGE LANEY: I'm going to say it in the simplest way I
12 understand. Your character-- you're saying Patent Owner is confusing the
13 issue because while exposure in one sense can just be the light that comes in
14 through a traditional kind of lens, when Yu refers to exposure, it's talking
15 about the actual light that's being received by the sensor.

16 MR. O'BRIEN: What I'm saying is that IV is trying to mislead you
17 into thinking that Yu is speaking to exposure. It is not. It is speaking to
18 control, on chip, on sensor of exposure time. Exposure time control is
19 something much more specific than exposure, which can be affected by any
20 one of a number of things. So that's a -- they're arguing against a straw man.
21 We're not making an exposure argument. We're making a on-sensor control
22 of exposure time argument based on the disclosure of Yu. And we're
23 additionally making a accumulation of charge in (INDISCERNIBLE)
24 argument with respect to Miyazaki. All of those are unambiguously control
25 of integration time.

26 So when you hear them say exposure, ask them, is that on-sensor

1 exposure time control or are you just speaking to exposure in the broad?
2 And the portion of -- the background technology teaching of the declaration
3 is very instructive on this. This is all well understood by persons in the art.
4 They're trying to exploit a word that appears in a compound construct and
5 pretend that the compound construct is merely the single word. So that's --

6 JUDGE LANEY: I want to shift -- if we could, could you shift to
7 the discussion we had about having -- determining for each sensor separate
8 -- like its own integration time?

9 MR. O'BRIEN: Yes. Let me --

10 JUDGE LANEY: The merit to the fact that each one you have to
11 determine -- you have to evaluate and decide for each of the sensors its own
12 integration time, regardless if that value is the same or different.

13 MR. O'BRIEN: Yep.

14 JUDGE LANEY: Just for the independent -- I understand
15 dependent claims require them to be different. But you have to be
16 evaluating -- and let's separate Claim 2 as far as during. We'll get to that.
17 But just the integration time, you have to determine -- find an integration
18 time for each of the sensors.

19 MR. O'BRIEN: As a backdrop for this, let me point you to Slide
20 20. Here we placed the limitation adjacent to the teaching of Matsushima.
21 And we're referring here to paragraph 24. So in each case, there is control of
22 accumulation time by each sensor. Now, Patent Owner would like to make
23 an awful lot out of each. We agree that each is important. It is not
24 talismanic as far as what it conveys to them. It appears also expressly in the
25 disclosure of Matsushima.

26 So Matsushima talks about controlling the accumulation time of

1 charge accumulated by each sensor. The parallels --

2 JUDGE LANEY: Right. But I think what Patent Owner's
3 problem with 20 -- Slide 20 when I read it so Slide 20 the part from
4 Matsushima that you put on there just for the record is the CCD 18 has a so-
5 called electronic shutter function that controls the accumulation time, shutter
6 speed of the charge accumulated by each sensor via the shutter gates closes
7 -- okay. That's all fine and good. That controls the shutter time, but it
8 doesn't tell you that it's got a controller that's determining or establishing for
9 each sensor its own accumulation time.

10 MR. O'BRIEN: Yeah. Okay. And that was the discussion that we
11 had earlier, quite exhaustively, about the role of the separate control circuits
12 through separate integration circuits, through to separate control circuits for
13 each sensor, and eventually into the integration time.

14 JUDGE LANEY: Okay. And I'd like to dive into that a little bit
15 more. Because it seems like your argument is that, hey, what skill in the art
16 see -- if skill in the art sees the different images it's taking of -- the
17 construction of this thing -- the skill in the art, their background is going to
18 establish that I'm going to create and determine separate, independent
19 accumulation times for each of these sensors is how I understand in a broad
20 stroke your argument.

21 MR. O'BRIEN: Yes. I think that is correct.

22 JUDGE LANEY: What evidence do you have that establishes or
23 strengthens your support that that is in fact the background knowledge a
24 skilled artisan would have? Because if we just look at the specification of
25 Matsushima -- I'm not saying you don't have -- I mean, I think there's some
26 good points there. But it's that gap. Why would one skill in the art know

1 that I'm going to make a determination and have a -- and determine for each
2 sensor its own accumulation time versus having a set accumulation time
3 that's applied to each of the sensors?

4 MR. O'BRIEN: Yeah. Certainly, Your Honor. So first, at the
5 outset, paragraph 134 that we've duplicated on Slide 26 is evidence of
6 exactly that. It lays out that for you. That's the discussion that we went
7 through that I think was somewhat helpful in terms of framing the issues
8 during -- when we sat earlier. But that is itself evidence.

9 Now, when the -- I'm going to do something that the other side
10 didn't. We've been discussing the actual teachings of the reference. We've
11 referred to the diagrams. The other side simply talks to you about what they
12 think they mean. I'd like to go to their slide where they speak to 34 and 24
13 and 35. And I will commend to you also paragraph 23 of Matsushima.

14 But the argument to the contrary -- I think we've articulated very
15 clearly where we get the interpretation of different integration times coming
16 from different subject luminances and the different legs of the control
17 circuit. But their argument seeks to identify a word that is used in its
18 singular form in a sentence. And we read those sentences as speaking to
19 what each control loop, each sensor is doing. They read it as what both must
20 do, must have a single one.

21 We read those sentences as -- with respect to the Channel A, that
22 charge accumulation time is controlled using an electronic shutter to reach
23 the determined shutter speed. That's describing for one of them what's done.
24 It's also describing what's done for the other. There's a reason that the
25 disclosure here in Matsushima talks about that being applicable to each
26 image sensor, just like the claim says each image sensor. That alignment is

1 stark. Now, I will also --

2 JUDGE LANEY: So take that -- I want to apply what you just
3 said. But I don't know -- so if you take -- I think you're on Patent Owner's
4 slides. So go to Slide 10.

5 MR. O'BRIEN: Okay. I was on --

6 JUDGE LANEY: And then have the actual -- huh?

7 MR. O'BRIEN: Fair enough. I'm on 10.

8 JUDGE LANEY: And then get that text on 34. And it says the
9 apertures 17A and 17B are driven via drive circuits 52A and 52B. And the
10 CCD 18A and CCD 18B charge accumulation time. So your point is when
11 it says the 18A, 18B charge accumulation time, it's saying each one has its
12 own charge accumulation time?

13 MR. O'BRIEN: Yeah. If we can just move to Slide 11, which also
14 provides that paragraph, but it provides a fuller version to the paragraph.

15 JUDGE LANEY: Okay.

16 MR. O'BRIEN: And it's actually not reshuffled. It's actually the
17 image from the spec here. I'd like to point out a couple things. One, we've
18 been discussing how we know that each leg of this circuit, each sensor
19 channel is doing its own thing. One, the sentence that they cut out on Slide
20 10 is the final one. It says, as a result, optimal exposure adjustment and
21 focusing are performed.

22 So to your points that we've been discussing, a skilled art artisan
23 would not understand it to be optimal to determine the subject luminance of
24 each channel and ignore it and institute a single integration time for both
25 legs of the circuit. So the word optimal that they cut out of the previous
26 slide is important.

1 I go to the previous sentence as well. There's an awful lot of --

2 JUDGE LANEY: Finish that point. Let me make sure I
3 understand what you're saying. When it says optimal exposure adjustment --

4 MR. O'BRIEN: Yep.

5 JUDGE LANEY: -- and focusing -- and perform simply by --

6 MR. O'BRIEN: I think the focusing is a different concept. But in
7 terms of exposure, we'd expect aperture -- go ahead.

8 JUDGE LANEY: But even on focusing, each of the sensor
9 configurations are going to have an exposure adjustment and its own
10 focusing, right?

11 MR. O'BRIEN: They are, Your Honor.

12 JUDGE LANEY: Okay. And is that your point, your point that --

13 JUDGE DANIELS: Counsel, can I --

14 JUDGE LANEY: I'm sorry.

15 MR. O'BRIEN: Go ahead, Your Honor.

16 JUDGE DANIELS: I have a follow-up question to Judge Laney's
17 line of questioning here. This is a little bit off topic, but if I take a
18 conventional SLR camera with one lens and I take a picture of -- and I take a
19 wide-angled photo and I use the automatic exposure functions to set the EV,
20 the exposure value, for a wide-angled lens, and I take a picture of the same
21 thing, just like in your one slide, and then I change it and I take a close-up, I
22 take a -- you know, I'm going to also use the -- I'm going to set a new -- I'm
23 going to ask that camera for a new EV value.

24 I think you usually do that by putting the shutters -- the shutter or
25 your actuation button down like a half step. And then that's going to set a
26 second automatic exposure or AE, as is talked about in Matsushima. And in

1 doing that, isn't a conventional digital or even analog camera going to set
2 different automatic exposure times for the same scene if you're changing the
3 focal length and everything? And does that speak to your point of having
4 these optimal -- and these be different exposure times?

5 MR. O'BRIEN: I think it does. Now, you're talking about doing
6 one and then doing another. Matsushima very clearly describes the structure
7 to do both at the same time.

8 JUDGE DANIELS: I totally agree.

9 MR. O'BRIEN: But your reasoning is correct in terms of, yes,
10 different conditions -- and, you know, I made the point with different subject
11 luminances. Because, you know, the sun is very bright. And when it's in
12 one and not in the other, that's pretty stark, right? But you're right, you
13 reasoned about it from a succession of usages of a single camera. But
14 Matsushima is about integrating that in a single camera with two imaging
15 channels which are independent, yes.

16 JUDGE DANIELS: I agree. What I was thinking of was the -- I
17 was sort -- I am certainly not a person of ordinary skill in the art, nor am I
18 trying to tell you I am. But it might -- in thinking about how optics and
19 cameras work, having grown up down the street from Kodak Park, I think
20 that a person of ordinary skill in the art would probably know that you have
21 different automatic exposures -- in particular, in digital cameras -- for
22 different focal lengths and different angles. So that's why I get your optimal
23 argument.

24 MR. O'BRIEN: Yes. I think my time is expiring. We're just -- is
25 that correct?

26 JUDGE DROESCH: Yes.

1 MR. O'BRIEN: Okay. If I can just --

2 JUDGE LANEY: I'd like to give you a little bit additional minute,
3 because I do want you to address -- whatever it is, I'll give you time to -- see
4 what you're going to give. But also, I just -- the during argument on Claim
5 2, are you -- do you just -- did he -- did Patent Owner correctly characterize
6 Yu to say that it doesn't have to be during? It can be before, as long as it
7 occurs during is that -- is what I understood their argument --

8 MR. O'BRIEN: No, he did not. And he further did not accurately
9 characterize the record. IV has never made the rolling shutter argument in
10 this proceeding. So twofold, that's incorrect.

11 The one thing I did do -- want to resonate with on Kodak, I've tried
12 to commend to you the full background disclosure discussion that was
13 performed -- prepared by our expert, Michael Guidash, who spent 25 years
14 at Kodak doing image sensor products. So you mentioned Kodak Park.

15 If you'll entertain me any longer, I'm happy to answer any further
16 questions. But I don't want to wear out my welcome.

17 JUDGE LANEY: Just on that Claim 2, you -- Petitioner doesn't
18 disagree that the control of the integration time has to be during the
19 accumulation that is for the image frame. I think this kind of goes into what
20 we talked about before. We have this term where it says Claim 2 reads the
21 device of Claim 1 wherein the processing component is further configured to
22 control the integration time of each sensor during a frame.

23 At the very, very beginning we talked about -- I guess I look at it
24 as a frame would be a still image. But even when you're getting that frame,
25 there's going to be amount of time at which you're allowing in the
26 information to create that frame. And you would agree that you're

1 controlling that integration time while you're gathering the information in
2 order to generate the frame. You understand -- I mean, so having heard
3 what I said, tell me where I'm garbling or it's confusing or that you
4 understand, and you agree or you disagree.

5 MR. O'BRIEN: I think I understand and agree. Claim 2 has a
6 additional term, during a frame. We have construed that and described what
7 that means. I think you're getting to the question of does stuff happen during
8 that period. And we have laid that out in detail. I can point you in our deck
9 -- just again, pictures are worth a thousand words. I will jump you quickly
10 to -- it's a backup, Slide 69. This shows what happens in a digital sensor
11 during the integration time. The gates are opened and closed to reset the
12 sensor and to gate out the charges that are accumulated. Yes, control occurs
13 during a frame.

14 JUDGE LANEY: Okay. I have no further questions. Thank you
15 very much for --

16 MR. O'BRIEN: Thank you.

17 JUDGE LANEY: -- answering this question.

18 JUDGE DROESCH: Thank you, Counsel.

19 MR. THEISS: Someone's very popular on Teams. May I proceed,
20 Your Honors?

21 JUDGE DROESCH: Go ahead. Thank you, Counsel.

22 MR. THEISS: Petitioner just stood up here and said that we're
23 effectively taking the Board on a wild goose chase related to exposure
24 control, that I stood up here and tried to make a false equivalence related to
25 chemical cameras and digital cameras. However, what I did when I stood up
26 here before is read specifically from the specification. And the specification

1 expressly discusses exposure control in digital cameras.

2 Quoting from the specification, at column 4 --

3 JUDGE LANEY: Exhibit?

4 MR. THEISS: Column 4, line 41, in contrast --

5 JUDGE LANEY: Exhibit -- of Exhibit?

6 MR. THEISS: Of the patent, Exhibit 1001. In contrast to
7 exposure control, which is used by conventional digital cameras to manage
8 dynamic range, the digital camera systems of an embodiment use integration
9 time control to control the time electrical signals is integrated on a charge
10 storage device, capacitance, within a sensor pixel, as described herein.

11 Then the specification goes on further to define what integration
12 control is. Integration time control, also referred to as focal plane shutter
13 control, controls the time the electrical signal is integrated or accumulated
14 by controlling a switch, e.g., charged integration switch coupled or
15 connected to the sensor or a photo detection mechanism of a sensor.

16 For example, the charge integration switch is placed in a state to
17 allow the charge to accumulate within the sensor for a period of time
18 approximately equal to the integration time corresponding to that sensor.
19 Upon completion of the integration period, the switch is placed to a state
20 transfer charge as a photo sensor.

21 But then we have a very important sentence, Your Honor. Digital
22 camera components or circuitry are configured to allow independent control
23 of the charge integration switch associated with each sensor, thereby making
24 possible dynamic range control of each sensor. Your Honor, this is what the
25 patent actually says. The inventors are clearly putting the invention in the
26 context of conventional exposure controls of digital cameras. That is --

1 JUDGE LANEY: Can you show us specifically what Yu does and
2 how it's different?

3 MR. THEISS: Which reference, Your Honor? I didn't hear the
4 beginning of your question.

5 JUDGE LANEY: Yu. I think you're (INDISCERNIBLE).

6 MR. THEISS: Yes.

7 JUDGE LANEY: If you go to Yu, how Yu is different.

8 MR. THEISS: Yes. In the case of Yu, what Yu does is Yu looks
9 at a histogram that is being generated based on a black and white sensor and
10 sees how much energy is hitting that sensor and then makes adjustments to
11 the exposure of the incident to the red, green, and blue channels, effectively
12 changing the aperture, changing filter, changing other things. It says
13 absolutely nothing about the integration control.

14 It talks about traditional, conventional exposure control
15 mechanisms that the patent expressly puts in the context of what we're not
16 doing. We are not doing conventional exposure control in digital cameras.
17 That's what the sentence expressly says. Now, I also want to return to the --

18 JUDGE LANEY: Okay. Could you point me to the best column
19 or line number that illustrates this in Yu? But what I understand Yu to be
20 saying the difference is, is that in the patent, we have our sensor and we're
21 able to -- I guess for lack of better way -- shut off when the sensor is going
22 to accumulate any more energy or any more of the light that's coming
23 through the exposure. I hate to use the word exposure. But you have the
24 sensor, you can kind of shut off the sensor when you're ready to stop it from
25 taking in any more information.

26 Whereas you're saying in Yu, there is nothing like that involved.

1 Is that fair?

2 MR. THEISS: That's a fair characterization, Your Honor. Let me
3 direct you to column 10 of Yu and appearing roughly at line 18. And this is
4 describing the Yu reference. This is Exhibit 1005. What sets the present
5 invention fundamentally apart from existing technologies is the use of the
6 black and white intensity image from the image center with a full transparent
7 filter or no filter at all. The BW image center can capture full information,
8 including details that may be missed by those of the other image sensors.
9 The intensity image from the BW sensor is then repeatedly used in the image
10 processing in the DSP chip and subsequently produces a higher quality film
11 like digital image. So what's that saying is we're going to use this black and
12 white sensor, use the measurements on that, and use the information from
13 that to change our red, green, blue channels. It's a big leap. It's a big gap.
14 It's a big optimization problem to say, well, we can change values, and
15 we're now going to change a very specific value, the integration time. It's
16 just not there. It doesn't mention the charge. It just mentions that it has a
17 charge coupled device. And as we've had a pretty lengthy conversation
18 about -- throughout the proceeding, is that the exposure is not the same thing
19 as integration time. The patent makes it very clear that conventional
20 exposure control in digital cameras is not what is being claimed here. What
21 is being claimed --

22 JUDGE LANEY: Do you think Yu has anything -- what's the
23 closest thing Yu has to an integration time?

24 JUDGE DANIELS: Hey, Counsel -- Judge Laney, I've got a
25 -- like, a more direct question that goes right along with that. Can I ask it?

26 JUDGE LANEY: Yes, please.

1 JUDGE DANIELS: I was just reading the top of column 10, the
2 first full sentence. And it talks about controlling independently each of the
3 image sensors. It says it -- in particular, that sentence says that exist -- why
4 this is different from existing digital cameras is because each of them -- and
5 I'm reading the very last two lines, 4 and 5, "while each of the image sensors
6 in the present invention can be controlled independently." That sounds
7 awfully similar.

8 MR. THEISS: Your Honor, can you direct me to where you're
9 reading? I apologize.

10 JUDGE DANIELS: Top of column 10, first full sentence in Yu.

11 MR. THEISS: It can be appreciated those skilled in the art exist
12 (INDISCERNIBLE) use one image sensor would not be -- selectively
13 control the operations of image pixel while each of the image sensors in the
14 present invention can be controlled independently, is that the sentence you're
15 --

16 JUDGE DANIELS: Yes.

17 MR. THEISS: I think that's fundamentally very different, Your
18 Honor. We again have a issue of a genus species issue here. It's that, yeah,
19 there are things that can be controlled. It doesn't say what those things are.
20 And it was Petitioner's burden to put forth that issue of that they were
21 controlling the integration control. And Petitioner even admits in their
22 grounds here that Yu does not teach integration control, and that's why they
23 bring in the additional reference.

24 And as we make very clear in our papers, there is no reason why a
25 person of ordinary skill in the art would take Yu and combine it as they've
26 applied to this multi-image sense system where you take these rapid images

1 in succession. There's no reason why a person of ordinary skill in the art at
2 the time of invention looking to solve the same patent, that same problem
3 that we were looking at in our invention here -- which is how do we improve
4 upon the resolution beyond conventional exposure control -- would have
5 made that combination.

6 So to answer your question as completely as possible, Your Honor,
7 Petitioner even admits that it's not there in Yu, in the section you just had me
8 read on column 10 because it's just not there.

9 JUDGE DANIELS: Wait, integration isn't there? The word
10 integration is what you're saying?

11 MR. THEISS: Yes, Your Honor. The integration control, as we
12 were talking about, that is the control, the focal point --

13 JUDGE DANIELS: But isn't integration shown in Matsushima?

14 MR. THEISS: Yes, Your Honor. But that is not a ground before
15 us. The ground before us is this reference, the Yu reference, in combination
16 with Miyazaki. And the other reference --

17 JUDGE DANIELS: Oh, Miyazaki. Sorry. Yep. No, I got you.
18 Got you.

19 MR. THEISS: Oh, okay. I apologize. Your Honor, yes, Miyazaki
20 teaches a system by which you can control the integration time. Yes, the
21 issue there, Your Honor, is why on earth would a person of ordinary skill in
22 the art combine these things when they have nothing to do with each other
23 and they have nothing to do with the problem being solved by our invention,
24 which is specifically that we are overcoming the limitations of conventional
25 exposure control systems.

26 JUDGE LANEY: Well, what about the fact that -- so let's go to

1 that column 10 that Judge Daniels just pointed out. Let's see if we can come
2 to the least agreement what it does say. It says, while each image sensors in
3 the present invention can be controlled independently. So let's just start with
4 the obvious. It is teaching having independently controlled sensors, right?

5 MR. THEISS: Yes, Your Honor. That is what it says.

6 JUDGE LANEY: Okay. And if we take the secondary reference,
7 Miyazaki, it teaches that in this -- in the context of capturing images,
8 integration control -- integration time is one of the things for a sensor that
9 you would want to control. I mean, what is your understanding of why
10 Miyazaki discusses integration time in the context of Miyazaki? Why do
11 they have integration time?

12 MR. THEISS: Yeah. Because the way Miyazaki is working is it's
13 working on taking large number of images in rapid succession and seeing
14 which one of the parameters that we've tweaked looks the best. So yeah,
15 you can tweak parameters to make an image look better or worse. That's not
16 in dispute.

17 JUDGE LANEY: What does the integration time purpose does it
18 serve in the Miyazaki?

19 MR. THEISS: I'm sorry, there was a beep -- there was a Teams
20 beep over you. I didn't hear your question, Your Honor. I'm sorry. Okay.
21 Can you repeat, what --

22 JUDGE LANEY: What is the function of the integration time in
23 Miyazaki? What would a skilled artisan understand the function of the
24 integration time in Miyazaki to be serving?

25 MR. THEISS: I believe it would be the same integration time that
26 is used in all digital commerce, Your Honor, is every digital camera that

1 exists has to have a integration time, yes. So the usage in Miyazaki is, yes, it
2 has a digital camera. It uses multiple layers of shuttering, a mechanical
3 shutter, and then uses a coarse -- a finer shutter to play around
4 -- dynamically change how the image is going to work when they're getting
5 that successive mosaic of images. That's what Miyazaki is doing.

6 JUDGE LANEY: Okay. So you just said that everything has
7 integration time. Integration time is something that is extremely well-known
8 to skilled artisans when it comes to this field of endeavor.

9 MR. THEISS: That's not in dispute in this case, Your Honor.

10 JUDGE LANEY: Okay.

11 MR. THEISS: What is in dispute is do the rest --

12 JUDGE LANEY: So then why wouldn't a skilled artisan, in view
13 of Yu describing image sensors that are independently controlled, not -- why
14 wouldn't they automatically be led to have independent control of integration
15 time when that's something you're saying is in everything? It's ubiquitous.

16 MR. THEISS: Your Honor, as best I understood your question,
17 every camera does need to have an integration time. What Yu is referencing
18 and Miyazaki is also -- is not referencing is how do you have multiple
19 sensors in the same camera. Miyazaki has nothing to do with that particular
20 problem. And that is specifically the problem that we're dealing with in the
21 case of the patent that we're here to talk about. On an obviousness --

22 JUDGE LANEY: Yeah. But you just -- so if I look at
23 individually, I have one camera with one sensor, I'm going to have an
24 integration time for it, right?

25 MR. THEISS: Yes, Your Honor.

26 JUDGE LANEY: And that was well-known to skilled artists,

1 right?

2 MR. THEISS: I believe so. Yes, Your Honor.

3 JUDGE LANEY: Okay. Well, now all you -- I mean, each one of
4 your plurality of sensors is basically a plurality of individual little cameras.
5 Because each one has the shutter, has the -- all the components. So it's a
6 series of individual cameras. And if you have independently control of
7 independently -- of all these independent cameras, why isn't integration time
8 necessarily going to be one of the things that you're going to independently
9 control?

10 MR. THEISS: Your Honor, I believe we have to look at what the
11 claim says. The claim doesn't have just a single independent -- two
12 independent cameras that you have, you have one centralized controlling
13 structure. And in your hypothetical, there is no centralized controlling
14 structure.

15 JUDGE LANEY: But I'm not -- right now I'm trying to understand
16 what a skilled artisan would understand. And he's not going to look at the
17 camera and say that. I mean, I'm positing for you that a skilled artisan
18 would look at each one of the plurality of sensors as being basically its own
19 individual camera.

20 And as such, a skilled artisan would understand if I'm going to
21 treat this as its own individual camera, yeah, I'm going to have some magic
22 in the back end that's going to bring it all together to form one frame or one
23 scene. But in the meantime, when I'm gathering the data, each one of these
24 is treated as an individual camera. And as part of that integration time is
25 going to be a factor I need to consider for each camera.

26 MR. THEISS: Your Honor, the best I can say to your hypothetical

1 is that that is not the grounds before us today. And the magic behind the
2 curtain that you spoke to is critically what the patent is about. It's how you
3 get that higher resolution by doing the magic behind the curtain.

4 Because the conventional systems like were -- being talking about
5 today only allowed you to control the exposure and not the integration time.
6 Because the magic behind the curtain gets much, much harder when you
7 start playing around at the integration time instead of playing around with
8 the exposure time parameters, like the aperture. I see I'm out of --

9 JUDGE LANEY: Okay. Yeah, your claims don't require any
10 coordination between the plurality of sensors however. Your claims simply
11 require you to have a plurality of sensors and a controller that can
12 independently control them. It doesn't require any coordination between
13 them. They're broader than that, aren't they?

14 MR. THEISS: Well, Your Honor, I would direct you to Claim 9
15 that says a processing component coupled to the plurality of channels, where
16 the processing component is configured to determine an integration time of
17 each of the plurality of channels. In your hypothetical, that processing
18 component would be the individual or the person, or there wouldn't be a
19 processing component because the two cameras merely just existed.

20 JUDGE LANEY: Okay.

21 MR. THEISS: I would also --

22 JUDGE LANEY: I really appreciate --

23 MR. THEISS: Can I put one point on that? Because I think Claim
24 15 also highlights the point. It's generating an image by combining the
25 captured image by the plurality of the sensors. In your hypothetical, it
26 doesn't address that very element that is the sort of the whole purpose of why

1 we're doing this, which is to generate that hyper -- that higher resolution
2 image by combining the two things at the different -- using the different
3 exposure times.

4 JUDGE LANEY: Okay.

5 MR. THEISS: Thank you.

6 JUDGE DROESCH: All right. Thank you, Counsel.

7 JUDGE LANEY: Thank you.

8 JUDGE DROESCH: All right. Counsel for both parties, thank
9 you for your presentations today. And we will be adjourned. And we'll go
10 off the record.

11 (Whereupon, the above-entitled matter went off the record at 12:52
12 p.m.)

IPR2025-00221 (Patent 11,664,889 B2)

IPR2025-00222 (Patent 9,232,158 B2)

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