

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II, LLC,
Patent Owner

IPR2025-00339
Patent 7,916,180 B2

Record of Oral Hearing
Held: April 23, 2026

BEFORE: KRISTEN L. DROESCH, SCOTT A. DANIELS, and
FREDERICK C. LANEY, Administrative Patent Judges.

IPR2025-00339,
Patent 7,916,180 B2

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The above-entitled matter came on for hearing on
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teleconference.

P R O C E E D I N G S

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JUDGE DROESCH: Good morning, everyone. We're convened for oral arguments for IPR2025-00339, challenging the patentability of numerous claims of Patent Number 7,916,180.

Just to give you a roadmap for the day today, I know we have a hearing for IPR2025-00342, we will take a break after the hearing today for the '339 case, and then we will proceed with a separate hearing for the '342 case.

I'm Judge Droesch, and joining me for this hearing remotely are Judge Laney and Judge Daniels. We'll get started with appearances for the parties, for those that are arguing today and anyone else attending. I see we have some extra folks in the back. Please identify them as well. Counsel for Petitioner, will you please make your appearances?

MR. BOWSER: Yes, Your Honor. My name's Jonathan Bowser and I'm lead Counsel for Petitioner. With me is Hong Shi. Scott Jarratt is also Counsel for Petitioner and Paul Margulies is with Tesla.

JUDGE DROESCH: Okay. Great. Thank you very much. Counsel for Patent Owner?

MR. THEISS: Brandon Theiss, lead Counsel for Patent Owner being assisted today by Ms. Heather Kim.

JUDGE DROESCH: Thank you. All right. Following

1 the hearing please make sure that the Court Reporter has accurate
2 spellings of your names as well as any other terms or references or
3 case citations that will be discussed today. Per the order regarding
4 the oral hearing, Petitioner has 60 minutes for his presentation.

5 Petitioner will make his presentation first and may
6 reserve some of its time for rebuttal. That time for rebuttal may
7 not exceed 30 minutes. Following Petitioner's initial presentation,
8 Patent Owner will make its presentation. And Patent Owner will
9 have 60 minutes, and may reserve some of its time for rebuttal, and
10 that time shall not exceed 30 minutes as well.

11 A few quick reminders before we begin. To aid in the
12 preparation of the hearing transcript, please identify your
13 demonstrative slides by the slide numbers. It also helps the judges
14 follow along while you're making your presentation. Please
15 remember that your arguments should be limited only to those that
16 have been previously presented in your briefs.

17 And please make sure that you make it clear which
18 challenges and claims you're addressing at all times. And if either
19 of the parties have any objections to opposing Counsel's
20 arguments, please wait until it's your time at the podium to note
21 any objections. Counsel for Petitioner, would you like to reserve
22 some of your time for rebuttal?

23 MR. BOWSER: Yes, Your Honor. I would like to
24 reserve 15 minutes.

25 JUDGE DROESCH: And Counsel for Patent Owner,

1 would you like to reserve any time for a rebuttal?

2 MR. THEISS: Yes, Your Honor. 20 minutes. I also
3 have a quick housekeeping question, whether or not Judge Daniels
4 and Judge Laney will be able to see the screen or not.

5 JUDGE DROESCH: Judge Daniels and Judge Laney,
6 would you answer if you are able to see the screen, the slides right
7 now?

8 JUDGE DANIELS: As always, we have a screen with
9 the party's demonstratives up on them. But if you're showing
10 them, yes, now I can see it. I can see it there as well, but I also
11 have a separate screen with them up.

12 MR. THEISS: Understood, Your Honor. But if we were
13 to move our cursor or show a different document, you would be
14 seeing that in real time as you were in the courtroom?

15 JUDGE DANIELS: We would, if it's showing just like
16 you have it now. Yes.

17 MR. THEISS: Thank you. Is that true for you as well,
18 Judge Laney?

19 JUDGE LANEY: It is.

20 MR. THEISS: Thank you.

21 JUDGE DROESCH: Thank you. All right. I'm going to
22 maintain a clock that's on the wall behind me, and there are green,
23 yellow, and red lights that should provide a warning of when
24 you're getting close to your time being up. Counsel for Petitioner,
25 you may begin your presentation when you're ready.

1 MR. BOWSER: Your Honors, may it please the board.
2 My name is Jonathan Bowser, and I'm Counsel for Petitioner. I
3 want to start with Slide 2, and I want to give you a general
4 overview of the '180 Patent. The '180 Patent is directed to a digital
5 camera. And here on Slide 2, we see Figure 4 of the '180 Patent.

6 This is what the parties have been focused on. I've
7 provided some color annotations just to help illustrate the
8 components. In green, we see four optics components. Those are
9 lenses. And in red, there's four sensor portions. And there's a one-
10 to-one correspondence.

11 And there we have -- also because there's a one-to-one
12 correspondence, there are four channels. And this will become
13 apparent when we talk about Claim 22, these are the components
14 that are here. Each channel, and it's described in the '180 Patent,
15 has a different field of view.

16 The field of view has two things. It's sort of the angular
17 width, and also the focal length, how far the camera is away from
18 the particular aspect. So using that background, I want to describe
19 digital cameras and how they operate in general. And I'm going to
20 use the '180 Patent, Figure 4 of the '180 Patent, kind of as the
21 background. All right?

22 So what happens is you have light, goes through the
23 optics components. So we're going to look at optics component
24 290A, the one on the upper left. And it travels, the light travels in
25 the channel to the sensor portion 292A, right? So what happens in

1 the sensor is that there are millions of pixels.

2 Pixels stand for a picture element. And in those pixels,
3 there's a conversion. So there's a conversion of the light, the
4 photons in the light to electrons into an electronic signal. That
5 electronic signal represents the exposure of light on that particular
6 pixel.

7 Now, as we can see in the bottom of Slide 2, and this is
8 from the '180 Patent column 17 lines 29 and 34, the '180 Patent
9 very clearly says that those pixels have to be read out. Okay? In
10 order to have an image frame, we are talking again about a digital
11 camera, in order to have an image frame, you need two parts.

12 You need the first part, which is the exposure period, and
13 then secondly, you need the readout. Now, as we can see in that
14 portion of column 17, it says, "After being exposed to light for a
15 certain period of time, which is exposure time, the pixels are read
16 out."

17 And typically, what happens is they're read out on a
18 sequential line by line basis, kind of like the way that you would
19 read words on a page. You start from left to right, you read the
20 words, you read the pixels, that every pixel is read out. And that's
21 important to keep in mind.

22 So in order to have an image frame, you have to have
23 both the exposure period, and you have to have the readout period.
24 If you don't read out the data, you won't have an image frame. So
25 I'll use an analogy here to help illustrate this. Let's say we're trying

1 to measure the amount of rainfall.

2 The first part of that is I go outside, I put a bucket, the
3 bucket collects the rainfall. In that bucket, you are accumulating
4 charges that -- sorry, that's similar to how you're accumulating
5 charges. We're collecting the rain. In the sensor, we're collecting
6 the charges. But you have to read them out.

7 And that readout process is important because when you
8 read out the signals from the pixels, it's in the form of analog data.
9 Analog data then has to be converted to digital. And I'm
10 simplifying this, but it's important, because if you don't read out
11 the data, you won't have an image.

12 I want to move to -- sorry, before I do that, just for
13 setting purposes, I'm going to talk about some terms and to keep
14 this -- so everybody can kind of keep this in mind. So the word
15 exposure period, that's the period of time that the sensors are
16 exposed. It's the same thing as an exposure time.

17 Intellectual Ventures or IV has called it an exposure
18 interval, that means the same thing. You'll also hear terms like
19 integration time. Integration time is the same thing in paragraph
20 55 of Mr. Guidash's declaration he makes this correspondence.
21 When we talk about integration, we're talking about charges
22 accumulating in the sensor. Okay?

23 And you're also going to hear the word accumulation
24 time, that's how Matsushima, one of the references describes it.
25 Same thing, they all mean the same term. So moving to Slide 3,

1 Your Honors, we can see the correspondence of --

2 JUDGE LANEY: Before you go there, I just want to
3 make sure I understand the point you just made. Your contention
4 is that a frame does not exist until it's read out of the sensors. So
5 in other words, you're saying the sensors themselves cannot
6 capture a frame?

7 MR. BOWSER: So the frame needs -- yes, to be clear
8 like a frame, the word frame, it's an image. And in order to get an
9 image, you need both the exposure period, and you need the
10 readout. If you don't read out --

11 JUDGE LANEY: Why doesn't the sensor have the
12 image? And then we're processing. In other words, if I take your
13 logic to the full extreme, I don't really have an image until it's
14 projected on my monitor or projected on some screen. I guess at
15 what point -- I mean, in order to support what you're saying, it
16 seems like you have a frame when the sensors have collected the
17 amount of energy that the processor establishes for that particular
18 pixel it's going to collect during that particular period of time.

19 Now, yes, you have to read all that out in order to
20 process it, in order to make it fit to project onto a screen. I
21 understand there's all those different steps that have to occur before
22 it's something that can be seen. But that's what I'm trying to
23 understand.

24 But doesn't the frame exist after all the sensors have
25 collected the photons that they in fact are going to collect for that

1 particular sensor, and totally for the full amount of time that all the
2 sensors are going to collect the energy?

3 MR. BOWSER: So the frame process has two parts,
4 right? What you're referring to, Your Honor, is the accumulation
5 phase, when you're accumulating the electrons in the sensor. But
6 if you don't read them out, you don't have an image frame. But to
7 your point, you're talking about post --

8 JUDGE LANEY: What --

9 MR. BOWSER: Sorry.

10 JUDGE LANEY: I guess, I'm just -- why don't you have
11 an image frame? In other words, if I take those sensor -- I mean
12 those -- it sounds like a chicken and the egg argument. I have an
13 image frame, I just haven't read them out yet.

14 MR. BOWSER: Well, you can see, Your Honor, you
15 don't really have an image frame yet because the image frame is
16 accumulation of the data for all the pixels. You have to read out
17 all the pixels. Okay. So in the semiconductor substrate, which is
18 the sensor, it is just a collection of charges. It is a collection of
19 electrons. That's all you really have. Okay? And that's --

20 JUDGE LANEY: In this particular case, it's a bunch of
21 individual ones. And so you're saying, look, a frame is all of the
22 pixels, and each little sensor is just but one pixel of the frame.
23 And so until you read it out and have all the pixels having all the
24 charges that that particular pixel's going to have, until you have
25 that accumulation or that full amount of all those, you don't

1 actually have the frame? Is that --

2 MR. BOWSER: That's correct.

3 JUDGE LANEY: Okay. Thank you.

4 MR. BOWSER: Okay. So I want to move to Slide 3,
5 just so we can show the general correspondence, so that we're all
6 on the same page here. And I've used the same annotations. So
7 I'm focusing on Claim 22 because the parties have spent the
8 overwhelming majority of their briefing on Claim 22.

9 But we can see in Claim 22, which is the method, there's
10 these optics components which I have highlighted in green. The
11 sensor portions, the sensors in red. And we've got the channels.
12 Moving to Slide 4, Your Honors, I want to focus on the only
13 limitation that's in dispute.

14 And just to be clear, there are two independent claims at
15 issue in this particular proceeding, Claims 1 and 22. Again, the
16 parties have spent the overwhelming amount of time on Claim 22.
17 Limitation 22.3 is the only limitation that's in dispute between the
18 parties.

19 And I just want to also mention that Limitation 1.2.2 of
20 Claim 1 does not have the term, during a frame. So moving to
21 Slide 5, these are the grounds. And I just want to make clear that
22 in the Petition, we've shown that Claims 22 and 1 are unpatentable
23 two different ways. Matsushima alone, and Matsushima in view of
24 Yu.

25 And we've also shown that Claim 22 is unpatentable in

1 Ground 3 under the Choi, Labaziewicz and Yu ground. So on
2 Slide 6, this is really what I believe is to be the crystallization of
3 the issue here for Ground 1. Okay? And I want to start actually at
4 the bottom of this slide, just to kind of give you some context here.

5 So the top of the slide talks about claim construction.
6 But I just want to make abundantly clear, Your Honors, that
7 Petitioner has shown that the claims are unpatentable over
8 Petitioner's construction and IV's construction. The reason that I'm
9 focusing on the claim construction issue, is because IV's
10 patentability arguments depend entirely, I mean, entirely on their
11 incorrect claim construction.

12 So if you reject IV's claim construction, they have no
13 arguments in favor of the patentability of their claims. So at a very
14 high level, what I want to talk about is what the claim construction
15 dispute is, and it's about during a frame. What does that mean?
16 And IV's construction in a real nutshell, is they want you to
17 consider only the exposure interval, only the exposure period.

18 They don't want you to consider anything that happens in
19 the readout period. I want to move to Slide 8. And here we have
20 the parties' constructions. I put the slide here so Your Honors can
21 see both parties' construction side by side. So Petitioner's
22 construction is during a frame is during a period of time when data
23 for an image is acquired.

24 We've been consistent all throughout, you can see that on
25 page 7 in the Petition. IV's construction is something different.

1 They're saying at some point between the beginning and the end of
2 the exposure interval. So again, we're focusing on this finite
3 period, the exposure interval, only that, during which an image
4 sensor captures a single image.

5 So moving to Slide 9, Your Honors there's two main
6 reasons why we have construed this particular term. And the first
7 is to kind of clear up an internal inconsistency in the '180 Patent.
8 And what I mean by that is the fact that the word frame is
9 specifically defined in the '180 Patent as a physical component.

10 So you think of the housing of the camera. But that's not
11 the way it's used in Claim 22. So we are using the -- we provided
12 a construction to kind of clear up that ambiguity. And during a
13 frame, we can see the way that Limitation 22.3 and how it's used in
14 context, independently controlling simultaneous data acquisition
15 with each of the first and second channels during a frame.

16 So during a frame is imposing a temporal requirement for
17 data acquisition. That's what during a frame refers to. During, it
18 connotes a period of time. And what are we referring to? We're
19 referring to the image frame. So moving to Slide 10, I've pointed
20 out here why Petitioner's construction is supported, first by just the
21 claim language itself. We can see --

22 JUDGE DANIELS: Mr. Bowser.

23 MR. BOWSER: Yes.

24 JUDGE DANIELS: This is Judge Daniels. When you
25 say a period of time when data for an image frame is acquired, is

1 that including both the exposure period and the readout period?

2 MR. BOWSER: Yes, Your Honor, that -- sorry, I'm
3 going in the wrong direction. That includes both, right? And I just
4 want to make clear too, to answer your question, yes, it includes
5 both, because that's how an image frame is acquired. You have to
6 have the exposure interval and you have to have the readout. So
7 during that period of time, you have both the exposure interval,
8 and you have the readout period.

9 JUDGE LANEY: But I guess the one thing that I'm
10 struggling with a little bit is, but the readout is not data acquisition,
11 is it? I mean, that's processing the data that you've acquired. And
12 the claim in its context, during a frame is specific about data
13 acquisition. And it seems as though, even the way you described
14 in our earlier discussion, the acquisition is the point in which the
15 charges are being accumulated onto the sensor.

16 That's the acquisition of data. Now, after you've
17 acquired the data, as you told me before, you have to then collect
18 that data. But you're not acquiring it anymore, you're just
19 processing it at this point. You're processing it so that you can put
20 all the pixels into where the pixels belong and do the change it
21 from analog to digital, and do this further stuff.

22 But all that additional processing is stuff you're doing to
23 the data that you've acquired. And so why doesn't the fact that in
24 the context of the claim in which it says, data acquisition during a
25 frame, why doesn't that data acquisition mean as suggested by

1 Patent Owner that it's during that period of time which those
2 sensors are collecting photons in order to collect or acquire data?

3 MR. BOWSER: So, Your Honor, the answer to that is
4 the fact that the data acquisition process includes multiple parts.
5 You have the electrical charges. Okay? That's not just the data.

6 JUDGE LANEY: Well, let me take your example that
7 you gave me before. You put that bucket out in the rain. That's
8 your data acquisition. You're trying to collect data. How much
9 rain am I collecting? Everything after that, sure, is what you do to
10 make sense of the data that you've acquired. But you're not
11 collecting any more data. You've already collected all the data
12 you're going to collect. You're going to process that data, but
13 you're not acquiring it in your hypo.

14 MR. BOWSER: So in my --

15 JUDGE LANEY: And so, it seems like what you're
16 trying to then say is, no, I put the bucket out there, I collect the
17 rain. Now when I'm doing all my calculations, to determine
18 exactly how much rain over what period of time, that's data
19 collection as well. Well, I don't know that I see it that way. It
20 seems like that's how you're making sense of the data you
21 collected, but you're not -- you're no longer collecting.

22 MR. BOWSER: So Your Honor, the data acquisition
23 process is not just the collection of the charges. Okay? To use the
24 analogy that we have, the rain bucket, each charge is effectively
25 one drop of water, right? I have to then -- because one drop of

1 water doesn't tell me anything. Just like one charge doesn't tell me
2 anything.

3 I need to read out all the pixels on that sensor. Okay?
4 That includes part of the processing that you're talking about, Your
5 Honor. Because I have to accumulate all that data. That is what
6 we talk about, data acquisition. I'm acquiring the data for the
7 image frame. I'm not acquiring --

8 JUDGE LANEY: And that's fine. So I guess, again,
9 staying with a hypothetical, sure, you put out 100 buckets, and
10 some buckets you let fill for 10 seconds, some buckets you let fill
11 for 100 seconds, some buckets different. You can have all
12 different times of which those buckets are going to collect rain.

13 I mean, for each one of those buckets, whatever time
14 you've set for that bucket to collect rain, that's the data acquisition.
15 I don't understand how then -- I guess where I'm struggling with is
16 once you start processing to put everything together, to me that's
17 processing the information, the data you've got to make more sense
18 of it. You're not actually collecting or acquiring data anymore.

19 MR. BOWSER: Well, no. See, Your Honor, I
20 respectfully disagree because the claim says, data acquisition
21 during a frame. We don't have a frame until you read it out. This
22 is talking about data acquisition, so we're talking about the entire
23 frame period. Okay, let me, if I can go to Slide 12. And this is
24 from a 1994 --

25 JUDGE LANEY: Just so you understand what I

1 understand what you're saying. Even I accept for you that a frame
2 process is both the collection of the data and the reading out the
3 data, right? Sure, the frame may be a longer period of time, which
4 is why the claim has to call out during the frame. It's saying data
5 acquisition.

6 Now, it's telling me, okay, at what point am I looking at
7 this data acquisition? Well, it's during the frame. Yes, that frame
8 could be a longer period of time, but the data acquisition is a
9 particular period within the frame. Why isn't that the appropriate
10 understanding of the claim language?

11 MR. BOWSER: Because you're talking only about the
12 exposure period, right? You're talking about when charge is
13 accumulated. That is not the whole frame process. And I will
14 show you that the frame period -- let me go to Slide 12, I think this
15 will help clear this up.

16 The word frame period, during a frame, that's what we're
17 talking about, it includes a readout. This is a well-known concept.
18 What does a frame mean? A frame means a readout. You don't
19 have a frame unless you have a readout. So when you're acquiring
20 data, you're talking about now, what I -- let me go back to Slide --

21 JUDGE LANEY: But I guess where I don't feel like
22 you're directly addressing, I'm not -- I don't know that I'm
23 quibbling so much with you about during the frame as much as
24 what I'm saying is the data acquisition during the frame doesn't
25 extend to -- I guess maybe I'm getting confused.

1 I don't believe or I'm not following the argument that
2 readout is part of data acquisition. Data acquisition is -- because
3 each one of these sensors are independent. You agree, right? As
4 far as the claims, and each one is its own independent entity?

5 MR. BOWSER: That's correct.

6 JUDGE LANEY: And so while you're correct that the
7 frame makes sense, sure. Maybe each one of these pixels or these
8 entities doesn't -- isn't very useful until you put it all together. But
9 each one is its own independent thing. And so when you're
10 collecting data for this one pixel, I just don't see how that is
11 -- anything after you've collected the photon is data acquisition.

12 MR. BOWSER: So, Your Honor --

13 JUDGE DANIELS: Mr. Bowser, can I just -- let me just
14 follow up to make sure I understand. So I was looking at your -- I
15 was looking at your -- I don't know if this is helpful to the
16 discussion, I was looking at Slide 11. And I was looking at the
17 excerpt from the patent, which is Exhibit 1001 that you have cut
18 out here in lines 19 through 24.

19 And what it's talking about here is the data from all
20 centers can be digitally combined to provide much greater
21 dynamic range as within one frame of the digital camera data. So
22 you were explaining before that the readout includes changing the
23 analog data to digital.

24 And that seems to be -- is that -- is what you said there
25 consistent with this, where it's saying that the raw camera, the raw

1 digital camera data is now stored and displayed, and that the digital
2 data is what we're talking about when we talk about a frame in this
3 paragraph?

4 MR. BOWSER: Yes, Your Honor. So the process starts.
5 Okay. So let me just to be abundantly clear, and I think this will
6 help clear it up. If you look at paragraphs 24 to 55 of Mr.
7 Guidash's declaration, he explains how all this works in the
8 technology background. You first have the electrons. Those
9 electrons are then converted into a voltage.

10 That voltage is then converted and sometimes processed
11 further. And for example, you might clean up some noise, you
12 might amplify it, and then that is then converted into digital data.
13 The data acquisition process is from the point that you accumulate
14 the electrons, all the way until you get to the digital data.

15 And we see that on Slide 11. The point is, like
16 Limitation, 22.4 makes it very clear, we're talking about the data
17 received during the frame. Data received during the frame, and
18 that is what's combined. It is not just one snapshot in time. I
19 should also say too that Your Honors, data acquisition does not say
20 acquiring the electrons or acquiring the photo electrons.

21 It says data acquisition during a frame. So during the
22 entire frame process, that's what data we're referring to. I want to
23 move -- also, just for your reference on page 16 of the Patent
24 Owner Response, even Patent Owner says that a frame is digital
25 data. So let me move to Slide 13, also, why there is the readout

1 period. Okay?

2 IV's own evidence. And just for context here, IV was
3 arguing that the rolling mode doesn't have the readout. Well, their
4 own evidence shows that frame time, so we're talking about a
5 period of time during a frame. Their own evidence shows in
6 orange that there's the readout. That is the readout time.

7 It's very clear this is how the term is used in the art. So
8 I'm going to move to Slide 14 quickly, just this highlights why
9 their construction is wrong. So first off, it excludes the readout
10 period. They are drawing this arbitrary line about the exposure
11 interval, during which an image sensor captures a signal image -- a
12 single image.

13 Well, again, we don't have an image during the exposure
14 interval. All we have are accumulated charges. So their
15 construction doesn't make sense. Let me go to the fact that the
16 '180 Patent itself, I'm on Slide 15, makes very clear, after being
17 exposed to light for a certain period of time, the pixels are read
18 out. We talked about this before. That is an imperative part of the
19 image frame process. You acquire data, which includes --

20 JUDGE LANEY: One second if you don't mind. Define
21 for me the exact point in which you have an image.

22 MR. BOWSER: In the context of a digital camera, Your
23 Honor, you have an image when you have a digital representation
24 of that image.

25 JUDGE LANEY: So when it's projected onto my

1 screen?

2 MR. BOWSER: No, it doesn't have to be projected. It's
3 just that at some point -- so basically you have an image after
4 you've converted all the analog information to digital, then you
5 have an image. All right?

6 JUDGE LANEY: Wait. So as soon as you've converted
7 all of it to digital, you now have an image? All the other
8 processing that goes into making it the image that'll be projected is
9 not -- so why is that -- I guess to me that seems more arbitrary than
10 in the context of this claim.

11 That, again, if I'm looking at this claim language in the
12 context of the claim, which is very specific about talking about the
13 independence of these independent -- of these sensors. So if I'm
14 looking at the claim, the claim is talking about the optic
15 components, it's talking about the channels to the sensors.

16 I mean, we are talking at the level of the sensors and the
17 optics. And now you're wanting to go beyond that. But then
18 you're telling me that Patent Owner is being arbitrary by saying,
19 we're just looking at the accumulation of photons when it's actually
20 when the image is created.

21 But to me, from reading all this stuff, it seems like the
22 image isn't created until a long time later. And it seems as though
23 you're happy, Petitioner is happy with us construing it to be long
24 enough to cover what they want to cover. But you're not really
25 clear to me about why it is I define the image at that point any

1 more so than at where Patent Owner defines it.

2 Unless what you're telling me is what I hear you saying
3 today is, okay, the timeframe stops at reading out the -- at readout.
4 So once you have -- so the time period would be from the point at
5 which the light is allowed through the channels. And then as soon
6 as that information is read out, that's the period?

7 MR. BOWSER: So yes. And I want to be clear too, just
8 before I answer your question, I want to be clear that -- and I will
9 show this later, that we've shown why the claims are unpatentable,
10 even under IV's construction. So we're spending a lot of time on
11 what during a frame means.

12 But let me point out too that, Your Honor, you are
13 interpreting the claim as being somehow limited to just what
14 happens in the first and second channels. Nowhere in the claim
15 does it say that. It doesn't say only in the channels. It just says
16 there's data acquisition with each of the channels. The channels
17 are part of the data acquisition process. Let me go to Slide 16.

18 JUDGE LANEY: Is that fair? What it says is,
19 independently controlling simultaneous data acquisition with each
20 of the first and second channels. I mean, I'm not -- that's what the
21 claim says. I mean, the claim is very specific about the channels
22 and data acquisition during the timeframe and in the context of
23 very specific, talking about the optic components and the channels
24 with the sensors. I mean, I don't know that that's fair to say that
25 I'm just focusing on that. I think the claim focuses on that.

1 MR. BOWSER: Well, no. See, Your Honor let me go to
2 Slide 16 and then I'm going to come back to Slide 15. So we see
3 Dr. Saber, which is IV's expert. And we asked him, "Are there any
4 other stages that are part of the data acquisition process?" We're
5 talking about data acquisition. Again, this is the same term that's
6 used in the claim.

7 And he says, "Yes, conversion from analog to digital,
8 you need that. That's part of it." And he also said that you have to
9 collect the data on those CCD arrays. CCD stands for charge
10 coupled device. Those are the arrays. That's the type of sensor
11 that's described in the '180 Patent along with Matsushima we're
12 going to talk about.

13 You have to read it out. Otherwise, what's the point of
14 collecting it? And let me go back to Slide 15, Your Honor. So
15 we're talking about data acquisition with the channels, okay? It's
16 not limited to just what happens in the channels between the optics
17 component and the sensor portion.

18 There's still, in order to get an image frame, you have to
19 read it out. Let me go, Your Honors, if I can to Slide -- well, first
20 off, Your Honor, did that answer your question?

21 JUDGE LANEY: It does and it doesn't. What you
22 pointed to me, the question is phrased a little bit interesting. And
23 I'll say it this way. Your question in the part you read says, any
24 other steps of the data acquisition process? I could understand that
25 created some confusion as it relates to claim construction. We're

1 not talking about data acquisition process. The claim does not say
2 data acquisition process. The claim says, during data acquisition.
3 I don't find those to be the same.

4 MR. BOWSER: Well, again, Your Honor, I think that if
5 you interpret it as being just only what happens in between the
6 optics component and the sensor portions, you're reading
7 limitations that are not required in the claim. The claim just says
8 data acquisition with the channels during a frame. And again, a
9 frame means, in order to have a frame, you have to convert that
10 data.

11 JUDGE LANEY: But it doesn't say you have to have a
12 frame. It just says a period of time that's defined by a frame. So
13 even if I were to give you that a frame that if I were to -- if I were
14 to use frame as my time, because it says, during a frame, so say,
15 let's for simplicity say frame is 1 to 10 seconds. I don't have to do
16 it the whole 1 to 10 seconds.

17 I'm looking at data acquisition that occurs during that 1
18 to 10 seconds. That 1 to 10 seconds can include all kinds of
19 different things. I'm just looking at data acquisition that occurs
20 during that time period. So while you may be correct that frame
21 defines a larger time period, in the context of the claim, I'm
22 looking at data acquisition that would occur during that larger
23 period of time. So data acquisition could be a shorter period of
24 time than the actual frame.

25 MR. BOWSER: Okay.

1 JUDGE LANEY: During does not mean the entire time,
2 it just means that within that scope, within that period, sometime
3 within that period, that that's when I'm concerned with. But it tells
4 me specifically what I'm concerned with, which is data acquisition.

5 MR. BOWSER: Right. But you're still acquiring data
6 with the channels during that period. Like so when it says with
7 each of the channels, it doesn't mean that the data acquisition is
8 simply limited to the only thing that happens between the optics
9 component and the sensors. Now, I will explain too, even under
10 IV's construction, I want to just kind of cut to the chase here a little
11 bit. I'm going to skip over some things, but I want to talk about --

12 JUDGE DANIELS: Mr. Bowser, let me just go back a
13 second and ask, what supports your position here you are saying is
14 that when you deposed Dr. Saber and you asked him what other
15 steps are in the data, he said that it includes conversion from
16 analog to digital. Is that correct?

17 MR. BOWSER: That's right. And I would also make
18 clear --

19 JUDGE DANIELS: And he followed up --

20 MR. BOWSER: Sorry.

21 JUDGE LANEY: But what he said, he didn't say that
22 about data acquisition. He said that the whole process includes
23 conversion.

24 MR. BOWSER: Okay. I would also just point you to
25 Mr. Guidash's supplemental declaration where he says that the data

1 acquisition includes the readout period. This is uncontested expert
2 testimony that we have. IV did not depose Mr. Guidash, did not
3 try to get at this. All you have really is attorney argument.

4 Let me if I can in the remaining time, I want to just kind
5 of briefly cover why Matsushima discloses this. So I'm going to
6 jump around here a little bit just because I only have 10 minutes
7 remaining. But what we have in Matsushima is we have this dual
8 channel system, okay?

9 And I'm first going to show you the images, it's the
10 result, and that'll help explain what's exactly going on. You have
11 two images, and the one image in the top is the wide-angle view.
12 And the one on the bottom, it's the same subject at the same time
13 because we know that from Matsushima because it says it's the
14 scaled-up image.

15 So you have two images of the same scene at the same
16 time that are required. Now, what we can see on, I'm on Slide 19
17 now, Matsushima discloses two independent imaging systems.
18 And this is how Matsushima achieves this. The subject images, if
19 you, kind of squint a little bit, sensor 18A in red and sensor 18B in
20 green, those are the sensors, CCD sensors.

21 That is what is accumulating the charge. After that, you
22 have the correlated double sampling circuit, 22A, that is
23 processing the analog signal. Then you have the analog to digital
24 conversion. Then it goes into the memory. Okay? 24A is the
25 analog to digital.

1 The point here is that each one of these circuits is driven
2 synchronously. Synchronously means at the same time,
3 simultaneous. And it's during the frame because this is the period
4 where we're trying to acquire the image. Again, what does during
5 a frame mean? It means during a period of time when an image
6 frame is acquired.

7 So I want to move to Slide 20. And this just really
8 illustrates why there's simultaneous data acquisition during a
9 frame. We see, and Figure 7 is the method that's carried out by the
10 CPU in Matsushima's digital camera. You acquire the two images
11 after the release button is fully pressed.

12 If you've ever used a DSLR camera or something like
13 that, what they're talking about here is that when you half pressed
14 it, you're kind of priming the camera, you're determining what the
15 light settings are. But when you fully press it, when you fully
16 press that camera, you obtain these images simultaneously, of the
17 same scene, at the same time.

18 Just to tie this together, in Slide 21, we have the images
19 and the structure. Again, Matsushima is capturing images at the
20 same time. So I want us -- I want to show you -- I want to next
21 turn to why Matsushima discloses independently controlling, even
22 under IV's incorrect claim construction, that during a frame has to
23 be limited to only the exposure interval.

24 But just for context, and I'm on Slide 27, Your Honors.
25 Again, we're talking about the independent imaging systems.

1 They're formed on the light receiving surfaces. We talked about
2 this. So I want to, if I can, sorry, I need to explain something. I'm
3 jumping around a little bit too much.

4 On Slide19, if Your Honors can go to please Slide 19, I
5 cover -- sorry, I did cover this. I want to cover, just make this
6 clear, that we have the timing generation, timing signal generating
7 circuit in paragraph 27, and the CPU. Those two components
8 drive the imaging system in red, and they drive the imaging system
9 in green. They drive them synchronously at the same time. And
10 the reason I'm explaining that is because I am referring --

11 JUDGE LANEY: Can I ask you, on that point real
12 quick, if you have a single signal that's driving everything, can that
13 still be independent?

14 MR. BOWSER: Well, yes, Your Honor. And I'm going
15 to explain why here real quick. Okay. So for context, this is IV's
16 argument that we don't have independently controlling during the
17 exposure interval. They theorize that this independent control
18 could occur after the exposure interval. And I'm going to explain
19 why that's not correct. Okay?

20 So we have to get in the weeds here a little bit, and I
21 apologize for this, but we have to understand how the sensors
22 operate. So in paragraph 24, this is really important, and I really
23 need to stress this. So the CCD 18A and CCD 18B, those are
24 controlled via a shutter drain. Okay? And a shutter gate.

25 And you have these shutter gate pulses. Just like the

1 sensor portions we talked about in the '180 Patent that accumulate
2 the charges, these sensor portions -- sorry, these CCDs, the
3 sensors, 18A and 18B, they are accumulating the charges.

4 These are controlled, they're controlling the accumulation
5 time. Again, we're controlling the integration time or the exposure
6 time of the charge that's accumulated. We have specific control of,
7 by each sensor. Matsushima is very clear, each sensor is
8 controlled via shutter gate pulses. You have independent control.

9 How do we know this? Let's look at Slide 30. So Slide
10 30 again for context here, I want to just say that this diagram is in
11 the background -- well, the diagram without the red annotation,
12 this diagram is in the background description of the technology
13 background of Mr. Guidash's declaration, where he's describing
14 how sensors accumulate charges with gate pulses, and that's how
15 they operate.

16 So you have, in Slide 30, you've got two controls. You
17 have the disabled signal, right? The disabled signal is controlling
18 the gate. When the gate is off, when the disabled signal is low, the
19 sensor is accumulating charges. So Judge Laney, if you're going to
20 look at data acquisition as being only the electron charges, we have
21 that.

22 We have that in Matsushima. We have the sensors 18A
23 and 18B are each independently controlled. And we also have,
24 importantly, I want to just stress this too, we have a second
25 control. We have the transfer. You see the second line, the

1 transfer is when the charges, the accumulated charges, the acquired
2 data is --

3 JUDGE LANEY: When you say the second line, which
4 one are you referring to, again, the second line?

5 MR. BOWSER: The transfer line. Transfer line, the
6 second line. So the first line is the disable. So in the first line, the
7 disable line, that is controlling the gate. And when it's off, you're
8 accumulating charges. So charges are accumulating. We're filling
9 the sensor effectively to kind of really make this very broad. And
10 then you have to release those charges.

11 So you transfer those. That's in step two. Integration
12 step, the integration time, we are controlling the sensors, you are
13 independently controlling. So if you were to consider the data
14 acquisition part as being only during what's happening between the
15 optics component and the sensor, Yu clearly teaches us that.

16 Sorry, not Yu, I apologize. Matsushima teaches that. I
17 want to also go to Slide 31. Matsushima also discloses
18 independent control in the readout period. We see paragraph 25,
19 we covered that, where the signals that are retrieved from the
20 sensors 18A and 18B, they're processed.

21 So paragraph 25 is talking about the analog processing.
22 This is still part of the data acquisition because we want to acquire
23 data for an image. Paragraph 26 that refers to the A/D converters,
24 analog to digital. That's part of the process.

25 So just to tie this all together, under both constructions

1 where Petitioner's construction, which during a frame means the
2 exposure interval, well, we don't actually say exposure interval, but
3 effectively the claim, we're saying that during a period of time in
4 which image frame is acquired, that would include both the
5 exposure interval and the readout period.

6 Matsushima discloses independent controlling during
7 both those periods. The exposure interval, look at paragraph 24, if
8 you just limit it to exposure interval, we have controlling the
9 accumulation time. We are controlling the charges that are
10 received in the sensor, that are accumulated. That is independent
11 control of the sensors.

12 We also have control during the readout period.
13 Matsushima is very clear in this. Next, in the interest of time, I
14 want to just cover real quick the Ground 3. So Ground 3 is Choi,
15 Labaziewicz, and Yu. And Patent Owner's really only argument is
16 they argue that Labaziewicz is not prior art.

17 And what they're arguing, and I'm on Slide 38, I have
18 just sort of a summary of what their arguments are. So in the
19 Petition, we showed that the '854 provisional, which is the earliest
20 provisional in the priority chain, the '180 Patent claims priority to
21 the three provisionals, and we're only referring to the earliest one.

22 It doesn't have two features that are recited in the claims.
23 First off, it doesn't have multiple sensors. And this particular
24 argument, or this particular deficiency relates only to Claim 22. It
25 also doesn't have multiple channels having different fields of view.

1 That is not contained in the '854 provisional.

2 And so, I want to cover this because IV's arguments
3 really depend on whether Labaziewicz is prior art. And I know I'm
4 going into my rebuttal time, and I'll be quick here. So first off,
5 let's look at Figure 3 of the provisional. We see there's an image
6 sensor, a single image sensor.

7 That image sensor, 210, it includes a semiconductor chip
8 having multiple arrays. So I would suggest that Your Honors also
9 go to the '180 Patent and starting in column 21. And you'll see
10 definitions for arrays, and you'll see definition for image sensor.

11 Okay? And the main difference -- and by the way, these
12 same definitions are in the '854 provisional, verbatim, identical.
13 The main difference is that an array does not include the signal
14 processing circuitry.

15 An image sensor, however, is defined to include the
16 signal processing circuitry. We asked -- so, sorry. I'm on Slide 40
17 now. The single sensor doesn't provide support for the claimed
18 multiple sensors. We have two image sensors very clearly recited
19 in Claim 22. We've identified them in red and in blue.

20 The '854 provisional has one sensor, one sensor only. It
21 has an array, but again, an array is different than an image sensor.
22 I'm going to Slide 41, we asked Dr. Saber. So for context here, we
23 put up '180 Patent Figure 7, which looks a lot like Figure 3 of the
24 '854 provisional.

25 We asked him, "Does Figure 7 provide support for Claim

1 22?" And he said, "No. For you to practice Claim 22, you would
2 need to have a first image sensor and a second image sensor." So
3 the last point I want to touch on is with respect to whether or not
4 the provisional provides support for multiple channels having
5 different fields of view.

6 And what IV has said is that, well, we have different
7 focal lengths, therefore, inherently discloses different fields of
8 view, but that's inconsistent with how the field of view is. So we
9 have Mr. Guidash, his explanation is referring to 1040, that a field
10 of view requires two things.

11 It requires a focal length, which is the distance between
12 the sensor and the image, and it also has the sensor size. Those
13 two variables are what defines a field of view. So IV's argument
14 that somehow just having different focal lengths necessarily results
15 in a different field of view, that is incorrect.

16 And in fact, their own patent contradicts themselves.
17 Look in paragraph 95 of Mr. Guidash's supplemental declaration,
18 where he quotes the '180 Patent. And it's very clear, it says, the
19 combination of the focal plane or image sensor size. So that's K,
20 the blue in the diagram above, along with the optical focal length,
21 gives you the desired field of view. You need both. And with
22 that, I will reserve the remaining time for my rebuttal. Thank you.

23 MR. THEISS: Technology is great when it works. Are
24 Your Honors ready to proceed? Brandon Theiss for the Patent
25 Owner, Intellectual Ventures. Mr. Bowser and I agree on a great

1 many things related to this patent, but there's some things we
2 fundamentally disagree on. I would like to start with Slide 13 of
3 Petitioner's demonstratives.

4 There was a spirited discussion about this Slide. On this
5 slide, Petitioner has excerpted from our Reply Brief a discussion of
6 the acquisition time and the frame time. During the discussion of
7 Mr. Bowser, there was an analogy related to a bucket collecting
8 rain.

9 Patent Owner's position is entirely what you were asking
10 Judge Laney is that the collection time is the integration time that
11 is referred to in the patent. So that is the time you are collecting
12 the data. That is the time when the bucket is open. Mr. Bowser's
13 analogy omitted one thing, is that there's a difference between
14 exposure time and the entire data collection period.

15 Because the bucket can have a lid in an optical system,
16 you can have a lens, a physical aperture that covers it. So there's
17 the period of time the cover is off, the aperture is open. Then there
18 is the period of time when the bucket is open, collecting the rain
19 drops. That on Slide 13 of Petitioner's demonstratives is illustrated
20 in blue.

21 The period of data collection stops when the rain is
22 collected, when the electrons are collected. The integration time
23 specifically is different than the exposure time because the
24 exposure time has that when I open the bucket concept.

25 But we are specifically talking about the time when the

1 bucket is open, receiving the rain, using Mr. Bowser's analogy,
2 which is shown in the blue boxes, shown there. At the end of the
3 blue box is the end of the acquisition period. I also want to go to
4 Slide -- I'm sorry. No, Your Honor, I just was saying the claim
5 covers that --

6 JUDGE LANEY: Can you repeat the question? I'm
7 sorry. I didn't hear Judge Droesch's question. Can you turn on
8 your microphone?

9 JUDGE DROESCH: Sorry. I asked if Counsel was
10 trying to say that the claim language covers the exposure time, but
11 does not cover the integration time.

12 MR. THEISS: I think you asked it slightly differently
13 before.

14 JUDGE DROESCH: Oh, okay.

15 MR. THEISS: But I understand the question and the
16 answer sort of is the same. No, Your Honor, to make it crystal
17 clear, the acquisition time is from the time period when the
18 photons start entering into the camera to the time they're collected.
19 That is what the claim language is talking about as the acquisitions
20 period, the time when the photons are being collected.

21 JUDGE DROESCH: Does the time that the photons are
22 collected, does that include the integration time or not?

23 MR. THEISS: It absolutely does --

24 JUDGE DROESCH: Okay.

25 MR. THEISS: -- because the integration time is how

1 long you're keeping that bucket open.

2 JUDGE DROESCH: Okay. Thank you.

3 MR. THEISS: Yes. Judge --

4 JUDGE DROESCH: I'm thinking mathematically, that's
5 why I'm asking that.

6 MR. THEISS: Yes. Judge Laney had said -- had given
7 an example of 10, 30 seconds, 100 seconds, and you're collecting
8 the rain being collected. Each one of those 10, 30, 100 seconds
9 would represent the integration time.

10 JUDGE DROESCH: Okay.

11 MR. THEISS: Mr. Bowser's analogy didn't really get the
12 exposure concept where you had the bucket -- you had a cover
13 over the bucket for a period of time. Which is sort of irrelevant
14 because we only really care about the time when the bucket is
15 open, collecting the data. That was just a finer point.

16 And this is consistent with Slide 16 of the
17 demonstratives, Petitioner's demonstratives, particularly the end
18 highlighted section. So obviously when you collect the data on the
19 CCD arrays, you have to read it out. Otherwise, what's the point
20 of collecting it? We've collected the data, collected and acquired
21 are synonyms.

22 I can't find a real difference that anyone would find
23 between the word collected and acquired. And Judge Laney,
24 you're absolutely correct. The question here is about the process,
25 not data acquisition. So once you've collected the data, yes, you

1 absolutely can further process it, but you already have it, you've
2 collected it.

3 And that's what's critical in this claim is that the claim
4 language itself doesn't say capturing an image, it says controlling
5 the acquisition. And that's --

6 JUDGE DANIELS: Counsel, let me ask this. So the
7 sensor catches, it gets a charge by having these photons on it. And
8 that's when you're -- that's the integration time, and that's the
9 aperture? That's the aperture being open, and that's the collection
10 time? And you're saying that those photons are now the data, the
11 acquired data?

12 MR. THEISS: Absolutely, Your Honor. Yes, 100
13 percent. Yes. With the one finite integration time is just how long
14 you're counting those number of photons. Yes.

15 JUDGE DANIELS: Right. I get the argument. Here's
16 my question. I guess, and it goes to this, or the analogy, if I'm
17 looking at a bucket of water or a sensor full of photons, how do I
18 know what I have? I just have a -- I have a bucket of water, I have
19 a sensor with charges on it. Until I do something with it, how is
20 that data?

21 It's stuff, it's photons, it's a bucket of water. But until I
22 count the water molecules, until I count how much water has fallen
23 in there by inches or centimeters, or I count the photons, how is
24 just having a bucket of photons or a bucket of water, data?

25 MR. THEISS: Very easily, Your Honor. And I

1 apologize that the best way I can answer your question is via
2 analogy. I have a friend who is a researcher who studies marine
3 ecology. She'll go out on these long expeditions and collect
4 samples. She'll collect the data of the water.

5 After three months on the water, she'll go back to her lab
6 and then process the data she has collected. No one would say that
7 the data collection period is when she first puts the bucket in the
8 water, and then it sits on the shelf for three months, and then
9 months later, one of her grad students spins it up in a centrifuge
10 and sees what microbes are hanging out in there is the data
11 collection period. Everyone would understand that the data
12 collection period is the time period when she has the buckets in the
13 water.

14 JUDGE LANEY: Yes. And that's one thing I think that
15 highlights a question I'm having. I mean, we have to stay with
16 what the claim language says, and it says controlling -- I'm going
17 to paraphrase, it says controlling acquisition. We're talking about
18 control of the process of getting the data.

19 I don't know why we're focusing on collecting -- I mean,
20 of what you do with the information after you've collected it to
21 make sense of it. Because it seems like the claim is about the
22 process you've used in order to get the information, you are later
23 going to make sense of.

24 MR. THEISS: Judge Laney, I honestly could not have
25 said it better myself. Patent Owner 100 percent agrees with what

1 you just said, and you were able to say it without resorting to an
2 analogy. Yes. We are talking about controlling the specific
3 parameters of how the data is collected, specifically modifying
4 things like the exposure time, integration time, that affect
5 fundamentally what data is collected.

6 Not the downstream processing, not anything that
7 happens after it, it's fundamentally changing how the photons are
8 coming in, how long we're looking at that period of time to see if a
9 photon -- or how many photons hit the sensor. That's
10 fundamentally what we are talking about here.

11 And that is captured in the specification itself. If I can
12 show my slide, just give me one second to project my slides. I'm
13 going to Patent Owner's Slide 8, where we're excerpting from the
14 application. The four camera channels can be operated
15 simultaneously with independent electrical control of features such
16 as integration time and frame rate in a video application to name a
17 few.

18 So Your Honors, there is a fundamental distinction that
19 Judge Laney has correctly stated, is we're controlling how the
20 photons are collected. That is what the claim is recited to. That is
21 a component in forming the image, that's not really in dispute.
22 What is in dispute is how we are collecting the data that ultimately
23 is synthesized into the image.

24 JUDGE LANEY: And to use the analogy you used
25 before, if you had 100 buckets out there, you have to have -- if you

1 have 100 buckets, you have to have 100 lids because you have to
2 be able to put one lid on after 10 seconds, another lid on after 100
3 seconds, another lid on after 50 seconds, so you can control how
4 much rain you're going to collect in each bucket.

5 MR. THEISS: Absolutely, Your Honor. Yes. That
6 would be one way of doing it. Or you could send out a grad
7 student out there after 100 seconds and go grab it. Yes, absolutely.
8 You can control it by using the lid which would be analogous to
9 controlling the aperture, the physical aperture closing the shutter.

10 Or you could do more of something that's more
11 analogous to the integration time, which would be go send out
12 your grad student after 100 seconds to go collect the bucket. Both
13 would be a manner of changing how the data was collected.

14 It wouldn't speak to how you measured it after it was
15 collected, but that data is already in the bucket, it's got its lid on,
16 it's not going to change. And that is what the claim fundamentally
17 is about. It's about the acquisition of those photons. Once the
18 photons are acquired, the acquisition period is over.

19 So Your Honors, I'd like to talk about the during a frame
20 limitation. I'm specifically looking at Patent Owner's Slide 10.
21 We are actually in very much agreement with what the during a
22 frame represents. Again, as Petitioner stood up here and showed
23 an excerpt from our reply brief on their Slide 13, we agree.

24 What is critical is while that image is being formed, an
25 image and frame are inextricably linked. You have to be

1 controlling, you have to be doing something. You have to be
2 sending out your grad student to go collect the bucket while you're
3 collecting the data.

4 And this ties very closely into the idea of a rolling
5 shutter. Now, Mr. Bowser made an analogy to words on a page,
6 and the rolling shutter is actually an interesting concept. In the
7 concept of a rolling shutter, using Mr. Bowser's analogy, you are
8 writing and reading at the same time. You're actually overriding
9 what you've previously read.

10 And what that allows you to do, is you're reading off line
11 -- the top of the line while you're writing to the bottom line, and
12 you're moving around in sort of a circular fashion. That allows
13 you to do something very cool, is you can change the integration
14 time dynamically.

15 So the integration time of the top row can be completely
16 different than the integration time of the bottom row. So under
17 everyone's construction here of during a frame, you have to be able
18 to change the integration time, the exposure time, the aperture
19 controls, something fundamental about the acquisition process
20 while the camera is open and collecting the data.

21 Now, I want to talk about the independent control aspects
22 here, specifically in the context of the dispute related to what
23 Matsushima teaches. And fundamentally what Matsushima does,
24 and Your Honors, in our previous patent with related to this, we
25 had a spirited discussion about this.

1 Well, what Matsushima does is it uses one exposure
2 value for both sensors. And then based on that exposure value,
3 calculations can be done, but it is based on one single value. That
4 is not independent control. So Counsel, Mr. Bowser, and I, as I
5 said, we agree on a great many things.

6 One of the things we fundamentally do not agree on is
7 whether the mere fact that things are synchronous means they're
8 happening simultaneously. Your Honor, those words are very
9 different. Synchronous just means they're running on the same
10 clock.

11 You very easily can have a synchronous system running
12 on the same clock, where something is triggered on the rising edge
13 of the clock, and something is triggered on the falling edge of the
14 clock. That would be an example of a synchronous system that
15 would never happen simultaneously because one's being triggered
16 on the upswing, one's being triggered on the downswing.

17 Similarly, Your Honors, you can have a clocked system
18 that is synchronous where one is running on every clock and one is
19 running on every 10th clock or seventh clock. There is nothing
20 fundamental about having a synchronous system that requires
21 simultaneously. Synchronous and simultaneously fundamentally
22 are not the same. They just aren't. And when we look at what
23 Matsushima --

24 JUDGE LANEY: Are you suggesting that a skilled
25 artisan wouldn't at least understand Matsushima to suggest that the

1 sensors are simultaneously acquiring data, and that the controller is
2 not independently controlling each of the sensors?

3 MR. THEISS: Well, Your Honor, I think there was two
4 issues in there. I think there was the independent control aspect of
5 it, and we believe that in Matsushima there is no independent
6 control such that each sensor is actually being controlled -- there's
7 one unifying control for both the sensors.

8 JUDGE LANEY: So let's start there, because I think
9 that's a point of contention for me. Because are you suggesting
10 you cannot have independent control? I think I asked Petitioner
11 this. Are you saying you don't think you can have independent
12 control, even if you use a single signal to control each one
13 independently?

14 MR. THEISS: The question as I understand it is, do I
15 think that you can have an independent control if each one is
16 receiving the same control signal?

17 JUDGE LANEY: Yes.

18 MR. THEISS: No, I don't think that's independent
19 control. It's the same control signal.

20 JUDGE LANEY: But each one is still being controlled
21 independently, even if it's using the same control signal. I guess
22 that's where -- so that's where I struggle a little bit with this
23 because even if I have -- I'm going back to our analogy. Let's say
24 bring -- I have 100 grad students. And I have a bullhorn. And I
25 say, go get my buckets.

1 And each one of those grad students goes and gets a
2 bucket. To me that's still, each one of those grad students is -- I
3 mean, that's still independent control of those buckets, despite the
4 fact that my control, I used a single signal to have each one of
5 those independently control those buckets.

6 MR. THEISS: Your Honor, I think that's a reasonable
7 interpretation. I think under either interpretation, Matsushima
8 doesn't teach what we're talking about as it relates to the patent at
9 issue here. And I want to also address the second part of your
10 question regarding the simultaneous aspect in your original
11 questions. Is that okay?

12 JUDGE LANEY: For sure. But finish with this first
13 idea. You said I think that's reasonable, but why is that -- why is it
14 -- how is that consistent with the other position you just told me
15 that a single signal's not independent control?

16 MR. THEISS: Well, because Your Honor, I believe that
17 the control there is exactly the same, that you're triggering on
18 exactly the same event. Mind you, the grad students might run a
19 little bit faster to each one of the buckets, but what's triggering and
20 what's controlling is the same.

21 Our patent is very specific to the idea that you can have
22 one integration time, one grad student being dispatched at 10
23 seconds, and one grad student being dispatched at 20 seconds. In
24 your hypothetical, that isn't possible because they would all be
25 dispatched at 10 seconds.

1 JUDGE LANEY: And you're saying Matsushima is
2 limited, such that -- I guess that's where I'm a little bit struggling
3 with Patent Owner's position is it seems --

4 MR. THEISS: Yes. Absolutely, Your Honor, but I think
5 --

6 JUDGE LANEY: -- Matsushima discloses a system that
7 allows -- or to a skilled in the art, would suggest to a skilled artisan
8 that because each one has its own separate independent structures
9 for controlling it, it's independently controlled, even if it's using a
10 CPU and other circuitry to, as you were saying earlier, synchronize
11 it, but a single signal to control. I mean, the fact that you have one
12 signal that controls the independent control, I guess is how I'm
13 seeing Matsushima.

14 MR. THEISS: Well, I think the simultaneous does some
15 work there as well. I think that a skilled artisan, and I believe Dr.
16 Saber would also agree with our position is that the independent
17 control here, it means that the controlling system can provide a
18 different integration time, exposure time, et cetera, to each one of
19 the channels.

20 If it is instructing the same value, the same exposure
21 value to both the channels, that's not independent control. And
22 that's what we see in Matsushima is that both channels are going to
23 have the same EV value. Related to this --

24 JUDGE LANEY: So yes, when I'm looking at this, so
25 here's the thing I've got, in Matsushima, you've got several

1 different sensors that all have their own structure for controlling
2 when it's the photons, how the photons are collected, and the
3 photons being extracted, or controlling the shutter and controlling
4 the receiving from the sensor, or retrieving the data from the
5 sensor.

6 So it has all its independent stuff. It's just you have a
7 single signal that's telling each one of these things to do it, to do
8 -- to collect their data. And it happens that they're telling all the
9 sensors. It just so happens that each one of the sensors is going to
10 collect data for 10 seconds.

11 MR. THEISS: That's correct, Your Honor.

12 JUDGE LANEY: But it's still independent control,
13 right? So if I send something saying, collect it for 10 seconds, the
14 fact that I'm telling every single one, collect it for 10 seconds, that
15 in of itself doesn't mean that they're not independently controlled.

16 I guess what I hear you saying is, well, until you
17 establish that it's not limited to everyone having to collect data at
18 the same 10 seconds, in other words, one could collect 20, the
19 other could collect 10, then you haven't established that it's
20 independently controlled.

21 MR. THEISS: That is Patent Owner's position. Yes,
22 Your Honor.

23 JUDGE LANEY: Okay, thank you.

24 MR. THEISS: Which I think also relates into the
25 sequential aspect of what is taught in Matsushima. Matsushima

1 expressly says that -- I'll just read from it specifically. "That the
2 accumulated signal charges are retrieved by the CCD drive pulses
3 applied by the CCD drive circuits 20A and 20B, and are
4 sequentially output from the CCD 18A and 18B as voltage
5 signals."

6 Your Honors, if we are doing things that are
7 simultaneously meaning occurring at the same time, why would
8 Matsushima then send the data sequentially? Your Honor, that
9 would be analogous to everyone queuing up at the end. So you
10 have 100 grad students, and then everyone queues up at the end, a
11 single file, to turn in their samples.

12 That isn't what our patent is entirely about. Our patent is
13 entirely about doing this, particularly in a video application where
14 synchronization is going to be critical, is to have everything
15 happening in parallel, that's why they're independent channels.

16 And Matsushima pulls in exactly the opposite direction
17 by saying that these things have to occur sequentially. And we
18 know the standards in the prior art relating to mosaic systems,
19 were that you would take the pictures with a small delta T between
20 the successive images.

21 And that is where a skilled artisan would be driven, is
22 with this teaching in Matsushima that you are going to do it
23 sequentially. You're going to take the picture sequentially, small
24 time period so that values aren't going to change dramatically.
25 You're going to move it, and read it, and process it sequentially,

1 because that's what Matsushima says.

2 We talked about the synchronous versus simultaneous. I
3 just need to reiterate this. Simultaneous means occurring at the
4 same time. Moving my right hand and then later moving my left
5 hand is not simultaneous. For it to be simultaneous, I need to be
6 flapping both hands at the same time.

7 JUDGE LANEY: For the record, could you identify the
8 paragraphs from Matsushima that you -- is it paragraphs 31? Is
9 that what you're relying heavily on or --

10 MR. THEISS: Yes. It's paragraph 23, specifically as
11 called out on Slide 19. Which the Slide 19 is excerpting from the
12 Sur-reply at 11 and 12.

13 JUDGE LANEY: Okay.

14 MR. THEISS: I would also like to touch on -- moving to
15 Slide 21. Petitioner is now trying to utilize the additional
16 references that were not part of Ground 1. Specifically, they're
17 saying that the supplemental declaration says that a POSITA
18 would've modified Matsushima sequential operations with
19 simultaneous ones by Choi and Weldy.

20 Well, Your Honors, Choi and Weldy are not part of
21 Ground 1. Their teachings are fundamentally irrelevant to this
22 because it was Petitioner's burden to lay out in the Petition the case
23 for invalidity. Ground 1 does not include these references.

24 Therefore, Your Honors should not put any weights to
25 anything that is disclosed in Choi or Weldy, because it's not the

1 ground before the Court today. Moving to Slide 23 of Patent
2 Owner's demonstratives, specifically when we're excerpting the
3 Sur-reply at page 6 through 7.

4 In the upper right-hand corner, we are showing an
5 excerpt from the Petition at page 9. And it's important, Your
6 Honor, and this is not a matter of box drawing, is that the
7 Petitioner in the petition identified specific components as
8 composing the first channel. Notably absent from Petitioner's
9 mapping, is the CDS.

10 CDS stands for correlated double sample. So in
11 correlated double sampling, you take the acquired data, and then
12 you subtract a reference signal that was acquired beforehand. The
13 reason you do correlate a double sampling is to subtract out the
14 noise that's inherent in the system.

15 Some of your CCD detectors might just pick up random
16 noise from the electronic components that are in the camera. So
17 you do CDS after the data is acquired to filter out noisy data that
18 might have accidentally been collected.

19 After the CDS is the A to D. Notably, absent from the
20 petition is identifying either the CDS or the A to D as part of the
21 first channel. Petitioner has just stood up here and has relied upon
22 things that are done by these components for their proposed
23 mapping.

24 Petitioner just stood up here and made quite a great deal
25 about the timing diagram that is shown in their expert's report.

1 That was in the technical background section. It doesn't provide
2 any citation to another reference to support this.

3 And Your Honors, I would direct you to a Xerox v.
4 Bytemark where the director afforded very little weight to a
5 situation very similar to this. And in Xerox v. Bytemark was when
6 the expert opined without any support of an inherent claim
7 limitation. It's not tied to any of the references here.

8 It doesn't connect it to Matsushima, it doesn't provide a
9 textbook, it doesn't provide any other support. It is just his
10 conjecture. And as is held in Xerox v. Bytemark, when a expert
11 opines without support, it is effectively attorney argument, which
12 comports with the Federal Circuit holding in Facebook, which
13 holds exactly the same thing.

14 Mr. Bowser talked about how we're familiar with
15 common digital cameras, and how you press a button and then
16 things happen. Well, Your Honors, that is not control. That is not
17 controlling how the individual sensors are working in that. It just
18 is not.

19 We talked quite a bit already about Matsushima teaching
20 a signal singular exposure signal, specifically as we call out in the
21 briefs, and it's called out specifically on Slide 27. We have, I'll
22 just read from paragraph 34, "For the AE control, the automatic
23 exposure control, the subject luminance EV value is determined
24 based on the integration of RGB signals in a single frame by
25 integration circuits 60A, 60B, and the aperture value and the

1 shutter speed are determined based on this EV value."

2 Your Honors, it doesn't say the respective aperture value,
3 it doesn't say the respective shutter speed. It doesn't say shutter
4 speed 112A, shutter speed 112B, it just says one value.

5 JUDGE LANEY: But it's giving each one that value.

6 MR. THEISS: Absolutely, Your Honor. And that was
7 the issue that we talked about earlier.

8 JUDGE LANEY: And that's the part -- and so that's -- I
9 guess, and maybe I'm looking at it to simplicity at some point, but
10 to me, that seems like the fact that it has to give each one the
11 shutter value, even if it's the same shutter value, it's independent
12 control.

13 MR. THEISS: Correct, Your Honor. Let's return to the
14 claim language here so I can further articulate Patent Owner's
15 position with regards to that. If we were to adopt your position
16 there, Your Honor, we could just say in the claim language 22, I
17 move back to Patent Owner Slide 2, we could say controlling
18 simultaneous data acquisition with each of the first and second
19 shuttles storing a frame.

20 That would be very consistent with your grad student
21 explanation where you sound the horn and everyone goes out and
22 runs and grabs the bucket. The term independent has to mean
23 something because it has to -- every claim term has a meaning.
24 And --

25 JUDGE LANEY: But doesn't it mean that -- doesn't it

1 mean, going back to the grad example, doesn't it mean that I have
2 to give each one of my grad students the time. Even if it's the
3 same time, I'd have to go to each one of my grad students and say
4 10 seconds. All right. 10 seconds. 10 seconds, 10 seconds. I still
5 have to send each one their own independent little message or
6 signal.

7 MR. THEISS: Your Honor, what I think is the claim
8 language is instructive here. So it says, controlling the
9 simultaneous data acquisition with each of the first and second
10 channels during a frame. So under the grad student example --

11 JUDGE LANEY: Where did you just read that from?

12 MR. THEISS: Slide 2, the claim. I just omitted the word
13 independent. It's a disputed claim element.

14 JUDGE LANEY: Okay.

15 MR. THEISS: I was just reading out the word,
16 independently.

17 JUDGE LANEY: Okay.

18 MR. THEISS: And saying that we have to control both
19 the first and second channel, so the first and second grad student.
20 So if we can tell both of those grad students the same thing, 10
21 seconds, that would meet controlling.

22 JUDGE LANEY: So maybe this is a way to highlight
23 where you can explain that my thinking is wrong. So I take your
24 point with, if you just said control simultaneous data acquisition
25 with each of the plurality of channels, that just requires during the

1 same period of time you're acquiring or within a period of common
2 time, you're acquiring the data for the multi-different channels.

3 MR. THEISS: Yes.

4 JUDGE LANEY: And then independently means each
5 one is separately doing it. But it's not just independent, it's
6 independently controlling. So I guess here's -- let's flush it out
7 what I think.

8 MR. THEISS: Mm-hm.

9 JUDGE LANEY: I guess the difference between a
10 bullhorn and a single message to each one of my grad students.

11 MR. THEISS: I think that's a great -- yes. That captures
12 the analogy perfectly. Yes.

13 JUDGE LANEY: Okay. So in Matsushima, because
14 each one are separate structures, it's not really using a bullhorn.
15 It's sending a separate independent -- a separate message to each
16 one of the structures, each one of the sensors. So why isn't that
17 independent? Why isn't that at least within the scope of what's
18 claimed?

19 MR. THEISS: Yes, Your Honor. I believe that it's not
20 sending a separate message. It's sending that same bullhorn, that
21 same sound, and both grad students are hearing the bullhorn. It
22 would be very different where one grad student was keyed on one
23 sound, and one grad student was keyed on a different sound.

24 JUDGE LANEY: But is it? I mean, because each one
25 -- I mean, you have to have a separate signal to each one of the

1 sensors, right? I mean, I understand that the information, the
2 signal is the same. But I mean, this is the struggle for me on this
3 particular issue, because it does seem like each one of those
4 sensors is getting its own signal.

5 Granted that signal may be the same, but it's still its own
6 signal, because it's a separate structure and it has a separate path
7 for that signal to travel. So that's where I'm -- if you could address
8 that, or I'm just letting you know that's where I'm struggling with.

9 MR. THEISS: Yes, Your Honor, I fully understand your
10 question and I think it's a bit philosophical. If you have the same
11 five volts going down two wires in parallel, is that a separate
12 signal or is that the same signal? I would say that is the same
13 signal, you're just reading it at two different points.

14 That we read in light of the -- in context of the patent
15 specifically, that we have the independent control, which has to
16 differentiate control. I think we have to allow that independent
17 word to mean something. And if we take just a signal, the same
18 signal going down the wire, and being heard by two different grad
19 students, I think that's one cue, that's one signal, not a honk and
20 then a different honk.

21 JUDGE LANEY: Would you agree with this statement,
22 while Matsushima might teach a system that could be used to send
23 a separate independent control signal, that is not what is taught, or
24 disclosed, or suggested by Matsushima?

25 MR. THEISS: I think that's a reasonable summation of

1 Patent Owner's position there. And to the extent that an inherency
2 argument were to be derived from that, the fact that there are
3 multiple reasonable interpretations doesn't get you to the
4 requirements under --

5 JUDGE LANEY: Right. And I don't think Petitioners
6 raised inherency, they can correct me if I'm wrong. I just want to
7 make sure that you -- I wanted to see if you agreed with that
8 statement. Okay.

9 MR. THEISS: Correct. Your Honor, just so --

10 JUDGE LANEY: So then the fight really does focus on,
11 is there sufficient evidence to establish in the way that is claimed?
12 Not whether or not it has the structure or the capability, or any of
13 that stuff. Patent Owner concedes, look, the device that's disclosed
14 has the ability, it's just nobody has suggested or teaches to operate
15 it in the way in which it's claimed.

16 MR. THEISS: Your Honor, as it relates to the
17 independent simultaneous data acquisition aspect of it, yes.

18 JUDGE LANEY: Yes. Okay.

19 MR. THEISS: However, as it relates to the during the
20 frame aspect of it, we have seen no evidence related to a control
21 that is done during the period of time that the image is being
22 acquired, that we are changing any of the collection parameters,
23 such as the aperture or the integration time, the exposure values
24 that we were talking about. In the reference --

25 JUDGE LANEY: Yes. I think they're somewhat

1 interrelated though, right? Because it seems as though, to me that's
2 the rub, right? I don't know that Patent Owner -- I don't
3 understand Patent Owner to be disputing that it could do that. But
4 what's not disclosed is each aperture being controlled
5 independently as its own entity.

6 Sure, maybe that's something somebody could have done
7 if they had thought of it. But Patent Owner's position is nobody
8 thought of it, nobody's taught it, that's where the innovation lies, or
9 the distinction lies between the prior art Matsushima in particular
10 and what's claimed.

11 MR. THEISS: I think that's true, Your Honor, as it
12 relates to Claim 1. I think Claim 22 that during a frame element is
13 still important. Is that in the reference, you set the value, you then
14 take the picture. You then set the value and take the picture.
15 There is nothing in the reference that says while you're taking the
16 picture, you start changing the values while you're taking the
17 picture. It's sequential.

18 JUDGE LANEY: Okay.

19 MR. THEISS: And the during a frame has to mean
20 something because if you delete that phrase out, you would get to
21 exactly the discussion we were having.

22 JUDGE LANEY: Well, right. I mean, if you take it out,
23 you haven't limited when you're looking at the data acquisition.

24 MR. THEISS: Controlling the data acquisition, Your
25 Honor, not just looking.

1 JUDGE LANEY: When you're controlling the data
2 acquisition. Right.

3 MR. THEISS: Yes, Your Honor. And that control word
4 is important. And it was in one of the Petitioner's demonstratives
5 as it relates to Figure 5 of the patent. So I think it's actually
6 something that's important to talk about here, is that very
7 distinction. If you give me one second to bring back up
8 Petitioner's demonstratives. Great. I apologize.

9 Oh no. Okay. I apologize. I can't seem to put my finger
10 on it. But if we look at Figure 5 of the patent Exhibit 1001,
11 specifically, it says near simultaneous, near instantly acquiring the
12 two images. I think that's an important thing for us to talk about, is
13 that there's a difference between capturing the image and
14 controlling the acquisition of the photons that we talked about.

15 So in Figure 5, it says that the images are near
16 simultaneously inquired. That's different than controlling the
17 parameters that we specifically just talked about with regard to
18 opening the bucket, accumulating the amount of rain that has
19 fallen during that time period.

20 I also want to touch on the sort of the motivation to
21 combine as it relates to Matsushima and Yu, and this idea of
22 integration time. If we look at what Matsushima says in the
23 abstract is sort of -- I'm on Slide 29 of Patent Owner's
24 demonstratives. It specifically identifies the problem that
25 Matsushima is trying to solve.

1 It's to provide a digital camera that can prevent unnatural
2 boundary regions, even when a telephoto image is combined in the
3 center of a wide captured image. And that can obtain images at
4 various magnifications using a simple configuration.

5 On the right-hand side of the slide, Your Honor, we see
6 examples of this unnatural boundary, specifically the unnatural
7 boundary coming when the left hand-side of the image is acquired
8 with one set of collection parameters.

9 And on the right side, we have -- that's the other part of
10 the image that is collected with a different set of collection
11 parameters, be it the aperture, be it the integration time. And we
12 see that we get this really unnatural boundary.

13 So why in Matsushima would we have a circumstance
14 when we're going to give the capability for the integration times to
15 be different, which results in this unnatural boundary, which does
16 not occur if the collection parameters are the same? Why would
17 you do it when the whole goal is to avoid this?

18 And if you have different collection parameters on the
19 left and different collection parameters on the right, it doesn't get
20 you there. Your Honors, I want to touch on Ground 3 just very
21 briefly. As I say, I have roughly a minute of time remaining.

22 As it relates to the support in the provisional, whether or
23 not Labaziewicz is prior art, and I believe we lay that out very well
24 in our Papers. However, Mr. Bowser said one thing that is
25 completely inaccurate. Our Ground 3 analysis is not entirely

1 predicated on Labaziewicz being not a valid prior art reference,
2 which it's not.

3 The proposed combination fundamentally does not have
4 the idea of making any adjustments during a frame. In the Yu
5 reference, you acquire an image, you generate histograms,
6 specifically you use the black and white sensor to generate a
7 histogram, and then you use that accumulated data, those
8 histograms to make modifications to the various color channels in
9 a subsequent time period.

10 That subsequent time period when you acquire the next
11 image is a new frame, it's a different frame. Our claim is very
12 specific in Claim 22, and we call this out in our Papers, this is not
13 a new argument. We've been arguing it from day one, is Ground 3,
14 even if you don't get -- support our arguments related to
15 Labaziewicz being a prior art reference, and those arguments, it
16 still does not teach the during a frame limitation, that we
17 fundamentally have to change one of the parameters related to the
18 accumulation, the collection of the rain while we're getting the
19 picture. And that isn't there in the combination in Ground 3, it's
20 not there in the combination in Ground 1.

21 JUDGE LANEY: So on Ground 3, so when you're
22 -- you're hanging your hat on during, which is not in Claim 1, so
23 you're saying that would just relate to Claim 22 not Claim 1?

24 MR. THEISS: Your Honor, specifically Ground 3 is
25 only related to Claims 22 through 28.

1 JUDGE LANEY: Okay.

2 MR. THEISS: 22, 23, 28, 30, 33. Patent Owner has --

3 JUDGE LANEY: Okay.

4 MR. THEISS: -- not alleged anything related to the
5 proposed combination under Ground 1. So I don't think any
6 inference can be drawn from any statements. We didn't respond to
7 something that wasn't before the Court. So just to sum up very
8 briefly, I see that I'm into my time here.

9 So there are multiple grounds here, and there's multiple
10 deficiencies with the Petitioner's Petition. And we have to be
11 grounded in what the Petition said. So under Ground 1, is their
12 simultaneous acquisition, when the reference clearly says
13 sequential?

14 As it relates to Claim 22, does any of the proposed
15 combinations, does it show that we're going to change any of the
16 acquisition parameters, aperture, integration time, exposure, during
17 the period while we're capturing it? Does Matsushima teach
18 independent control? Independent has to have some meaning, as
19 Judge Laney and I had quite a lengthy conversation about.

20 And then assuming we get all these things, is why on
21 earth would a person of ordinary skill in the art look to combine
22 these references to solve -- that would create a problem when you
23 combine them having different integration times on the left side
24 and the right side that generates this bad boundary when
25 Matsushima's express purpose is to not have that boundary?

1 And then finally, as it relates to the Labaziewicz
2 reference, we do submit that the provisional supports it, but it's
3 really not -- it's moot because the proposed combination still
4 doesn't even teach during a frame. Without any further questions
5 from the Board, I will reserve the remainder of my time. I see I
6 have about 17 minutes left. Thank you.

7 MR. BOWSER: Your Honors, the reason we're talking
8 about during a frame is to determine if Matsushima --

9 JUDGE LANEY: Can we turn on the microphone? I
10 can't -- is it?

11 MR. BOWSER: Sorry. Okay.

12 MR. BOWSER: Perfect. All right. Thank you. Your
13 Honors, the reason we're talking about during a frame is to
14 determine if Matsushima teaches independent control during a
15 frame. And Matsushima does teach independent control during
16 both the exposure interval and the readout process. We can look
17 on Slide 29.

18 Slide 29 is very clear that the sensors 18, again, CCD
19 18A and CCD 18B, they are each controlled by shutter gate pulses,
20 okay? The shutter gate pulses, that's the control happening during
21 the exposure period. Because during that exposure period, you
22 have to tell the sensors how long to acquire the photons.

23 This is during the exposure interval. It's very clear in
24 paragraph 24 that it says that the CCDs have a so-called electronic
25 shutter function that controls the accumulation time. Again, we're

1 talking about integration time. How much charge is accumulated
2 by each sensor. Each sensor is independently controlled. I want to
3 also kind of clarify something about what --

4 JUDGE LANEY: What does independently controlled
5 mean to you in the context of the patent at issue?

6 MR. BOWSER: Okay. So the concept of the patent at
7 issue --

8 JUDGE LANEY: Does it require, I guess -- let me pose
9 it a little bit different. Does independent control require you to be
10 able to control one differently than you're controlling the other?

11 MR. BOWSER: Yes, Your Honor, and I would direct
12 you for this argument to this concept here, to paragraphs 19 and 20
13 of our -- I'm sorry, pages 19 and 20 of our reply. And we showed
14 that -- and I just want to clarify something about the fact that
15 Patent Owner's Counsel said that there's only one common signal,
16 and that's just not the case. And we know that. Let me look to
17 -- let me find a drawing that kind of shows, helps show this. This
18 is on --

19 JUDGE LANEY: While you're looking for that, just
20 think about this question. Does Petitioner contend that the
21 accumulation time that Matsushima discloses or suggests you
22 being able to individually set that for the different sensors, and that
23 that can be individually set to different integration times?

24 MR. BOWSER: Yes, Your Honor, and paragraph -- so
25 pages 19 and 20 of our Reply explain this. And the reason why

1 you have different integration times is because you have different
2 exposure times. Look at the different images. When you have
3 different exposure -- when you have different exposures and
4 different subject luminances, you have different integration times.

5 You are controlling each sensor independently, right?
6 We are not telling each sensor to take the same image. We know
7 that from Matsushima, they're taking different images. And so
8 you're independently controlling the acquisition of the photons in
9 each sensor.

10 And that's in paragraph 24. Again, so the important point
11 to keep in mind, Patent Owner is taking a very narrow
12 interpretation of this common exposure time as if the imaging
13 system in red and the imaging system in blue get the same signal.
14 That's not supported by Matsushima.

15 Because when you have different fields of view, and you
16 have different subject luminance, you have -- then you have
17 different integration times. And when you have different
18 integration times, you have different control. And let me look
19 again on Slide 29.

20 It says very clearly that the shutters -- there's a shutter
21 function that controls the accumulation time of each sensor. We're
22 not talking about one shutter control signal for both sensors, we're
23 talking about controlling each sensor differently. And I want to
24 point out too, just to reiterate this, on Slide 30, Your Honors.

25 So there's two points here. Number one, IV has

1 contended that this is some sort of made-up theory by the expert.
2 If you go back and look at Mr. Guidash's declaration, paragraphs
3 25 to 58 -- I'm sorry, 55 or 53 -- sorry, 24 to 52, where this original
4 diagram is, every single paragraph in that declaration is supported
5 by evidence.

6 Every single paragraph. In paragraph 53, Mr. Guidash,
7 just explained in layman's terms how sensors are controlled for the
8 integration and accumulation time. IV's Counsel made a big deal
9 about how that unsupported expert testimony is not entitled to any
10 weight. Well, that's just simply not supported by the record.

11 If you go back, you look, and Mr. Guidash's every
12 explanation is supported by evidence. I want to point out too just
13 also -- just to make abundantly clear here, even under IV's
14 construction, when you have during a frame and data acquisition
15 limited to just the exposure interval, look at the exposure interval.
16 That's section two.

17 That is the integration interval or integration time, excuse
18 me. You have independent control of the sensors. You are
19 collecting, you're telling the sensor, collect photons. And then
20 you're also telling the sensor to transfer at the end of the collection
21 period, transfer those photons -- sorry, not photons, transfer those
22 electrons so they can be turned into an image frame. Mm-hm.

23 JUDGE LANEY: Can you address the point about the
24 sequentially versus simultaneously?

25 MR. BOWSER: Yes, I will.

1 JUDGE DROESCH: I'm sorry, I didn't turn on my
2 microphone. I'm going to ask my question first. Going back to
3 Slide 29 --

4 MR. BOWSER: Okay.

5 JUDGE DROESCH: I recall Patent Owner was making
6 an argument that -- so this is probably interrelated with their
7 argument about during a frame, but the independent control you
8 have highlighted in this figure on Slide 29, the CDS and the analog
9 to digital, doesn't that go back to the argument about the reading
10 out that the -- so this figure would seem to show that it's also
11 controlling the reading out. Are you relying on the reading out of
12 the data from the sensors for the independent control?

13 MR. BOWSER: Well, Your Honor, just to be clear,
14 paragraph 24 says the CCDs, those are the sensors. The sensors
15 are what is acquiring the electron charge.

16 JUDGE DROESCH: Okay. I guess I'm just trying to
17 figure out why you have highlighted the CDS and the analog to
18 digital converter in the figure that's on Slide 29.

19 MR. BOWSER: Oh, so that is just showing the different
20 imaging systems. We're just trying to make it clear that you have
21 the imaging system, the first imaging system in red, and the second
22 imaging system in green. And those are independently controlled.
23 We're controlling the sensors again via the shutter gate pulses.

24 And effectively what those signals are, those control
25 signals, and there are independent control signals for each sensor.

1 And because, again, you're taking different images, those different
2 images have different subject luminance. And those different
3 images have different exposures. So you necessarily have to have
4 a different control. Let me address quickly --

5 JUDGE LANEY: Before you do that, before you leave
6 this figure, can you explain what 28 is and how it works? The
7 purple, the TG.

8 MR. BOWSER: Oh, okay.

9 JUDGE LANEY: (CROSSTALK) from 30.

10 MR. BOWSER: The timing generator, that is sending
11 the signal to keep everything working synchronously. Okay. At
12 the same time. Just making sure -- because let's look at -- sorry,
13 what slide do I have that on? Slide 19, Your Honors. So let's look
14 at what paragraph 27 says.

15 Each circuit. So we're talking about the imaging, the
16 circuits in the first imaging system in red, and we're talking about
17 the imaging systems in green. Those are driven synchronously.
18 So the timing signal is what's sending this. But we see separate,
19 also separate control paths.

20 There's a control path, there's a separate control path that
21 goes to the CCD drive circuit. Again, the 20A, which is what's
22 driving the sensor 18A. Same thing with the sensor 18B, is being
23 separately controlled. So if I can quickly touch on the sequential
24 point.

25 Now, this is a case where IV has completely interpreted

1 this just out of context, right? This concept about sequentially
2 output. Let me go back and I'm sorry, if you could see here, let me
3 just for context here, let me go to Slide 2. This is what we're
4 talking about.

5 After being exposed to light for certain periods of time,
6 the pixels are read out on a sequential line by line basis. We are
7 talking about the sequential line readout period. Okay? Let me go
8 back to paragraph 23 of Matsushima. It's almost like they did a
9 word search and found the word sequentially and said, oh, well
10 that just means that we're sequentially outputting this.

11 That's just not the case because you are obtaining the
12 same -- sorry. The two images of the same scene at the same time.
13 I want to briefly touch on too about Matsushima and Yu and why
14 IV is saying that that can't be combined. This is a fiction that IV
15 created.

16 They relied on this reference, this other reference that
17 said that there's difficulties creating when you have different
18 exposure times. And that you're going to have this imaging
19 problem. Well, Matsushima alone solves this.

20 Matsushima explains that when you combine these two
21 images, and again, we have different exposures with Matsushima,
22 it uses this combination technique where you are removing the
23 boundaries, you have correction data. So this fiction that they're
24 creating is incorrect.

25 And the last point I want to raise is also about how IV's

1 Counsel said that the combination doesn't result in it because Yu
2 doesn't teach during a frame. So IV is arguing against the
3 combination that just simply wasn't presented in the Petition. So
4 what I have on the left is what's in Choi.

5 So this is the modification of Choi. What I've
6 highlighted is that during a frame aspect, the mapping there all
7 refers to Choi. IV's arguments are not about Choi, IV's arguments
8 are about Yu. They're arguing about a combination that is not
9 presented in the petition. And I feel like I'm over my time.

10 JUDGE DROESCH: You are.

11 MR. BOWSER: Can I answer any questions for Your
12 Honors?

13 JUDGE DROESCH: I don't believe there's any
14 questions. Thank you, Counsel.

15 MR. THEISS: Your Honors, I intend to be rather brief
16 with my rebuttal here because I think we've crystallized a great
17 deal what the dispute is about. I'm showing currently on the screen
18 paragraph 53 of Exhibit 1003. Your Honors, there's no citation. It
19 says the -- let me just read the paragraph completely.

20 "When a photo diode is disabled from collecting light,
21 photo electronics are still created from incident light, but they're
22 continuously drained from the photo diode to a power supply in
23 connection in the pixel. Such periods do not affect the imaging
24 result and are not considered part of the integration exposure
25 shutter."

1 This is shown in the figure that I've created below.
2 There's no citation, Your Honor. And we can look at the
3 paragraphs that proceed it, they do not relate to this overlapping
4 time period. I believe Counsel said between 50 and 54, they don't
5 relate to that overlapping time period, which is specifically critical
6 to the excerpt that appears in later on related to that timing diagram
7 in the bottom, Your Honors. So there's no citation for that.

8 Now I just wanted to turn briefly to Petitioner's Slide 29.
9 Give me one second to get there. Yes, there we go. Your Honors
10 had asked about the timing generation 28. We're actually in
11 agreement with what Mr. Bowser said as related to what TG 28 is.
12 That is where the clock is generated.

13 It's no different than any crystal system that is in any
14 digital system. You need to have a clock that allows things to
15 operate, that allows for the synchronization. But as we said before,
16 the fact that things are synchronized does not mean they occur
17 simultaneously.

18 I also wanted to touch on the allegation that we are
19 making a false argument here. And that in Matsushima, you have
20 different integration times, Your Honors. We maintain that the
21 way Matsushima solves the issue of the boundary problem is you
22 use the same EV value. It's the same, so you don't have the
23 boundary. That's why it's not there.

24 JUDGE LANEY: Can you explain that a little bit more?

25 MR. THEISS: Yes, Your Honor.

1 JUDGE LANEY: And when you're doing that, also, I'm
2 just looking at Figure 21. Because it does look like in Matsushima
3 that you have one sensor that's focused on a different scene than
4 the other one. 62A is different than 62B, one's more focused, the
5 other one's wider.

6 So it does seem to suggest that you are having separate
7 controls, separate integration times, that you are -- these sensors
8 are being independently controlled. And I just want you to -- I'm
9 explaining what I think this supports and I want you to explain to
10 me why you do not agree.

11 MR. THEISS: Yes, Your Honor. Because they are
12 fundamentally imaging the same scene. There's no dispute that is
13 that Matsushima in the center has a telephoto lens, in the wide, it
14 has a wider-angle lens. Not really a point that's in much dispute.

15 The illumination is going to be the same across the two
16 because it is the same scene. And we're going to make them look
17 the same to avoid the boundary issue by setting our exposure
18 values to be the same, such that you don't have the boundary.

19 JUDGE LANEY: And the exposure value is the EV you
20 referenced earlier?

21 MR. THEISS: Yes, Your Honor.

22 JUDGE LANEY: When the one that the focal points, for
23 example, 62A, because you have the sun there and, in the view,
24 and then 62B, you're more focused on the person, you won't have
25 as much of that light sun energy coming in. Wouldn't that

1 necessarily suggest you're controlling the sensors to accumulate
2 differently?

3 MR. THEISS: To accomplish the same EV value, Your
4 Honor. What's the critical value here is they're getting one
5 command. It's the one EV value that is being set globally. It's not
6 an EV value that's being set and controlled independently. I did
7 want to just address the slide that I could not conjure during my
8 case in chief, which is Slide 51 of Petitioner's demonstratives.

9 There we go. Specifically, box 508. I'll read the box in
10 its entirety. So this is excerpted from our patent at Figure 5.
11 "Capturing the image using the second camera channel where in
12 the image of the second camera channel has a second field of view
13 and is captured approximately simultaneously with the image of
14 the first camera channel."

15 There's no inconsistency, Your Honor, in what we are
16 maintaining. The claim is not about the image, it's about the
17 collection of the data that ultimately will be combined to form the
18 image. There's no inconsistency with regard to Figure 5 or its
19 resulted -- or its corresponding description in Figure 5.

20 Fundamentally what we have here in both Claim 21 and
21 22 is we have to control the acquisition of the data, the rain filling
22 the bucket. The claim is not speaking to what happens after the
23 bucket is acquired, once the grad student has collected it, how they
24 spin up and test the water, that's not in the claim.

25 The claim is specifically about how long we let the

1 bucket be open, and how we control. Do we send a grad student
2 out there or do we cover it with a cover? That's what the claim is
3 about. And Claim 22 adds this idea that we're going to have grad
4 students running in and out of the field while we're -- during our
5 data collection period.

6 We have now constantly grad students running in and out
7 during that one hour that we are collecting the data. That's
8 specifically in 22, and that captures the during a frame concept,
9 which both Patent Owner and Petitioner agree is the time period
10 when the image is acquired. And Patent --

11 JUDGE LANEY: Does Patent Owner believe
12 approximately simultaneously is different than simultaneously?

13 MR. THEISS: It is Patent Owner's position that the
14 specification does make a contrast between simultaneous and near
15 simultaneous. Yes, Your Honor. We would maintain that
16 simultaneous specifically requires both things to be happening at
17 the same time. In the other related IPR on the '158, we had a great
18 example of what near simultaneously was.

19 And this was discussed in the deposition was the
20 Miyazaki reference. In the Miyazaki reference, the pictures were
21 taken in very quick succession. That would be an example of near
22 simultaneously. There was a fraction of a second difference
23 between frame one and frame two as taught in Miyazaki and
24 discussed in the expert declaration, and specifically in his
25 deposition.

1 That would be an example of near simultaneously.
2 They're really close in time, but there is no overlapping period. It
3 is Patent Owner's position that simultaneously means at the same
4 time. Brandon's moving both of his hands at the same time. If
5 Brandon moves his right hand, and then moves his left hand, that is
6 not simultaneously. And without that, does the Board have any
7 further questions?

8 JUDGE DROESCH: Doesn't look like there's any
9 additional questions. Thank you.

10 MR. THEISS: Thank you.

11 JUDGE DROESCH: Thank you, Counsel, for your
12 presentations today. We'll be adjourned and we'll go off the
13 record.

14 (Whereupon, the above-entitled matter went off the
15 record at 12:51 p.m.)

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