

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TESLA, INC., :
:
Petitioner, :
:
v. : Case No.
: IPR2025-00339
INTELLECTUAL VENTURES II, :
LLC, :
:
Patent Owner. :
:
- - - - - X

December 8, 2025
10:00 a.m. EST

Deposition of ELI SABER, Ph.D., held via
remote videoconference and taken stenographically
by Misty Klapper, Registered Merit Reporter,
Certified Shorthand Reporter, Registered
Professional Reporter, Realtime Systems
Administrator and Notary Public.

1 APPEARANCES:

2 ALL APPEARANCES BY REMOTE VIDEOCONFERENCE

3 ON BEHALF OF PETITIONER:

4 HONG SHI, ESQUIRE

DAVID W. O'BRIEN, ESQUIRE

5 HAYNES AND BOONE, LLP

98 San Jacinto Boulevard, Suite 1500

6 Austin, Texas 78701

(512) 867-8400

7 E-mail: hong.shi@haynesboone.com

david.obrien@haynesboon.com

8 JONATHAN R. BOWSER, ESQUIRE

9 HAYNES AND BOONE, LLP

10 888 16th Street, N.W., Suite 300

Washington, D.C. 20006

11 (202) 654-4500

E-mail: jonathan.bowser@haynesboone.com

12
13 ON BEHALF OF PATENT OWNER:

14 BRANDON R. THEISS, ESQUIRE

VOLPE KOENIG

15 30 South 17th Street, Suite 1800

Philadelphia, Pennsylvania 19103

16 (215) 568-6400

E-mail: btheiss@vklaw.com

P R O C E E D I N G S

ELI SABER, Ph.D.,

The witness herein, called for examination by the Petitioner, having been duly sworn, was examined and testified as follows:

EXAMINATION BY COUNSEL FOR PETITIONER

BY MS. SHI:

Q. Dr. Saber, so just a couple of questions for housekeeping. Let's see.

Do you have the Box link we sent you that include the exhibits that we will use today?

A. Yes, I have a Box link and at this time it includes three exhibits.

Q. Can you read the exhibit numbers?

A. Exhibit 1001, Exhibit 2020 and Exhibit 1047.

Q. Do you have with you any documents?

A. Counsel has sent a binder with all the exhibits. And I have with me -- I have not pulled them up, but I have with me a binder of my declaration and obviously the patent and all the

1 exhibits that are in question in this case.

2 Q. Are they clean copies?

3 A. Yes, they're clean copies. They were
4 sent by counsel. I think they arrived on
5 Saturday.

6 Q. And do you understand that the oath
7 you just took requires you to answer truthfully
8 and completely?

9 A. Yes, I do.

10 Q. And you will answer truthfully and
11 completely today, right?

12 A. Of course.

13 Q. Is there any reason that you cannot
14 provide truthful, complete and accurate testimony
15 today?

16 A. No, there is not.

17 Q. Is there any other reason why your
18 deposition should not go forward today?

19 A. Not that I know of. I'm looking
20 forward to it.

21 Q. Okay. So could you please open your
22 declaration, which is Exhibit 2020.

1 (Thereupon, Exhibit 2020,
2 previously marked, was referred to.)

3 THE WITNESS: So I have downloaded
4 the exhibits and I will open them both
5 online -- or in front of me and obviously
6 in hard copy format as needed.

7 What page would you like me to go
8 to?

9 BY MS. SHI:

10 Q. So I will refer to Exhibit 2020 as
11 your declaration for the '180 IPR.

12 Will that work?

13 A. That works very well, thank you.

14 Q. Is there any error in your
15 declaration that you would like to correct?

16 A. I noticed a couple of minor typos,
17 but nothing major, a couple of -- I think a minor
18 typo in a footnote --

19 Q. So --

20 A. -- on page -- one second.

21 On page 18 of my declaration there is
22 a minor typo in the footnote. It should say

1 Exhibit 2008, footnote 2. Page 18, footnote 2
2 should say Exhibit 2008. And page 44, just below
3 the figure -- the figure says Figure 4, but the
4 citation says Figure 3. It should say Figure 4.
5 Those are the only two typos that I noticed.

6 Q. Let's go to paragraph 60. Let me
7 know when you're there.

8 A. I am there.

9 Q. Could you read the second statement
10 of paragraph 60.

11 A. Well, paragraph 60 reads, I
12 understand that claim language is not read in
13 isolation; rather, the claim language, when read
14 in light of the specification and the prosecution
15 history, elucidates the meaning of the claim
16 language.

17 Q. Did you consider the specification of
18 '180 patent when reading the claim language?

19 A. Of course I did.

20 Q. Did you consider the prosecution
21 history?

22 A. Yes, I did.

1 Q. What prosecution history documents
2 that you considered when you considering the
3 claims?

4 A. The ones that are cited in my
5 declaration. And so if you go to page 1 and 2 of
6 my declaration, the documents are -- the exhibits
7 are cited there as what I considered. And I
8 think there is a list exactly of them in the POR.

9 Q. Did you consider those files in
10 prosecution history in their entirety when
11 considering the claim language?

12 A. Yes, I've -- I've looked at the
13 prosecution history when -- when I'm looking at
14 the claim language.

15 Q. So in this claim construction section
16 of your declaration, what claims are you
17 construing?

18 A. Well, I'm responding to the petition
19 for the claims that were challenged in the
20 petition.

21 Q. What are the specific claim languages
22 that you're construing?

1 A. You mean on -- I guess I don't
2 understand your question.

3 Q. Okay. So --

4 A. I mean, on -- on paragraph 60 I'm
5 responding to the claims that were challenged in
6 the petition.

7 Q. So for Section VII.A, you are
8 construing the term "simultaneous data
9 acquisition" with each of the plurality of
10 channels; is that right?

11 A. That is correct, yes.

12 Q. And for Section VII.B of your
13 declaration, you're construing the term "during a
14 frame" of claim 22; is that correct?

15 A. That is correct.

16 Q. And in Section VII.C, you're
17 construing the term "independently controlling
18 simultaneous data acquisition ... during a frame"
19 of claim 22; is that right?

20 A. That is correct.

21 Q. In addition to these terms, do you
22 construe any other terms?

1 A. Not to my knowledge, off the top of
2 my head. Those are the ones that are listed in
3 that section.

4 Q. Is it correct that it's your opinion
5 that all other claim languages do not need
6 construction?

7 A. Yes. I've applied plain and ordinary
8 meaning to the claim language in light of the
9 specification. And the ones that you have listed
10 here is the ones I've articulated more in detail,
11 given -- you know, as responding to the petition.

12 Q. Can we go to paragraph 63.

13 A. Yes.

14 Q. Can you read the first sentence of
15 paragraph 63.

16 A. A person of ordinary skill would also
17 have understood that the subject claim language
18 is not met when the image -- where image capture
19 with a plurality of channels is nearly
20 simultaneous, i.e., close in time, but not
21 actually simultaneous, i.e., at the same time.

22 Q. When you referred to nearly

1 simultaneous, what specific amount of time are
2 you referring to?

3 A. I don't understand your question.

4 Q. How do you define nearly?

5 A. Nearly simultaneous, close to
6 simultaneous, close in time.

7 Q. How close is nearly?

8 A. Well, I mean, close in time, like,
9 you know, maybe -- I mean, kind of like -- I
10 think in the previous proceeding that we were
11 talking about, you had a -- a reference that was
12 Miyazaki. It had images that are, essentially,
13 close in time by delta T.

14 So that would be nearly simultaneous.
15 They're close in time. There's some time
16 instance between them. They're not at the same
17 time.

18 Q. Do you agree that "nearly" is a term
19 of degree?

20 A. I don't understand what you mean by
21 term of degree.

22 Q. Could you point me to the

1 specification of one zero where it has
2 description that informs the boundary of nearly?

3 A. I don't know what you mean by one
4 zero.

5 Q. Oh, '180 patent. Sorry.

6 A. Yes, what about it?

7 Q. Could you point me to the description
8 in the specification of '180 that informs the
9 boundary of nearly?

10 A. I mean, there are disclosures in the
11 '180 about -- for instance, if you look at
12 column 3, line 28, you see where it says includes
13 simultaneous or nearly simultaneous use. So it
14 clearly delineates simultaneous different from
15 nearly simultaneous.

16 It says the same thing on column 8,
17 line 64. So nearly simultaneous is not the same
18 as simultaneous.

19 Q. Other than the description that
20 informs that nearly simultaneous is different
21 from simultaneous, any other description in the
22 '180 that helped to understand the boundary of

1 nearly?

2 A. Well, obviously, I mean, you're
3 reading the entire specification, so you have an
4 understanding of what the inventors are talking
5 about in the specification. It's not just one
6 line somewhere.

7 Q. So what measurement unit would be
8 related to nearly simultaneous?

9 A. Well, in this case it would be, you
10 know, a time. Time would be the unit, generally
11 speaking.

12 Q. So when you mention nearly, are you
13 referring to a difference of several minutes of
14 the time?

15 A. Well, I mean, the difference could be
16 several minutes, could be several seconds, could
17 be milliseconds. It depends on the context. The
18 point is nearly simultaneous is close in time.
19 It's not the same as simultaneous, which is at
20 the same time.

21 Q. So if the difference is several
22 nanoseconds, it is also nearly; is that right?

1 A. Well, the point is it's --
2 simultaneous is at the same time. If I said to
3 you I'm moving my right hand and my left hand
4 simultaneously, that means I'm moving them both
5 at the same time, versus nearly simultaneous,
6 where I may move my right hand and a few
7 milliseconds or later I move my left hand. I
8 don't think I can move in a nanosecond world,
9 but -- so it's -- the point is simultaneous is at
10 the same time of whatever something is happening.

11 Q. You said you don't think you can move
12 in the nanosecond world; is that right?

13 A. I mean my hands. I can't move my
14 hands in a nanosecond world.

15 Q. So is that right, that in the context
16 of the example of you moving your hands nearly
17 simultaneously, it excludes moving two hands
18 within a difference of several nanoseconds?

19 A. Simultaneously means you're moving
20 them at the same time. Anything outside of
21 that -- if I'm moving one, then the other, but
22 very close in time, not one today and tomorrow

1 I'm moving the other one, so I'm moving one very
2 closely in time, delta T, I'm moving the other,
3 that would be near simultaneous, versus
4 simultaneous, I'm moving them at the same time.

5 Q. Is it correct that simultaneous means
6 delta equals zero?

7 A. They're -- they're moving at the same
8 time, within the same time interval that you're
9 talking about for whatever that you are doing.

10 Q. So are you saying moving within the
11 same time interval for whatever that you are
12 doing, then it's simultaneous?

13 A. At the same time. As long as you're
14 moving them at the same time, you're moving them
15 simultaneously in the context of what we are
16 talking about here in this particular
17 application.

18 Q. Do you remember you used delta T to
19 explain nearly?

20 A. Well, I used it as an example, yes.

21 Q. Is there any restriction on the value
22 of T, of delta T, for it to be nearly

1 simultaneously or simultaneously?

2 A. Simultaneous is at the same time. So
3 as long as you're moving whatever items that you
4 are moving at the same -- in the same time
5 interval, at the same time, they're simultaneous.

6 I mean, I don't know. I keep giving
7 you the same answer and you keep asking me the
8 same question. And I believe I've answered that
9 question multiple times now.

10 Simultaneous, at the same time.

11 Q. If delta T is zero, is that
12 simultaneous?

13 A. I would -- we would have to look at
14 the application to see what you're talking about.
15 You know, delta Ts of zeros are philosophical.
16 But if you're moving something simultaneously,
17 you're moving it at the same time.

18 Q. So you cannot give a range of delta T
19 for defining what nearly is; is that right?

20 A. I believe I've defined nearly for you
21 very well as close in time versus simultaneous
22 being at the same time. So as long as I'm moving

1 element A and element B at the same time, that
2 would be simultaneous.

3 If I move element A and X time later
4 I move element B, that would be nearly
5 simultaneous. They're close in time, not at the
6 same time.

7 Q. How do you define close?

8 A. Close in time with the application
9 that you're talking about here.

10 Q. How do you define close in time?

11 A. Just what I said, close in time.
12 They're close in time. They're not at the same
13 time.

14 Q. When you refer to simultaneous, what
15 is the minimum time difference that you would
16 still consider simultaneous?

17 A. I don't understand what you mean.

18 Q. If the time difference of two events
19 is several nanoseconds, would you consider that
20 simultaneous?

21 A. Simultaneous means at the same time.
22 So as long as event A and event B are happening

1 at the same time within practical engineering
2 applications as we are discussing here in this
3 '180, then it's simultaneous, at the same time,
4 just like the claims here call for.

5 Q. What do you mean by at the same time
6 within practical engineering applications?

7 A. Well, I mean, within -- within
8 practical, you know -- you know, nothing can
9 move, for instance, in one, you know, nanosecond
10 or picosecond. You know, things -- depending on
11 the application that you're at, things have
12 different time intervals that they're moving.
13 Some things don't move as quickly as others.
14 Cars don't move in nanoseconds.

15 So simultaneous would be two events
16 are happening at the same time, as close in time
17 as engineeringly possible, in a sense, as
18 practical and as we're talking about in this
19 application for the -- for the camera systems
20 that we're talking about.

21 Q. So what is the practical time
22 difference to be considered at the same time

1 within practical engineering applications in the
2 context of '180 patent?

3 A. At the same time. They're
4 simultaneously moving. I'm capturing image alpha
5 and I'm capturing image beta at the same time.

6 Q. What components of the digital
7 camera, according to '180 patent, are required to
8 perform simultaneous data acquisition?

9 A. Well, that's discussed in the claims,
10 for instance, claim 1 and claim 22, which I'm
11 sure we'll be talking about quite a bit today.
12 But those are discussed in the claims.

13 Q. Which component of the claim are you
14 referring to?

15 A. Well, if you look at, for instance --
16 if you look, for instance, at claim 1, you see
17 the word -- let me call it 1B. So 1A would be a
18 plurality of channels. 1B would be a processing
19 component.

20 So if you look at 1B, you see -- I'm
21 looking at column 24, line, roughly, 14, you
22 see -- or let's say 12 through 15.

1 Do you see where it says, a
2 processing component coupled to the plurality of
3 channels? That processing component that you
4 just called a processing component -- that the
5 antecedent basis is there -- configured to
6 independently control simultaneous data
7 acquisition with each of the plurality of
8 channels. So the simultaneous data acquisition
9 is happening with the plurality of channels.

10 Q. What techniques are described in '180
11 patent to perform simultaneous data acquisition?

12 A. I don't understand. I mean, the
13 whole patent is about doing what we're talking
14 about. I don't understand your question. The
15 whole patent is describing what we are -- what --
16 what it's trying to do, obviously. Even the
17 title, you see it says the title, Simultaneous
18 Multiple Field of View Digital Cameras, so
19 it's -- that's essentially what it's trying to
20 do.

21 Q. Let's go to paragraph 61 of your
22 declaration.

1 A. Okay.

2 Q. You said that the simultaneous aspect
3 of data acquisition is heavily emphasized in the
4 specification of the '180 patent.

5 Do you see that?

6 A. Yes.

7 Q. What's the plain and ordinary meaning
8 of "data acquisition"?

9 A. Data. You're acquiring data. I
10 don't know what you mean by -- data is, like,
11 data. And you're -- data acquisition, you're
12 acquiring data.

13 Q. Does the data include analog data?

14 A. Data. Could be analog. Could be
15 digital. Could be something written in a
16 notebook, in a lab where I'm doing an experiment
17 and I'm writing down numbers. Data acquisition.

18 Q. In the context of the claims of '180
19 patent, does data acquisition include acquisition
20 of data written in a notebook?

21 A. No. In the context of the '180, as
22 you -- if you look at the claim 1, for instance,

1 you see where it says, data acquisition with each
2 of the plurality of channels. So essentially it
3 requires that -- at least some data acquisition
4 with each of the plurality of the channels to be
5 done. And obviously it said simultaneous before,
6 so at the same time.

7 So you're not acquiring data manually
8 in a notebook. You're acquiring data, obviously
9 electronically, with the -- with these channels
10 in the cameras that you have -- the camera that
11 you have and the channels that we're talking
12 about.

13 Q. So the data of claim 1 includes
14 analog data; is that right?

15 A. Yes. I mean, it includes -- the
16 proper data that you're capturing with the
17 channels that we're -- you know, the claim says a
18 plurality of channels. 1A, for instance, says a
19 plurality of channels on column 24, line 3. And
20 it describes each channel.

21 So where -- each channel includes an
22 optic component, like a lens, and an array of

1 photo detectors, like CCD arrays. So it
2 defines -- it gives you some understanding of the
3 channels. And obviously it talks more about it,
4 but that is the channels that you're talking
5 about in this case.

6 Q. And the data of claim 1 captured with
7 the channels includes digital data as well; is
8 that right?

9 A. Well, it captures the data,
10 obviously, and it -- you know, the data is being
11 converted, you know, as being -- it's captured --
12 in the CCD arrays you're capturing data and then
13 you're converting that data and processing it.

14 Q. So is it correct that the data of
15 claim 1 includes both analog data and digital
16 data?

17 A. Well, you're acquiring -- it's -- you
18 have a process of acquiring the data. Right?
19 Light is falling on the CCD arrays. The CCDs are
20 developing. You're acquiring that data and then
21 you're basically processing it.

22 So it gets collected -- you know,

1 you're getting -- the CCD arrays are passing on
2 to -- you know, electronic boards are processing
3 that data and eventually converting it to
4 digital. So ...

5 Q. You just mentioned that the channels
6 are required to perform simultaneous data
7 acquisition; is that right?

8 A. Well, that's what the claim claims.
9 The claim claims that the processing component
10 configured to independently control simultaneous
11 data acquisition with each of the plurality of
12 channels.

13 Q. So in addition to the plurality of
14 channels, what components is required for
15 performing simultaneous data acquisition?

16 A. I don't understand your question.

17 Q. Does the claim require, in addition
18 to the channels, a processing component for
19 performing data acquisition?

20 A. I don't understand what you're
21 asking. The claim -- if you look at claim 1, it
22 claims in 1A a plurality of channels and it has a

1 series of wherein's. And it claims in claim 1B a
2 processing component that's coupled to the
3 plurality of channels and does certain
4 activities.

5 So it has channels and it has a
6 processing component. Obviously, you know, you
7 have a camera that's going to run and produce an
8 image at the end.

9 Q. Does simultaneous data acquisition
10 require any additional components not recited in
11 claim 1?

12 A. I don't understand what you mean. I
13 mean, the camera obviously has a frame -- has a
14 physical frame. So the camera has electronic
15 boards. The camera has power supply. So there
16 are components that are there to operate the
17 device. But the main invention is what's being
18 claimed.

19 Q. Does claim 1 require any
20 configuration of the channels not recited in the
21 claim language of claim 1?

22 A. I don't understand what you're

1 asking. Your questions don't make any sense.

2 Q. Does claim 1 require any specific
3 configuration of the processing component for
4 performing simultaneous data acquisition?

5 A. Well, if you read -- if I understand
6 your question -- and I'm not claiming that I
7 understand it correctly, but if I understand your
8 question, if you read 1B, it says you have a
9 processing component -- example, a CPU -- that's
10 coupled to the plurality of channels. So that
11 CPU, as an example, would be connected -- there
12 will be connectivity between that CPU and the
13 channels because it's coupled to the plurality of
14 channels. So it has to be able to control all of
15 them.

16 The processing component
17 configured -- so it's configured, it's designed
18 and configured, to independently control. So
19 it's got to control each -- each one of those
20 channels independently from the other. It has to
21 have the ability to do so, change one without
22 changing the other, just like if I would move my

1 left hand without moving my right hand or move my
2 right hand without moving my left hand.

3 And it's got to do that
4 simultaneously, at the same time, you know, as
5 close in time as engineeringly possible, you
6 know, practical, for -- you know, for a product,
7 et cetera.

8 So it's coupled and configured and
9 has independent and simultaneous. And it's --
10 eventually it's -- that processing component, if
11 you continue reading that 1B, is configured to
12 combine data of a frame from at least the
13 plurality of the channels that it's able to
14 control to provide you with an image. So it has
15 multiple functions.

16 Q. Does claim 1 have any additional
17 requirements, other than that the processing
18 component is configured to perform independent
19 control of simultaneous data acquisition?

20 A. I don't understand your question. I
21 mean, the claim -- claim 1 claims the inventive
22 part of what's being, you know, discussed here.

1 So it doesn't, for instance, say well, the CPU
2 has a power supply. Well, obviously a POSITA
3 would know that every CPU has to have some power
4 supply. It's got to have some heat sinks. It's
5 got to have embedded code. I mean, that's
6 understood. But the claim is claiming what's
7 inventive here, what's innovative.

8 Q. How does the '180 patent explain the
9 inventive step for this limitation?

10 A. I don't know what you're talking
11 about. I don't know what you're asking.

12 Q. You just said the claim is claiming
13 what's inventive here; is that right?

14 A. The claims obviously claim the
15 innovation, the inventive part of what's being
16 disclosed in this -- in the specification. So
17 the claims are essentially the invention. This
18 is what's being invented.

19 And that's described in the
20 specification. So you read the claim in light of
21 the specification to -- to shed some light on
22 what's being claimed and how it's being

1 practiced.

2 Q. Let's go back to paragraph 61.

3 A. Yes.

4 Q. You cited Exhibit 1001 title.

5 Do you see that?

6 A. Yes.

7 (Thereupon, Exhibit 1001,
8 previously marked, was referred to.)

9 BY MS. SHI:

10 Q. Is it correct that the title
11 Simultaneous Multiple Field of View Digital
12 Camera is within the scope of claim 1?

13 A. Well, obviously it says Simultaneous
14 Multiple Field of View Digital Camera. So the
15 point here -- the point of paragraph 61 is to
16 illustrate to you the multiple citations to
17 simultaneous -- and there's more. This is just a
18 few of them -- that are disclosed in the
19 specification, including, obviously, in the
20 title.

21 Q. In the next line you cited to
22 abstract, which says that digital cameras

1 configured to simultaneously acquire image data
2 via multiple channels.

3 Do you see that?

4 A. Yes, I do.

5 Q. Is simultaneously acquire image data
6 view multiple channels within the scope of
7 claim 1?

8 A. I mean, that's what's being discussed
9 in claim 1. Claim 1 claims you have a processing
10 component coupled -- so it claims a processing
11 component that is coupled to the plurality of
12 channels that were discussed in 1A; and that the
13 processing component is configured to
14 independently control simultaneous data
15 acquisition with each of the plurality of
16 channels. So it's capable of doing independently
17 and simultaneously that acquisition with each of
18 the plurality of channels that are cited or
19 discussed in 1A with a plurality of channels. So
20 that's the antecedent basis to that plurality of
21 channels.

22 Q. So the -- next you cited to column 2,

1 line 42 through 43.

2 Do you see that?

3 A. I do.

4 Q. Can you read that sentence, please.

5 A. Yes. Figure 3 shows a digital camera
6 configured for simultaneous acquisition of
7 multiple fields of view.

8 Q. So is it correct that Figure 3 shows
9 an example of a digital camera that -- for
10 performing simultaneous data acquisition?

11 A. Well, if you look at -- for
12 instance -- if you look at the patent on
13 column 2, line 42 to 43, that's where that
14 quotation comes from. And if you look at
15 Figure 3, that's what you see.

16 Q. Can you walk me through how the
17 digital camera of Figure 3 performs simultaneous
18 data acquisition?

19 A. Well, if you look at Figure 3, so you
20 have Figure 3 in front of you, and then we can --

21 Q. I have Figure 3 in front of me.

22 A. Okay. And if you go to the

1 specification starting on column 5, line 45/46 --
2 so let's say at line 44 it starts a description
3 of Figure 3. And that goes on until column 6,
4 line 13.

5 Q. So what components of Figure 3 of the
6 '180 patent is used for achieving simultaneous
7 data acquisition?

8 A. Well, there's a description there of
9 all the components that are listed in the figure,
10 in those lines I just cited to you.

11 Q. So how is the electronic image
12 storage media 220 of Figure 3 configured to
13 achieve simultaneous data acquisition?

14 A. What was that component again?

15 Q. The electronic image storage media
16 220, which is described at column 5 --

17 A. Yes.

18 Q. -- line 49.

19 A. Yeah. What -- what's your question?
20 I mean, the description is there. I don't
21 understand what you're asking.

22 Q. How is the electronic image storage

1 media 220 of Figure 3 configured to achieve
2 simultaneous data acquisition?

3 A. Well, that's disclosed in column 5,
4 line 44 to column 6, line 13. We can walk
5 through those sentences.

6 Is that what you're asking, you want
7 to walk through the sentences?

8 Q. I'm asking the specific component,
9 the electronic image storage media 220.

10 A. Yes, but the point is there is a
11 description there of all the components of how
12 this is happening. So you see, for instance,
13 starting on line -- column 5, line 46, it -- it
14 says Figure 3 shows a digital camera 200 and then
15 lists all the components of that.

16 So you can see, you know, starting on
17 line 48, all the different components, the
18 housing portions, the -- you know, the electronic
19 storage media, the digital camera subsystem 210,
20 et cetera.

21 You see on lines 56 it says the
22 digital camera subsystem 210 -- which you

1 obviously see in the figure -- includes one or
2 more camera channels -- which you see in the
3 figures -- and it shows you -- it gives you an
4 e.g. with the four channels that you see in the
5 figures 260A through D. So you have the four
6 channels there.

7 And it talks about the lens assembly
8 110, the color filters and the image sensor of
9 the digital camera 100 described above, which
10 were described earlier.

11 Then if you look at column 5,
12 line 61, you see it says the four camera channels
13 260A through D are configured through pixel array
14 size and/or optical focal length to provide a
15 desired field of view for each channel. So each
16 channel can have a desired field of view.

17 Then, if you look at the next one, it
18 says the four camera channels -- I'm on line 5 --
19 column 5, line 63 -- you see those four camera
20 channels can be operated simultaneously with
21 independent electrical control of the features,
22 such that -- such as integration time control and

1 frame rate to obviously acquire the data.

2 And then it goes on in column 6 to
3 talk about the peripheral user interface 232 and
4 continues on from there to mention, obviously,
5 the electronic storage media, the power supply,
6 et cetera.

7 Q. Is it correct that no additional
8 configuration for electronic image storage media
9 220, other than the description here you just
10 mentioned, is required for simultaneous data
11 acquisition?

12 A. I don't understand what you mean. I
13 mean, it's understood what an electronic storage
14 media is. I don't know what you mean by
15 description. I mean, electronic storage media,
16 like memory, RAM -- not RAM -- ROM, or -- not
17 read only but it would be like RAM or some other
18 memory that you have in the system.

19 There is -- if you go to column 23,
20 you see -- well, column -- starting on column 22,
21 line 60, you see it says, It should be noted that
22 components of the various systems ...

1 And if you continue to column 23, you
2 see it says, are not limited to, non-volatile
3 storage media in various forms, e.g., optical,
4 magnetic or semiconductor storage media.

5 So you have electronic storage media,
6 memory that you can store electronically
7 information.

8 Q. Please look at column 5, line 50 of
9 the '180 patent.

10 A. Yes.

11 Q. It describes that the digital camera
12 200 of Figure 3 includes a power supply 224.

13 Do you see that?

14 A. Yes.

15 Q. Does claim 1 require any specific
16 configuration for power supply 224?

17 A. I don't understand what you -- I
18 mean, claim 1 is claiming the invention that the
19 inventors are claiming. Obviously, it's
20 understood that power supply would be part of a
21 camera, just like an electronic board will be
22 part of this particular digital camera.

1 So it's claiming the invention that's
2 being claimed here, not -- it's not going to say
3 every part of the camera. But when you read,
4 obviously, the specifications, it's clear that
5 the camera has a power supply.

6 Q. Other than the existence of a
7 functional power supply 224, does claim 1 require
8 any specific configuration of the power supply
9 224?

10 A. Well, claim 1 doesn't -- doesn't say
11 anything -- the words "power supply" do not
12 appear, obviously, in claim 1. So claim 1 is not
13 claiming -- it's not -- doesn't say anything
14 about power supply. It's obviously understood
15 that a power supply is part of the digital camera
16 that's being claimed.

17 Do you think this is a good time for
18 a quick break?

19 Q. Yeah, we can take five minutes -- do
20 you need five minutes or ten minutes?

21 A. I'm good for five minutes, but I'll
22 let Misty be the boss.

1 (Thereupon, a brief recess was
2 taken.)

3 BY MS. SHI:

4 Q. So, Dr. Saber, we were talking about
5 Figure 3 of the '180 patent --

6 A. Yes.

7 Q. -- before the break.

8 A. Yes, we were.

9 Q. So what is element 242?

10 A. Well, if you look at column 5, you
11 see it says housing 240, including housing
12 portions 241, 242, 243, 244, et cetera, 245 and
13 246. They're housing portions.

14 Q. How element 242 is involved in the
15 data acquisition?

16 A. They're housing portions. I mean,
17 the entire -- the entire camera, you know, has --
18 has not just electronics. It has also housing
19 and has an aperture, you know, has a frame. So
20 it has multiple components.

21 Q. Does claim 1 require housing?

22 A. I think we've been over that before,

1 but I'm more than happy to answer it again.

2 So as I mentioned to you earlier,
3 claim 1 claims the inventive -- the innovation,
4 the inventive parts of this particular patent.
5 It's understood by a POSITA that, you know, a
6 camera has these other elements, but what's being
7 claimed in the claims, the inventive part of
8 the -- of this patent.

9 Q. What is element 232?

10 A. The patent -- the specification
11 refers to it as the peripheral user interface
12 232, which includes the shutter button, can
13 include one or more additional input devices.

14 Q. How is element 232 involved in
15 simultaneous data acquisition?

16 A. Well, it's -- it's part of the
17 camera.

18 Q. Other than being a part of the
19 camera, how is element 232 involved in
20 simultaneous data acquisition?

21 A. Well, as you can see, it says a
22 peripheral user interface 232, which includes the

1 shutter button. So it could also -- I mean, you
2 have -- obviously when you push the button to --
3 to try to acquire the imagery. So it's a user
4 interface. You may be able to set some controls
5 there. So the camera doesn't just automatically
6 work by itself without some type of interface
7 from the user.

8 Q. What is element 236?

9 A. I don't see element 236 on the
10 figure. Circuit board.

11 So on column 5, line 51, obviously it
12 states there a circuit board 236 that supports
13 and/or electrically couples or interconnects the
14 components. That's what element 236 -- okay. I
15 see it now on -- on the diagram. So it's on the
16 diagram showing right next to element 220.

17 Q. Is circuit board 236 recited by
18 claim 1?

19 A. Again, as -- I've already answered
20 this question multiple times, but I'm more than
21 happy to answer it again for you.

22 Claim 1 claims the innovative parts

1 of this patent. So it's claiming what's being --
2 what's being -- what's innovative here, what's
3 the invention.

4 So the invention is -- is claimed in
5 the claims. Circuit board 236 is obviously part
6 of the camera to process -- to acquire and
7 process the data.

8 Q. Is circuit board 236 involved in the
9 simultaneous data acquisition?

10 A. I don't understand what you mean. I
11 mean, the circuit board is part of the electronic
12 components of the camera that acquire and
13 facilitate the processing of the data from the
14 acquiring process to where the image is formed.

15 So there are circuit boards that will
16 facilitate that functionality, either directly or
17 indirectly, dependent on what the circuit board
18 is doing.

19 Q. Is that a yes?

20 A. Yes. I mean, circuit boards are part
21 of -- you know, the integral part of the camera.
22 So they facilitate the processing, the

1 acquisition and processing of the information.

2 Q. How is circuit board 236 involved in
3 simultaneous data acquisition?

4 A. I don't know what you mean by how
5 it's involved.

6 Q. What functions does the circuit board
7 236 need to perform to achieve simultaneous data
8 acquisition?

9 A. It supports -- see it says there,
10 circuit board 236 supports and/or electrically
11 couples or interconnects the components. So
12 it -- it provides the proper support to
13 interconnect the components so you can acquire
14 and process the data.

15 Q. Any other functions?

16 A. I don't understand what you mean. I
17 mean, the circuit board that you see there is
18 connected -- is part -- is an integral part of
19 the camera. So it's going to provide, you know,
20 proper power as needed to the channels, acquire
21 the data, process the data, convert from analog
22 to digital.

1 And so it's going to be involved
2 directly and indirectly in the processing of the
3 data, you know, combining the frames into an
4 image until the end result is formed and
5 potentially display the image on -- you know, on
6 the LCD display.

7 So it's -- it's like, you know, part
8 of the camera.

9 Q. What is element 250?

10 A. That would be the aperture.
11 Aperture.

12 Q. Is aperture 250 recited by claim 1?

13 A. I think I've already answered this
14 question several times for you, but I'm again
15 happy to answer it again.

16 So claim 1 claims the innovative
17 parts of what's being disclosed here in the
18 specification. Aperture 250 is part of the
19 camera that facilitates how this invention, you
20 know, takes place.

21 Q. Is that no?

22 A. I think I've answered this question,

1 but every component of this camera is part of
2 this camera. Right? A power supply is part of
3 this camera. An aperture is part of this camera.

4 So claim 1 claims the innovative
5 components of the camera. It's understood that
6 the other components -- a POSITA reading claim 1
7 in light of the specification would understand
8 that these components are part of the
9 functionality of the camera to enable the -- the
10 innovation that's being claimed.

11 Q. Is that a yes?

12 A. Yes to what question are you asking?

13 Q. The question is, is aperture 250
14 recited by claim 1?

15 A. So the word "aperture" isn't in
16 claim 1. It's not printed there in the claim.
17 But it's understood, when you read claim 1 in
18 light of the specification, that a camera would
19 require an aperture to function according to
20 what's being claimed.

21 So it's understood as part of the --
22 you know, what's being claimed.

1 Q. So you're saying that an aperture is
2 required by claim 1; is that right?

3 A. Well, claim 1 claims the innovative
4 parts of what's being -- what's being disclosed
5 here in the specification. But when you read --
6 a POSITA reading the specification would
7 understand for you to be able to practice claim 1
8 in this particular digital camera, the camera has
9 these other components that are understood to
10 enable this particular invention.

11 Q. Is it correct that every component of
12 Figure 3 is understood to enable the invention
13 claimed by claim 1?

14 A. Well, Figure 3 is an illustration of
15 how the inventive claim part -- you know, the
16 invention that's claimed in claim 1 is
17 essentially practiced. So it's an illustration.
18 You know, we have a digital camera and those
19 other components are just part of a normal
20 digital camera.

21 But what's being claimed is what's in
22 claim 1. That's -- if you're practicing what's

1 in claim 1, you're practicing the invention.

2 Q. So looking at the example of
3 Figure 3, how do you determine whether it's
4 practicing the invention of claim 1?

5 A. Well, you read the invention that's
6 claimed in light of the specification that
7 describes -- you know, sheds light on how the
8 claimed invention is practiced with embodiments
9 and illustrations to tell you how this invention
10 is practiced.

11 Q. So the example of Figure 3 practices
12 the invention of claim 1; is that right?

13 A. Well, yes. I mean, the invention --
14 what's being illustrated in Figure 3 is an
15 embodiment, essentially, is how claim 1 is being
16 practiced. So when you read claim 1 in light of
17 the specification from the eyes of a POSITA, you
18 understand how this invention is being practiced.
19 This is essentially an illustration of it.

20 Q. What is -- I think we discussed this
21 element 220 before the break.

22 Do you recall?

1 A. I don't recall off the top of my
2 head, but we can talk about it.

3 Q. Okay. So what is element 220?

4 A. An electronic storage media. An
5 electronic image storage media 220. So, yes, we
6 have discussed it.

7 Q. Is element 220 -- scratch that.
8 Is an electronic image storage media
9 recited by claim 1?

10 A. I think we've been over that a few
11 times now. So the claim claims the innovation,
12 the innovative parts of what's being claimed.

13 Figure 3 is an illustration of how
14 that -- those -- that claim is practiced. And
15 the components there are obviously supporting how
16 this innovation would be practiced. But as long
17 as you're practicing what's in claim 1, you're
18 practicing the innovation.

19 Q. So is it your opinion that an
20 electronic image storage media is not required by
21 claim 1?

22 A. Well, what's required by claim 1 is

1 in claim 1. So claim 1 claims a plurality of
2 channels, claims, you know, an array of photo
3 detectors, claims what each channel has in terms
4 of field of view. What's being -- what's in
5 claim 1 is described in claim 1. So as long as
6 you have what's in claim 1, you're practicing the
7 invention.

8 Q. Is electronic storage media 220
9 involved in simultaneous data acquisition
10 reciting claim 1?

11 A. Well, again, I think we've been over
12 this a few times.

13 So what's in claim 1 is claimed. So
14 you have a processing component that's coupled to
15 the channels that can independently control, has
16 simultaneous data acquisition and has the ability
17 to configure and combine data into a frame.

18 Now, when you read the specification,
19 obviously there is memory there. There's a
20 storage media where data is -- is being stored
21 and/or transformed from, perhaps, one type to
22 another to be able to practice that invention.

1 But what -- as long as you're
2 practicing what's in the claims, you're
3 practicing the invention.

4 Q. Let's go back to paragraph 61 of
5 Exhibit 2020.

6 A. Yes.

7 Q. Do you see that you cited to
8 Figure 5?

9 A. Yes.

10 Q. Can you read that sentence.

11 A. Yes. So quote -- open quote,
12 Figure 5 is a flow diagram for simultaneous
13 acquisition of multiple fields of view, close
14 quote.

15 Q. Do you agree that Figure 5 is a
16 flowchart for simultaneous data acquisition, as
17 recited in claim 1?

18 A. Well, Figure 5, as described in the
19 specification, is exactly what I just read to
20 you. And that's a quote directly from the
21 specification. It's a flow diagram for
22 simultaneous acquisition of multiple fields of

1 view. So it provides you with a -- with a
2 flowchart of how one might practice the
3 invention.

4 Q. So you agree that Figure 5 is an
5 example for the simultaneous data acquisition of
6 claim 1?

7 A. Yeah. Figure 5 illustrates a
8 flowchart of -- you know, engineers, I guess,
9 like flowcharts. So Figure 5 illustrates a
10 flowchart of how you would practice, you know,
11 the invention as claimed.

12 Q. When you say the invention as
13 claimed, does it include the invention as claimed
14 in claim 1?

15 A. Well, claim 1 claims a plurality of
16 channels. I could have two. I could have four.
17 I could have six. Right? It claims a plurality
18 of channels, where each channel includes an optic
19 component and the plurality of channels including
20 the first and the second. So it claims a
21 plurality of channels.

22 Q. So is it correct that Figure 5

1 illustrates an example of invention, as claimed
2 in claim 1?

3 A. Figure 5 provides a flowchart of how
4 a POSITA would practice the invention that's
5 claimed in claim 1.

6 Q. Is it correct that Figure 5 also
7 illustrates an example of invention as claimed in
8 claim 22?

9 A. Well, claim 22 brings in the
10 additional limitation of during a frame, which
11 is, obviously, very important to the claim. So
12 it's -- it's claimed slightly differently or it's
13 written differently, obviously, from claim 1.
14 It's a method claim and it discusses the during a
15 frame, which is discussed in my declaration on
16 Section B. On page 26 of my declaration there is
17 a discussion of during a frame. And that's an
18 important element of claim 22 that has to be
19 considered.

20 Q. Is it correct that Figure 5
21 illustrates an example of simultaneous data
22 acquisition, as claimed in claim 22?

1 A. Well, Figure 5 doesn't show --
2 wouldn't illustrate that during a frame that
3 we're talking about. I mean, claim 22 has the
4 during a frame -- like if you go to my
5 declaration on page 26, you see I have a
6 discussion there on -- starting on paragraph 64
7 of claim 22 and during a frame. And that's an
8 important component of the claim -- of claim 22
9 that's distinctively different from claim 1.

10 Q. Is it correct that Figure 5
11 illustrates an example of simultaneous data
12 acquisition without during a frame?

13 A. Well, Figure 5, I mean, is -- is a
14 flowchart, but you -- obviously, when you look at
15 Figure 5 and you -- I mean, it's an illustration.
16 But when you look at the figure, you see it says
17 and is captured approximately simultaneously in
18 block 508.

19 So the claim -- I mean, this just
20 kind of gives you a flowchart. But the claim
21 claims simultaneous. So it's not approximately
22 simultaneous. It's not nearly simultaneous.

1 It's simultaneous.

2 So as long as you're practicing
3 simultaneous, you would be practicing the claim.
4 If you're practicing nearly simultaneous, then
5 you're not practicing the claim.

6 So the figure just gives you a
7 flowchart to kind of like illustrate some ideas.
8 But what's claimed is simultaneous, and that's
9 what you need to do to practice the claim.

10 And same thing with claim 22. What's
11 claimed is simultaneous, at the same time, and
12 during a frame for claim 22. So you've got to do
13 it simultaneously and you've got to do it during
14 the capturing of a frame of video from each of
15 the channels.

16 Q. Could you go to '180 patent,
17 column 9, line 13.

18 A. Column 9, lines?

19 Q. 13 to 14.

20 A. 13 to 14, Figure 5.

21 Q. Can you read the -- that sentence.

22 A. Yes. So column 9, line 13 says,

1 Figure 5 is a flow diagram for simultaneous
2 acquisition of multiple fields of view 500 under
3 an embodiment.

4 Q. And you agree that Figure 5 is a
5 flowchart for simultaneous data acquisition, as
6 recited in claim 1?

7 A. Well, again, as I mentioned to you,
8 it's got to be simultaneous. So what it says
9 there in the patent is simultaneous. But when
10 you look at the block 508, it says approximately
11 simultaneous. But the claimed invention is
12 simultaneous. So as long as you do it
13 simultaneously, you're following the flowchart
14 and doing it simultaneously, then you're
15 practicing the invention.

16 If you're doing it nearly
17 simultaneously, then you're not practicing the
18 invention. So it has to be simultaneous for you
19 to practice the invention.

20 Q. Which block of Figure 5 illustrates
21 simultaneous data acquisition?

22 A. Well, block 508 says, and is captured

1 approximately simultaneous, and that's
2 essentially what I'm responding to.

3 So as long as you capture it
4 simultaneously, you're practicing the invention.
5 But I don't want to get into -- so the claims
6 claim simultaneous, at the same time, as we've
7 been discussing. So Figure 5 is just an
8 illustration. But what's in the claims is
9 simultaneous. It's got to be at the same time to
10 be in -- to be practiced in the claims.

11 Q. Is approximately simultaneous the
12 same as simultaneous?

13 A. I think we've been over that a few
14 times now. Simultaneous means at the same time.
15 So anything outside of that is not simultaneous.
16 It's got to be at the same time. Nearly
17 simultaneous is not simultaneous. Approximately
18 simultaneous is not simultaneous. May be
19 simultaneous is not simultaneous.

20 At the same time is what simultaneous
21 means.

22 Q. So why are you relying on the

1 approximately simultaneous step in Figure 5?

2 A. I'm not relying on it. I'm just
3 explaining to you that Figure 5 is just an
4 illustration. But what is claimed is in the
5 claim. So the claim language is what's claimed.
6 That's what claims the innovation.

7 The specification sheds light. You
8 know, you read that in light of the specification
9 from the eyes of a POSITA. The claim doesn't say
10 approximately simultaneous. It doesn't say
11 nearly simultaneous, even though that language is
12 found in the specification, as I argue in my
13 declaration.

14 The claim talks strictly about
15 simultaneous. Both claim 1 and 22 only talk
16 about simultaneous, don't mention anything about
17 nearly or anything else.

18 Q. So is it correct that step 508 of
19 Figure 5 is not required by the claims?

20 A. The claim claims simultaneous. So as
21 long as you practice step 508 simultaneously,
22 you're practicing the claim.

1 Q. Is it correct that 58 [sic] does not
2 recite simultaneously without having
3 approximately simultaneously?

4 A. Well, 508 says, and is captured
5 approximately simultaneously. So the claims
6 don't have such language. The claims claim
7 simultaneously. There's no approximately.
8 There's no nearly. It claims simultaneously.

9 So as long as you're acquiring
10 simultaneously at the same time, you're
11 practicing the claim.

12 Q. How do you distinguish approximately
13 simultaneously and simultaneously?

14 A. Same way you distinguish nearly
15 simultaneously and simultaneously. We've been, I
16 think, over this before.

17 Q. So is it your opinion that
18 approximately has the same boundary as nearly?

19 A. It's not simultaneous. So
20 simultaneous means at the same time, as we have
21 been discussing for probably an hour earlier. So
22 it's got to be at the same time, you know,

1 within, obviously, practical engineering design
2 standards.

3 Q. So as a POSITA, are you familiar with
4 techniques for simultaneous data acquisition with
5 multiple imaging channels?

6 A. Yes.

7 Q. Can you give some examples of those
8 techniques?

9 A. I don't know what you mean. This is,
10 obviously, an example of that, the specification
11 here.

12 Q. Other than the examples in the
13 specification, can you give some examples of
14 techniques for simultaneous data acquisition?

15 A. For example, if I had a camera that
16 has a red, green and blue channel and I want to
17 acquire via all three channels simultaneously, I
18 would basically activate all three channels
19 within a time -- you know, an appropriate
20 engineering design standard time interval and I
21 would acquire the data simultaneously, versus --
22 like Miyazaki is doing it sequentially.

1 Miyazaki is a reference from the
2 previous IPR that we talked about last week. And
3 if you look at Miyazaki, for instance, it's doing
4 them sequentially. It would acquire an image.
5 And some delta T time later, it would acquire
6 another image. And some delta T time later,
7 maybe a 1/30 of a second, it would acquire
8 another image. So that's sequentially.

9 Simultaneously would be you would
10 acquire all three channels -- you would acquire
11 data from the RGB channels at the same time
12 within acceptable, you know, engineering
13 practical standards.

14 Q. Does '180 patent specification
15 describe any specific technique for the technique
16 for simultaneous data acquisition?

17 A. I don't understand your question. I
18 mean, the '180 specification describes the
19 innovation.

20 Q. What techniques are used to activate
21 all channels within an appropriate engineering
22 design standard time interval?

1 A. I don't understand your question.

2 Q. So you gave an example stating that
3 one example for simultaneous data acquisition is
4 to activate all three channels within a time, you
5 know, an appropriate engineering design standard
6 interval.

7 Do you recall?

8 A. Yes. I mean, the specification that
9 you have in front of you -- obviously, the claims
10 claim the innovation. Claim 1 claims the
11 simultaneous acquisition. Claim 22 claims the
12 simultaneous acquisition during a frame.

13 So there's -- there's a distinction
14 between them. With claim 1, it's a simultaneous
15 acquisition and the specification describes --
16 you know, describes -- you know, if you read the
17 claim in light of the specification, you
18 understand what's being described.

19 Q. Does '180 patent describe an
20 appropriate engineering design standard time
21 interval?

22 A. Well, it describes simultaneous.

1 So -- and, you know, I mean, you understand when
2 reading the specification that the capturing has
3 to be done simultaneously. And a POSITA would
4 understand that that is within acceptable
5 engineering standards.

6 Obviously, I can't capture something
7 in 1 times 10 to the negative 100 of a second.
8 So there are certain engineering standards that
9 we, you know, are able to operate on at the time
10 of the invention. So a POSITA would understand
11 that.

12 Q. Can we go to paragraph 62 of
13 Exhibit 2020.

14 A. 62, yes.

15 Q. In the last sentence of paragraph 62
16 you mentioned data acquisition windows.

17 Do you see that?

18 A. Yes, I do see that, the last sentence
19 of 62.

20 Q. What time interval does data
21 acquisition windows include?

22 A. Well, you see in this sentence that

1 you have just mentioned, you see it says a POSITA
2 would have -- would have understood that the
3 recitation of simultaneous in this phrase that
4 we're talking about in the previous sentence
5 requires at least some overlap in the data
6 acquisition windows in each of the plurality of
7 channels. So you have a window in -- in -- where
8 the data acquisition is happening in channel 1.
9 And I have a window with the data acquisition
10 happening in channel 2.

11 And to be simultaneous, there has to
12 be an overlap between those two windows. So
13 you -- you wouldn't do channel 1 and then some
14 millisecond later do channel 2. There has to be
15 an overlap between those two data acquisition
16 windows for the two channels that I just provided
17 in the example.

18 Q. How does a POSITA determine the data
19 acquisition window?

20 A. Well, the window would be determined
21 by the hardware that you have, the -- the design
22 that you have and the hardware that you have, how

1 you design the device.

2 Q. Can you give an example of the
3 hardware?

4 A. Well, you design this device. You
5 have, let's say, two channels. You have lenses.
6 You have optics. You have CCD arrays. You have
7 circuit boards that are going to take data off
8 the CCD arrays. So you have certain windows,
9 whether that's done in hardware or embedded
10 software, to acquire -- basically to acquire the
11 data.

12 So as I'm acquiring the data on
13 channel 1, I'm also acquiring the data in
14 channel 2 with an overlap between them.

15 Q. Does a data acquisition window
16 include the integration time of the channels?

17 A. Well, it's -- it's -- you're
18 acquiring the data. So it would -- it would
19 include the time that you're acquiring the data.

20 So as I'm acquiring the data off of
21 CCD A, I'm also acquiring the data with an
22 overlap off of CCD B, which is, more or less --

1 let's say CCD A goes with the red channel and
2 CCD B goes with the green channel. So the
3 acquisition of data from CCD A and CCD B has --
4 to be simultaneous has to have an overlap, you
5 know, of that acquisition.

6 Q. So do you agree that a data
7 acquisition window include the period of time for
8 integration of a channel?

9 A. So if you look at column 5 -- I think
10 we've looked at this passage before, but I'm
11 looking at column 5, lines 63 to 67. So you see
12 there where it says the four camera channels.
13 And this is referring to Figure 3, which we
14 talked about earlier. And the channels are
15 mentioned 2060A [sic] to 2060D [sic] as in delta.
16 So can be operated simultaneously with
17 independent electrical control of features, such
18 as integration time control and frame rate.

19 So for you to acquire the data of the
20 channels, you -- part of the, you know, control
21 is to control the integration time of, you know,
22 that particular channel.

1 So the data acquisition is -- is, you
2 know, the integration time plus, obviously, the
3 pushing of the data to the backplane or wherever,
4 you know, to do the data acquisition.

5 Q. What does pushing of the data to the
6 backplane mean?

7 A. Well, I mean, it's a figure of
8 speech. But essentially you're -- you're
9 integrating on the CCDs. So you're collecting
10 4,000 CCD and you have an integration time. And
11 then you clock that CCD and get the data into,
12 let's say, the backplane, where you can -- you
13 know, as part of the data acquisition process.

14 Q. Any other steps are part of the data
15 acquisition process?

16 A. I mean, obviously you may have some
17 amplifications or filtering techniques are
18 embedded into the design. You know, conversion,
19 let's say, from analog to digital. I mean, there
20 are some, you know, steps in the process there.

21 Q. Are you familiar with the readout
22 period for data acquisition?

1 A. Yeah. I mean, I don't understand
2 what you mean, but, yes, I'm familiar with --
3 generally speaking, I'm familiar with -- I mean,
4 you have to be more specific on what exactly do
5 you mean, but -- but, yeah.

6 Q. So are you familiar with the readout
7 process in an image sensor?

8 A. Yes.

9 Q. Can you describe that?

10 A. Well, if you look at the
11 specification on column 20 and you go to line 48
12 and you see it gives you a decent description
13 there. Column -- column 20, line 48 to 51.

14 Q. Could you read that.

15 A. Yes. So I'm on column 20, line 48.
16 The integration time control can be executed,
17 open parentheses, depending on readout
18 configuration, close parentheses, according to a
19 number of techniques, for example, rolling mode
20 and/or snapshot mode, to name a few.

21 Q. So what is readout configuration?

22 A. You're reading out the data.

1 Readout -- you have a configuration of how you're
2 reading the data.

3 Q. Does Figure 3 have components that
4 perform the readout?

5 A. Well, I mean, you -- Figure 3 is
6 illustrating, obviously, the -- the major
7 components of the camera. It's not showing you
8 every screw in the camera and what color the
9 camera looks like and whether there's a dial on
10 the lens. So it's showing you the major
11 components of the camera that -- that -- you
12 know, to practice the innovation that's claimed.

13 It's understood that data is read out
14 from -- you know, as the data is being captured,
15 it's got to be read out from the, you know --
16 because if you look at claim 1, for instance, it
17 says each channel includes an optic component --
18 let's say we have a lens -- and an array of photo
19 detectors integrated on a semiconductor
20 substrate.

21 So obviously you have a series of
22 photo detectors on a semiconductor substrate. So

1 think of that as a CCD array. So obviously when
2 you collect the data on those CCD arrays, you
3 have to read it out; otherwise, what's the point
4 of collecting it.

5 Q. So which component illustrated on
6 Figure 3 performs the readout?

7 A. So you see -- I'm back on column 5,
8 where we were before, earlier. I'm back on
9 column 5, line 51. You see it says there the
10 circuit board 236 that supports and/or
11 electrically couples or interconnects the
12 components.

13 So that circuit board that couples
14 and interconnect the components, one of its
15 functionality would be, you know, acquiring the
16 data that's being captured.

17 Q. Let's go to paragraph 64 of your
18 declaration.

19 A. Okay. Paragraph 64. I wonder if we
20 should take a quick break here before we jump
21 into this section.

22 Q. Yeah. So --

1 MS. SHI: Yes, let's go off record.
2 (Thereupon, a discussion was had off
3 the record.)
4 (Thereupon, at 12:09 p.m. EST, a
5 lunch recess was taken.)
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1 AFTERNOON SESSION (12:42 p.m. EST)

2 BY MS. SHI:

3 Q. So, Dr. Saber, could you please go to
4 paragraph 64 of your declaration, Exhibit 2020.

5 A. Yes.

6 Q. Can you read the first sentence of
7 paragraph 64.

8 A. Yes. Claim 22 recites, open quote,
9 independently controlling ... data
10 acquisition ... during a frame, underlined, end
11 quote.

12 Q. Thank you.

13 So you stated -- do you see on --
14 starting from line 4 it says, A person of
15 ordinary skill would also have understood that
16 the phrase "during a frame" in this context
17 corresponds to the exposure interval during which
18 an image sensor captures a single image?

19 A. You read that correctly, yes.

20 Q. Thank you.

21 What does exposure interval mean?

22 A. Just -- well, it's what it says,

1 exposure interval, the interval that the CCD
2 arrays are exposed. The image sensor captures
3 the single image.

4 Q. Is it your opinion that the claim
5 language you recited in claim -- in the first
6 sentence, claim -- okay. Let's scratch that.
7 Let's go back.

8 So for the limitation independently
9 controlling ... data acquisition ... during a
10 frame of claim 22 is it right the petition refers
11 it as limitation 22.3?

12 A. I believe -- I believe so. I don't
13 have, obviously, the petition in front of me.
14 But if you look at claim 22, there are three
15 elements. So configuring, if that's 22.1 in the
16 petition, then the second configuring is 22.2 and
17 then independently controlling would be 22.3.

18 Q. Okay. So to make it a little bit
19 easier, when I say limitation 22.3, you will
20 understand it's the limitation start with
21 independently controlling.

22 Is that okay?

1 A. That's fine.

2 Q. So is your opinion that limitation
3 22.3 requires the exposure interval during which
4 an image sensor captures a single image?

5 A. It's during a frame, while the frame
6 is being acquired and put together. So this says
7 independently controlling. So this has to have
8 independent control. So it's got to be able to
9 affect one without the other; simultaneous, at
10 the same time that we've been talking about; and
11 you have data acquisition with each of the first
12 and second channels during a frame. So it's
13 during the capturing of a frame of video from
14 each of the channels; so while the frame is being
15 acquired, essentially put together.

16 Q. Where does the '180 patent describe
17 exposure interval?

18 A. If you look, for instance, at
19 column 11 of the patent -- I'm on line 34 to
20 40 -- it talks about exposure control measures
21 the overall volume of light being captured and
22 discusses that.

1 Then if you look at column 17,
2 lines 32 to, say, 34, you see where it says,
3 After being exposed to light for certain period
4 of time, exposure time, the pixels 15801,1 to n,m
5 are read out, are a sequential line-per-line
6 basis. And there are other citations to exposure
7 control as well.

8 Q. Okay. Let's go to column 11, line 34
9 to 40.

10 A. Okay.

11 Q. So what are some techniques for
12 implementing the exposure control described here
13 at column 11, line 34 to 40?

14 A. I don't understand what you mean.

15 Q. So a POSITA will understand how to
16 implement exposure control as described at
17 column 11, line 34 to 40; is that right?

18 A. Yes, a POSITA would understand how to
19 apply exposure control in a camera.

20 Q. What components of Figure 3 are used
21 for exposure control?

22 A. So if you go back to column 5, which

1 we have talked about earlier, where Figure 3 is
2 described -- I'm on column 5, starting on
3 lines 44 to column 6, line 13 -- it describes the
4 functionality of Figure 3 that, you know, it has,
5 obviously, circuit board. It has a shutter
6 assembly that's not shown. It discusses digital
7 camera having more -- you know, one or more
8 camera channels, talks about the lens assembly
9 110, the color filter 112, the image sensor 116.

10 And then later on in that column 5
11 towards the bottom -- I'm on line 63 -- it says,
12 you know, the four camera channels can be
13 operated simultaneously with independent
14 electrical control of features, such as
15 integration time control and frame rate.

16 So clearly, you have basically the
17 elements to be able to control exposure.

18 Q. What are the elements to control
19 exposure?

20 A. Well, as I mentioned to you -- I
21 mean, the camera has an aperture, obviously. It
22 has lenses. It's got a lens assembly. So you'd

1 be able to take light and focus it.

2 You have color filters to select
3 which part of the light you want. You have an
4 image sensor to integrate -- to collect light and
5 integrate. You have independent electrical
6 controls to -- to independently control each of
7 the channels. You have independent integration
8 time control to control the integration time on
9 each of the CCD arrays. And at some point you're
10 going to, obviously, stop the integration and
11 then process the data.

12 Q. Does limitation 22.3 requires rolling
13 mode?

14 A. Well, it's during a frame. Right?
15 So it's got to be while the frame is being
16 collected.

17 Q. Is that yes?

18 A. So, yes, you would need to be able
19 to -- you've got to basically make this happen
20 during a frame. While the frame is being
21 acquired, put together, you've got to do this
22 independently controlling simultaneous data

1 acquisition.

2 So there is a discussion on that
3 on -- starting on paragraph 64, Section B, and
4 more so on paragraphs -- on Section C, which
5 starts at paragraph 67.

6 Q. Does limitation 22.3 require a
7 rolling shutter?

8 A. Well, you have to -- I mean, you
9 would need to be able to perform this during a
10 frame. So you have to have a rolling mode. So
11 you would need to -- to make that happen with a
12 rolling shutter because you have the rolling mode
13 to be able -- to make it happen during a frame.

14 Q. Does the '180 patent describe a
15 rolling shutter?

16 A. Yes.

17 Q. Where is that?

18 A. So if you go to column 20 -- I mean,
19 obviously the discussion starts on line 19 with
20 the in contrast to exposure control by
21 conventional, et cetera. But the lines that I
22 think that are more specific would be line 48 to

1 51. You see where it says, The integration time
2 control can be executed, depending on the readout
3 configuration, according to a number of
4 techniques, for example, rolling mode and/or
5 snapshot mode, to name a few.

6 So you have the rolling mode where,
7 you know, you go down the line, so to speak, or
8 the snapshot mode.

9 Q. So is rolling mode used for exposure
10 control?

11 A. Well, it's -- I mean, it's a
12 technique for, essentially, providing exposure on
13 a rolling basis, like is described in page 44 of
14 my declaration. So if you go to page 44 of my
15 declaration, paragraph 101, it kind of shows you
16 a pictorial from Exhibit, I think, 2006 that
17 talks about the rolling mode situation.

18 Q. Okay. Let's go back to claim 22 of
19 the '180 patent.

20 A. Yes.

21 Q. Is it correct that claim 22 recites a
22 first image sensor?

1 A. Well, if you look at 22.1, it says --
2 you see it says configuring -- so obviously your
3 physical optics lenses, et cetera, you're
4 configuring -- a first optics component relative
5 to a first image sensor to form a first channel
6 having a first field of view that comprises a
7 first angular width of a scene.

8 So you're configuring whatever the
9 physical, you know, parts of the channel. The
10 first optic component, like a lens, relative to a
11 first image sensor, like a CCD array, to form a
12 first channel, say a red channel or a gray scale
13 channel, having a first field of view with some
14 angular width, we'll say 90 degrees or something,
15 of a scene, the real-world space that you're
16 capturing.

17 Q. Is that a yes?

18 A. I think your question was about a
19 first image sensor; isn't that correct?

20 Q. Correct.

21 A. Yeah, so it claims a first image
22 sensor to form a first channel. So, yes.

1 Q. Is it correct that claim 22 recite a
2 second sensor, image sensor?

3 A. Yes. With 22.2 you see that
4 limitation talks about a second optic component,
5 second image sensor, second channel, second field
6 of view and a second angular width that's
7 different from the first.

8 Q. So in paragraph 66 of your
9 declaration you said during a frame in this
10 context corresponds to the exposure interval
11 during which an image sensor captures a single
12 image.

13 Do you see that?

14 A. Not yet. Did you say paragraph 66?

15 Q. Correct.

16 A. Yes, I see that now.

17 Q. So the image -- an image sensor here
18 in paragraph 66 refers to the first image sensor
19 recited in claim 22; is that right?

20 A. You cut out for a second on my end.
21 I didn't understand your question.

22 Q. Okay. Let me repeat.

1 So you said an image sensor captures
2 a single image.

3 Do you see that?

4 A. Not yet, but -- yes, at the last part
5 of the sentence.

6 Q. So the -- an image sensor you
7 referred here in paragraph 66, it refers to the
8 first image sensor recited in claim 22; is that
9 right?

10 A. It refers to an image -- whatever
11 image sensor that's cited in claim 22, whether
12 it's the first or second.

13 Q. So is it correct that an image sensor
14 you referred here in paragraph 66 of the
15 declaration refers to both the first image sensor
16 and the second image sensor recited in claim 22?

17 A. Well, this is talking about during a
18 frame. So during a frame, basically while the
19 frame is being acquired, captured, put together,
20 during a frame, at some point between the
21 beginning and the end of the exposure interval
22 during which an image sensor captures a single

1 image.

2 So that's what during a frame means.
3 Like, it's got to be within that exposure
4 interval that you are -- the image sensor is
5 capturing the image. Whatever image sensor is
6 capturing the image during a frame, that frame
7 is -- essentially becomes the image at the end.
8 Right?

9 Q. When you say the image at the end,
10 are you referring to providing an image as
11 recited in the last limitation of claim 22?

12 A. So you see the last recitation --
13 we'll call it 22.4 -- it says, combining data
14 received during the frame from one or more of the
15 first and second channels to provide an image.
16 So you're doing -- you're combining them to
17 provide -- so you can see that image, let's say,
18 on the LCD display. You're combining the data
19 received during a frame from, you know, the first
20 and the second channel.

21 So during the time interval that the
22 frame is being captured, you're doing the

1 independent controlling, et cetera from 22.3 and
2 then you're combining the data in 22.4 to provide
3 an image at the end that's the combined result of
4 what you captured with -- you know, from
5 channel 1 and channel 2.

6 Q. When you say during the time interval
7 that the frame is being captured, that includes
8 the time interval that the corresponding image is
9 captured by the first image sensor; is that
10 right?

11 A. I don't understand your question. I
12 don't understand what you're asking.

13 Q. Does the frame include data captured
14 by the first image sensor?

15 A. I think you're mixing apples and
16 oranges in -- in the hope that some sound bite
17 comes out.

18 So you see, if you look at 22.3, you
19 have independently controlling simultaneous data
20 acquisition. So you have independent control.
21 So you can affect one without the other. I can
22 control channel 1 independently from channel 2,

1 vice versa.

2 Simultaneous, it's got to be done
3 at -- the data acquisition is done at the same
4 time with each of the first and second channels
5 during a frame, so during the capture of a frame
6 of video from each of the channels, so not
7 sequential. Like, I'm not getting a frame from
8 channel 1 and delta T later I'm getting a frame
9 from channel 2, like you would do in Miyazaki,
10 for instance.

11 So it's during the capturing of the
12 frame of video from each of the channels. It's
13 got to be independent, simultaneous and during.
14 All three have to be there.

15 Q. 22.3 requires separate frames from
16 separate channels?

17 A. Well, you're acquiring a frame from
18 each channel. So channel alpha or channel red,
19 let's say, has a frame. Channel blue has a
20 frame. You're acquiring the frame from each of
21 the channels. And you're independently
22 controlling the simultaneous data acquisition

1 during the frame, during, you know, the
2 acquisition of that -- you know, during -- during
3 a frame, during the capturing of the frame of
4 video from each of the channels.

5 Q. Is that a yes?

6 A. I think I've answered your question.

7 Q. So is it correct that limitation 22.3
8 requires separate frames from separate channels?

9 A. Yeah. Let's -- let's go over
10 limitation 23 to make sure it's -- 22.3 to make
11 sure it's -- we're on the same page.

12 So you're independently controlling.
13 You're affecting one without the other. So I
14 have independent control of each of the channels
15 that were talked about in 22.1 and 22.2.

16 It's simultaneous, so at the same
17 time, within the same time interval that we've
18 been talking about earlier, data acquisition with
19 each of the first and second channels during a
20 frame. So during a capturing of the frame of
21 video from each of the channels. So you're
22 capturing basically the frame of video where --

1 from each of the channels, you know, in this
2 rolling mode that we're talking about. So you're
3 capturing basically the rolling mode lines that
4 we're talking about, you know, during the
5 capturing of a frame of video from each of the
6 channels. You're not doing it sequentially.

7 Q. Does during a frame in limitation
8 22.3 require that the frame is with the first
9 channel?

10 A. I don't understand your question.

11 Q. So you see that limitation. Do you
12 agree that limitation 22.3 recites a singular "a
13 frame"?

14 Do you see that?

15 A. Yes.

16 Q. Does the limitation require that a
17 frame is with the first channel?

18 A. I think you're mixing apples and
19 oranges here. So think about the rolling mode
20 capture that we've been talking about. So you're
21 capturing one line from sensor 1. You're
22 capturing one line from sensor 2.

1 Then X many microsecond later, you
2 capture the next line. And that's happening
3 simultaneous. So you're capturing these lines
4 that eventually will become the combined image.
5 So that's during a frame, so during that frame
6 time, in a sense, that you are, you know, doing
7 the capture.

8 But you're capturing, like, this
9 rolling mode. You're not capturing in a full
10 frame like a snapshot. So you're capturing, you
11 know, line from channel 1. You're capturing a
12 line from channel 2. You're next going to the
13 next line and those are -- that's happening
14 simultaneously.

15 And all of that eventually creates an
16 image at the end when you combine that
17 information.

18 Q. How many frames does limitation 22.3
19 require?

20 A. Well, it says during a frame. So
21 during a frame -- during the capturing of the
22 frame of video that eventually, as you combine

1 them, you produce the image, you're doing this
2 rolling mode we're talking about.

3 Q. You just said as you combine them.
4 What does "them" mean?

5 A. You're capturing with -- with
6 channel 1 data. You're capturing with channel 2
7 data. That's -- that's being combined in 22.4
8 during -- that's received during a frame to form
9 the image that you see on the screen, let's say,
10 at the LCD display.

11 So you're combining them to produce
12 that image that you look at on your screen. So
13 if these were RGB channels, you would combine
14 them to produce a color image.

15 Q. Do you have any other examples for
16 combining data to produce an image, other than
17 combining RGB channels?

18 A. Well, you could probably combine a
19 gray scale channel with RGB. I think the RGB is
20 a good example.

21 Q. Do you have any other examples for
22 combining the images?

1 A. For -- for this -- for the purpose of
2 this deposition, I think RGB is good enough, a
3 good enough example.

4 Q. Does the RGB -- sorry.

5 Does the RGB example fall within the
6 scope of the claim 22?

7 A. Well, if you look at claim 22, you
8 obviously -- it's talking about the first optic
9 component that has a first channel with a first
10 field of view that comprises a first angular
11 width. So maybe that's channel 1. Maybe that's
12 red or some gray scale channel.

13 And then you have a second optic
14 component relative to second image sensor that
15 forms a second channel. Maybe that's another
16 gray scale channel or green.

17 And the angular width of that second
18 one is different from the first one. So you can
19 think of the first one as gray scale one and the
20 second one as gray scale two, if you want. And
21 they have different angular width.

22 And at the end, you're combining them

1 in 22.4 to provide you an image on the LCD
2 display.

3 Q. So does the two field of views have
4 overlap?

5 A. Well, it's talking about the first
6 angular width of a scene. Right? So that's the
7 3D world that you're capturing. And then the
8 second one says the second angular width of that
9 scene, so whatever you're looking at out there.

10 So it's not -- so you'd be looking --
11 obviously, the angular width is different, so
12 you're looking at different width of the scene,
13 but you're looking -- the idea is you're looking
14 at -- at the -- you know, more or less
15 practically the scene out there that you're
16 looking at.

17 Q. What's the benefit of having
18 different angular width of the scene?

19 A. Different -- different, you know,
20 resolutions of -- between the first and the
21 second one. So I'd get, you know, a higher
22 resolution with the second sensor, let's say,

1 from the first sensor if the second sensor has
2 the smaller angular.

3 Q. Will that be a part of a scene that
4 is covered by one sensor but not the other?

5 A. Potentially. If you -- if the second
6 angular width, let's say, is, I don't know,
7 60 degrees and the first one is 90 degrees, so
8 the first one is going to see more than the
9 second one.

10 Q. So let's go back to your RGB example.
11 For the part that is seen in the
12 90 degrees angle but not in the 60 degrees angle,
13 is it correct that it only contains data from the
14 90-degree angle channel?

15 A. So if channel 1 was, for instance, a
16 gray scale channel and you have it at, say,
17 90 degrees, then you would capture that data.
18 And then channel 2 was another gray scale channel
19 and you're capturing -- at 60 degrees, you would
20 capture that data.

21 Q. So the output frame is a gray scale
22 image; is that right?

1 A. Well, I mean, I'm giving this as an
2 example here. So if channel 1 was a gray scale
3 image and being captured at, let's say,
4 90 degrees and channel 2 was another gray scale
5 image being captured at 60 degrees, which --
6 which will then result in a higher -- potentially
7 higher resolution, so -- so the combination of
8 the two would result in a gray scale image.

9 Q. Can both channels capture color
10 images?

11 A. I'm not sure what -- what you're
12 asking. I mean, if you look at the claims,
13 claim 22 and you go back -- let's say you look at
14 claim 28 and 30, you add, obviously, a third
15 sensor there and a fourth sensor there. So you
16 could add additional sensors as you go down to
17 the other claims.

18 But claim 22 claims to the first
19 optic channel -- first optic component and a
20 first channel and the second element, 22.2,
21 claims a second optic component and a second
22 channel.

1 Q. Is it correct that claim 22 does not
2 require separate RGB channels?

3 A. I don't understand your question. I
4 believe I've answered what I think the claim
5 requires. I don't understand what you're asking.

6 Q. Does claim 22 require separate
7 channels for separate colors?

8 A. I think you're mixing up multiple
9 concepts.

10 Q. Why?

11 A. Well, I mean, the claim 22.1 provides
12 a first image sensor and to form a first channel.
13 So there's -- 22.1 talks about the first channel
14 and its configuration.

15 22.2 talks about the second channel
16 and its configuration and how it's different from
17 the first channel. So that's what's claimed.

18 Q. Let's look at limitation 22.4.

19 A. Okay. The combining limitation.

20 Q. Is it correct that the data recited
21 in limitation 22.4 are data having different
22 angle width?

1 A. Well, it's combining data received
2 during the frame from one or more of the first
3 and second channels, however they're defined.
4 They're configured in 22.1 and 22.2.

5 22.3 is acquiring the data,
6 independent, simultaneous acquiring during the
7 frame. 22.4 is combining that data that's
8 received during the frame that was talking about
9 in 22.3 to provide the image, let's say, on your
10 LCD display at the end.

11 So the image is the end result of the
12 combination.

13 Q. Does limitation 22.4 require any
14 specific algorithms for combination?

15 A. So, for instance, you can see, like,
16 in column 9, lines 55 to 59, you see it says, The
17 signal processing circuit 710 may combine the
18 output from signal processing 708 into output
19 data usually in the form of a recombined full
20 color image.

21 So in this case they're combining it
22 into a full color image.

1 Now, if you look at column 10,
2 lines 43 to 48, you see the individual images are
3 combined to form one full color or black and
4 white image and it talks about the tailoring of
5 the arrays to get a higher quality image.

6 Q. Let's first go to column 9, line 55
7 to 59.

8 A. Column 9?

9 Q. Correct.

10 A. Yep.

11 Q. Does the specification describe that
12 the two channels in Figure 7 have different angle
13 of width?

14 A. Well, it's describing -- I mean, in
15 this case, Figure 7 being -- obviously if you
16 look at the figure, you have a RGB and an IR
17 channel. And that's an embodiment of what's
18 being discussed here. So you can see it says,
19 Figure 7 is an exploded view of the digital
20 camera subsystem 602, referring to the previous
21 figure, under an embodiment.

22 Q. So does Figure 7 describe one channel

1 for a color, for example, red, has a different
2 angle of width than another channel, for example,
3 for color green?

4 A. Well, it doesn't say -- specifically
5 in Figure 7 doesn't say specifically what the
6 angle -- doesn't describe the angle specifically
7 in Figure 7. But just Figure 7 is talking about
8 a potential embodiment of this -- you know, one
9 of the embodiments that -- how you could practice
10 this invention.

11 Q. Does '180 patent describe how to
12 combine images of different field of views?

13 A. So you see there -- like for
14 instance, Figure 9, when you look at figure 9,
15 you see there is in the description on column 10,
16 line 27, so you see it says there Figure 9 is a
17 block diagram of a digital camera subsystem that
18 employs separate arrays, and they show you those
19 in the figure on one image sensor. So you have
20 separate arrays in contrast to the prior art.

21 So the prior art, obviously, employs
22 Bayer pattern. So it's talking about, obviously,

1 in this case, for example, typical prior art
2 approaches employ a Bayer pattern --

3 (Reporter clarification.)

4 THE WITNESS: So the passage on
5 column 10 says, for example, typical prior
6 art approaches employ a Bayer pattern, or
7 variations thereof, perform operations
8 across the array and integrate each set of
9 four pixels, red, green, blue -- red,
10 green, blue, green or a variation thereof
11 from the array into a single full color
12 image.

13 BY MS. SHI:

14 Q. So on Figure 9 it shows four image
15 sensors, right?

16 A. Well, it shows separate arrays, as it
17 calls them, 904A, B, C and D.

18 Q. Where does the '180 patent describe
19 that 912A has a different field of view than the
20 other arrays?

21 A. It states in the claims. That's
22 essentially what it states in the claims.

1 So if you look at the claim, it tells
2 you that you have a first optic component
3 relative to a first image sensor to form a first
4 channel having a first field of view that
5 comprises a first angular width of a scene.

6 It's clearly stating that you have a
7 first optic component, let's say a lens, relative
8 to a first image sensor, a CCD array, to form a
9 first channel, let's say gray scale channel 1,
10 having a first field of view with some angular
11 width.

12 A POSITA reading that would
13 understand exactly what that's saying.

14 Q. Are you reading Figure 9 in light of
15 the claim language of claim 22?

16 A. Figure 9 is just an embodiment,
17 right, as it states -- you know, as an example,
18 the block diagram. The -- the invention is in
19 the claims. What's claimed is the invention.

20 The specification -- a POSITA reads
21 the claims -- that's the invention -- in light of
22 the specification to understand -- you know, to

1 clearly understand what's being claimed. But the
2 invention is what is claimed.

3 Q. Is claim 9 an example of the
4 invention of claim 22?

5 A. Claim 9? I didn't --

6 Q. Sorry. Scratch that. Figure 9. So
7 scratch that.

8 Is Figure 9 an example of invention
9 of claim 22?

10 A. Well, Figure 9 is a block diagram
11 that employs separate arrays on one image sensor.
12 So it's just discussing showing you that here's a
13 way of employing separate arrays on one image
14 sensor.

15 But the claim itself claims a first
16 image sensor that has a first channel and it
17 claims a second image sensor that forms a second
18 channel. So you have to have -- to practice the
19 claim, you would need to have a first optic
20 component relative to a first image sensor that
21 forms a first channel with a first field of view
22 and a first angular width of a scene to practice

1 22.1.

2 Q. So is that a no?

3 A. Well, Figure 9 is talking about
4 basically multiple arrays on one image sensor.
5 So the claim requires a first image sensor and a
6 second image sensor. So -- so to practice the
7 claim, you have to have a first image sensor and
8 a second image sensor.

9 Q. So is that a no?

10 A. The claim claims two separate image
11 sensors. To practice the claim, you have to have
12 a first image sensor and a second image sensor,
13 not one sensor. You have -- the claim claims
14 two -- a first and a second.

15 Q. Is Figure 7 an example of the
16 invention of claim 22?

17 A. Well, again, Figure -- Figure 7 is
18 talking about, you know, an image sensor 704. So
19 it's -- it's referring to a single image sensor.
20 And it's potentially an embodiment.

21 Q. When you say it's potentially an
22 embodiment, do you mean Figure 7 is potentially

1 an embodiment of the invention of claim 22?

2 A. Well, there are more than one
3 claims -- one claim in this invention. Right?
4 It's not just one claim. So, like, claim 1, for
5 instance, you have a plurality of channels. And
6 so there are multiple claims in this invention,
7 right, not just one claim.

8 Q. My question -- sorry.

9 A. Claim 1, for instance, doesn't say
10 anything about an image sensor. So claim 1
11 claims -- you have an optic component and an
12 array of photo detectors integrated on a
13 semiconductor substrate and you have a first
14 channel, first field of view, et cetera.

15 So there's more than one invention
16 that's claimed here. Right? So the
17 specification talks about everything that's being
18 claimed. Not necessarily every paragraph of the
19 specification has to read for every claim.

20 Q. Is it correct that Figure 7 is not an
21 example of the invention of claim 22?

22 A. Well, Figure 7 refers to an image

1 sensor versus claim 22 claims a first image
2 sensor and a second image sensor. So for you to
3 practice claim 22, you would need to have a first
4 image sensor and a second image sensor to
5 practice that claim.

6 To practice claim 1, you -- doesn't
7 say that. You just have to have an array of
8 photo detectors integrated on a semiconductor
9 substrate.

10 Q. Does '180 patent describe combining
11 two images of different field of views from two
12 separate image sensors?

13 A. I think that's what's being described
14 in this patent. Right? Simultaneous multiple
15 field of view digital cameras. So you're
16 capturing simultaneously multiple field of views
17 digital cameras. And if you look at the
18 abstract, the last two sentences or last two
19 lines it says, and to combine data from at least
20 one channel during a frame to provide a high
21 resolution image.

22 So that's what's proposed in this

1 invention, is you have multiple field of view
2 digital camera that's simultaneously acquiring
3 data and then combining it to form an image.

4 Q. Other than the abstract, do you have
5 description from '180 to describe combining two
6 images of different field of views?

7 A. I think we talked about that earlier.
8 So column 10, for instance, it will say the --
9 column 10, lines 7 through 10, These individual
10 images are then combined with additional signal
11 processing circuitry within the semiconductor
12 chip to form a full image for output.

13 Q. Is that description related to
14 Figure 9?

15 A. I don't know what you mean. I mean,
16 if you look at the description of Figure 9 on
17 column 10, which starts on line 27 to line 52,
18 you can see halfway down that description it's
19 talking about -- I'm on line 40 now -- it's
20 talking about Signal processing circuitry for
21 each of the arrays is also tailored for each of
22 the bands of visible spectrum. It's like 400 to

1 700 nanometer, approximately.

2 And you see it says, In effect,
3 individual images are created for each of these
4 arrays. Following this process, the individual
5 images are combined. I don't think -- or -- or
6 to form one color -- in one full color or black
7 and white image. And then, obviously, it's
8 looking for a higher quality image can be
9 generated from the image resulting from
10 traditional image sensors.

11 So it's talking about single
12 processing circuitry that would basically do this
13 combination.

14 Q. My question is column 9, lines 27
15 through line 52 are a description of Figure 9; is
16 that right?

17 A. Column 9, lines 27? No, it's not
18 right.

19 Q. Scratch that. My question is
20 column 10 --

21 A. Correct.

22 Q. -- lines 27 through line 52 are

1 descriptions of Figure 9; is that right?

2 A. Correct.

3 Q. Okay.

4 MS. SHI: Let's take a ten-minute
5 break.

6 (Thereupon, a brief recess was
7 taken.)

8 MS. SHI: I have no further
9 questions. Pass the witness.

10 MR. THEISS: Great. Just let me
11 take five minutes -- it's like the end of
12 a basketball game -- and see if I have any
13 redirect. I don't think I do.

14 MS. SHI: Sure.

15 (Thereupon, a brief recess was
16 taken.)

17 MR. THEISS: Patent owner has no
18 redirect at this time.

19 (Thereupon, signature having been
20 waived, at 2:08 p.m. EST, the
21 deposition concluded.)
22

E X H I B I T S

EXHIBITS PREVIOUSLY MARKED AND REFERRED TO:

NO.:	DESCRIPTION:	PAGE:
Exhibit 1001	United States Patent No. 7,916,180	28
Exhibit 2020	Declaration of Dr. Eli Saber in Support of Patent Owner's Response, dated 10/17/25	5

I N D E X

WITNESS:	EXAMINATION BY:	PAGE:
Eli Saber, Ph.D.	Ms. Shi	3

CERTIFICATE OF NOTARY

I, MISTY KLAPPER, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me in shorthand and thereafter reduced to typewriting by me; that said deposition is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and, further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



Misty Klapper, RMR, CSR, RPR,
RSA and Notary Public

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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