

R. MICHAEL GUIDASH-DAY 3**January 11, 2017**UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD-----
SONY CORPORATION,

Petitioner,

v

COLLABO INNOVATIONS, INC.,

Patent Owner,
-----Case IPR 2016-00041
U.S. Patent No. 5,952,714

DEPOSITION OF R. MICHAEL GUIDASH

DATE: Wednesday, January 11, 2017

TIME: 9:15 a.m.

LOCATION: TURNER BOYD LLP
702 Marshall Street
Redwood City, California

REPORTED BY: LYNNE M. LEDANOIS, C.S.R. 6811

JOB NO. 117032

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1 A P P E A R A N C E S :

2

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15 Also Present: ERIC PARKER, Videographer

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1	I N D E X O F E X A M I N A T I O N	
2	Examination by:	Page
3	MR. KLIEWER	4
4	MS. GU	81
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1 Redwood City, California, January 11, 2017

2 9:15 a.m.

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4 VIDEOGRAPHER: Here begins media Number 1 to
5 the videotaped deposition of R. Michael Guidash, Volume
6 3, in the matter of Sony Corporation versus Collabo
7 Innovations, Incorporated, at the location of Turner
8 Boyd LLP, 702 Marshall Street, Suite 640, Redwood City,
9 California 94063, on January 11th, 2017, at
10 approximately 9:15 a.m.

11 My name is Eric Parker and I'm the
12 videographer, here with our court reporter, Lynne
13 Ledanois.

14 Would counsel please reintroduce themselves and
15 their affiliations.

16 MS. GU: Zhuanjia Gu of Turner Boyd LLP, here
17 on behalf of the petitioner, Sony Corporation.

18 MR. KLIEWER: Nick Kliewer with Bragalone
19 Conroy, representing the patent owner, Collabo.

20 VIDEOGRAPHER: Thank you, Counsel.

21 The reporter will now swear in the witness.

22 R. MICHAEL GUIDASH,
23 having first been duly sworn, testified as follows:

24 EXAMINATION

25 BY MR. KLIEWER:

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1 Q Good morning.

2 A Good morning.

3 Q Can you please introduce yourself for the
4 record?

5 A I am Michael Guidash.

6 MS. GU: One second, Nick.

7 Before we formally begin, should I discuss --

8 MR. KLIEWER: Please.

9 MS. GU: The parties have discussed and come to
10 an agreement that in the interest of time and
11 efficiency, to the extent there are questions that have
12 already been asked with respect to background
13 information, such as Mr. Guidash's C.V. or his previous
14 work and testimony experience, the parties have agreed
15 to allow each other to rely on Mr. Guidash's testimony
16 in the '938, '939 and '940 -- is that the first two
17 days --

18 MR. KLIEWER: Yes.

19 MS. GU: -- matters.

20 Sounds about right, Nick?

21 MR. KLIEWER: I think so, yes. Thank you.

22 BY MR. KLIEWER:

23 Q Mr. Guidash, is there a reason that you cannot
24 testify truthfully here today?

25 A No, there is not.

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1 Q Is there any reason why your testimony here
2 today might be unreliable?

3 A No, there is not.

4 Q I think you have before you your C.V. in this
5 matter, which has been marked as Exhibit --

6 MS. GU: 1012.

7 MR. KLIEWER: In this case?

8 MS. GU: I haven't checked. Are they the same
9 in all of them?

10 MR. KLIEWER: No, they're different. They're
11 all different.

12 MS. GU: Okay.

13 BY MR. KLIEWER:

14 Q Let me look. 1026.

15 A My C.V. is the same for all cases. This one
16 happens to be marked 1014, but it is the same C.V.

17 MS. GU: You mean for all of the Sony-Collabo
18 matters; right? Your C.V. is the same?

19 THE WITNESS: That's correct.

20 MS. GU: Okay.

21 BY MR. KLIEWER:

22 Q So you don't have any reason to believe that
23 Exhibit 1026, the C.V. in this case, is any different
24 than the C.V. you've got in front of you?

25 A I do not.

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1 Q On Page 1 of your C.V., you state that you
2 worked for Kodak from 1981 to 2012; is that correct?

3 A From 1981 to May of 2012, that is correct.

4 Q During that time, were you ever employed as a
5 package engineer?

6 A I was never -- held the position of a packaging
7 engineer.

8 Q On your C.V., you state that you worked as a
9 yield enhancement engineer; is that correct?

10 A That's correct.

11 Q And in that position, did you -- let me ask
12 that differently.

13 Did the yield enhancement that you were working
14 with in that position have to do with package yield?

15 A The position of yield enhancement engineer, as
16 well as the position of product engineer, involved
17 looking at package yield and understanding the packaging
18 technology, the package process to be used in the
19 various products and devices I was responsible for yield
20 for in the context of those packages meeting
21 specification, in the context of those packages for an
22 image sensor and ASICs, as well as the context of the
23 effects of the package technology on cost and yield.

24 Q You were never responsible for the design of
25 any image packages -- let me rephrase that -- imaging

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1 device packages?

2 A I did not have the specific responsibility of
3 designing a package for a particular device.

4 I did as a product engineer have oversight into
5 the package design and whether or not it would conform
6 with the specifications of the product that I was
7 responsible for.

8 Q Were you responsible for supplying those
9 specifications?

10 A The specifications for the products I was
11 responsible for in terms of a yield enhancement engineer
12 or a product engineer were provided by the overall
13 products -- or the overall specifications were provided
14 by a marketing or product development group.

15 The specific specifications in terms of the
16 product details, I was responsible for translating those
17 from the broad market or product specification into the
18 detailed specifications for the product, including the
19 parameters or specifications that were related to the
20 package.

21 Q Did any of your experiences at Kodak involve
22 the design of packaging?

23 MS. GU: Objection, form.

24 THE WITNESS: My experiences at Kodak did
25 involve the design of packaging.

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1 BY MR. KLIEWER:

2 Q Can you explain to the Board what those
3 experiences were?

4 A One example of an experience related to the
5 design of packaging was with respect to CMOS image
6 sensor and a packaging methodology by which it could
7 with low cost be easily integrated into a compact unit
8 in a cell phone.

9 Q Any other experience?

10 A Another specific experience was related to the
11 design of a package that would be simple, low cost, and
12 robust enough to provide engineering samples to
13 customers in demonstration cameras.

14 Q Any other experience?

15 A Another experience was related to the process
16 and material for clear plastic injection-molded packages
17 for photometer ASICs, which are small image sensors used
18 to determine exposure control focus positioning for
19 cameras, coupled with a means to cover the
20 light-sensitive circuits on that chip while retaining a
21 low-cost clear package-molded -- clear plastic
22 packaging-molded approach.

23 Q Any other experiences that involved the design
24 of packaging?

25 A Yes. One other experience was related to the

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1 cover glass and related opening of the package for an
2 image sensor to reduce reflections -- stray reflections
3 from pieces of the package onto the image sensing area.

4 Q Any other experiences?

5 A There were other experiences that I had. I
6 don't recall all of the details.

7 Q Were they not of a significant nature that you
8 would recall as you sit here?

9 MS. GU: Objection, form.

10 THE WITNESS: I simply don't remember
11 everything I did with respect to experience related to
12 packaging over the entirety of my career.

13 BY MR. KLIEWER:

14 Q These experiences that you just related to me,
15 are they represented in your C.V.?

16 A The specific examples, I don't recall if they
17 are presented in the C.V., but the positions I held
18 through which I gained the experience I just articulated
19 are in my C.V.

20 Q I'm going to hand you what's marked in this
21 case as Exhibit 1002.

22 Do you recognize this document?

23 A Yes, I do.

24 Q What is it?

25 A Excuse me. This is the declaration I provided

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1 with respect to the 5,952,714 patent.

2 Q And these experiences that you related to me
3 previously regarding package design, are they
4 represented in your declaration?

5 A The positions that I held through which I
6 gained packaging experience are represented in my
7 declaration.

8 Q I would like to talk to you a little bit about
9 each of these experiences.

10 In the experience that you said was related to
11 the design of packaging with respect to CMOS image
12 sensors and a packaging methodology by which it could
13 with low cost be easily integrated into a compact unit
14 in a cell phone, can you explain to the Board exactly
15 what your involvement with that was?

16 A My involvement with that was providing the
17 overall concept and approach for this package, working
18 with the packaging engineers in the image sensor
19 department or group, as well as the mechanical engineers
20 that were involved in camera design.

21 We formed a team which I led and worked through
22 the requirements of that package and the detailed
23 approach of -- approaches of how to reduce the size,
24 reduce the cost, hermetically seal the image sensor,
25 provide a small footprint interconnection to the sensor,

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1 and incorporate in the package housing the taking lens
2 or lenses of the camera.

3 Q How many other people were on this team?

4 A Approximately four or five people.

5 Q Can you tell me who they were?

6 A I don't recall the names of those people.

7 Q None of them?

8 A I don't recall the names of the people on that
9 team.

10 Q When you say that you provided the overall
11 concept, did you invent anything there?

12 MS. GU: Objection, form.

13 THE WITNESS: I don't recall if there were any
14 inventions that came -- any patent applications that
15 were filed on the basis of that overall concept.

16 BY MR. KLIEWER:

17 Q Did providing the overall concept include the
18 design of the package?

19 A Providing the overall concept included the
20 design of the package in the sense of the proposed
21 connection approach, in terms of the proposed
22 integration of the taking lens and sealing of the
23 cavity, and in terms of the interconnection approach of
24 the module or unit into the phone system.

25 Q Did this proposed integration include any novel

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1 or innovative way of taking the lens and sealing it in
2 the cavity?

3 MS. GU: Objection, form.

4 THE WITNESS: I don't recall if the approach
5 was novel with respect to there being no prior art at
6 the time that would be the same.

7 At the time I proposed the concept, I believed
8 that it was a new method of package -- of providing a
9 low-cost package for an image sensor to be integrated
10 into a small handheld product such as a cell phone.

11 BY MR. KLIEWER:

12 Q What was new about the method?

13 A What I believed to be possibly new about the
14 method was elimination of a cover glass, providing a
15 taking lens housing that would be readily mechanically
16 aligned to the image array, and would be the means by
17 which the image sensor cavity was hermetically sealed.

18 Additionally, I believed the method of bringing
19 the contacts or the signals to the outside world to be
20 connected to the phone in this case, I also at the time
21 believed could be a new approach.

22 Q What is a cover glass?

23 A A cover glass is generally referred to as the
24 piece of transparent material that is disposed on an
25 image sensor packaging substrate to serve the purpose of

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1 hermetically sealing the cavity of the substrate, and --
2 where image sensor resides, providing a mechanism for
3 light to be able to be incident on the image sensor.

4 So it covers the opening of the cavity of the
5 image sensor package.

6 Q So why would you eliminate a cover glass in
7 that case?

8 A What case are you referring to?

9 Q The one you're speaking of in the question you
10 just answered.

11 A In the case of the package used -- or designed
12 to be used in a cell phone, elimination of the cover
13 glass was done to reduce the cost of the package.

14 Q Was this package hermetically sealed?

15 A Yes, it was. The package provided -- the
16 low-cost packaging approach provided -- or developed and
17 proposed for use in a cell phone was also hermetically
18 sealed, but done so without the use of a cover glass.

19 Q How was that done?

20 A In general, that was done by a lens housing
21 design that would connect to the substrate that the
22 image sensor was bonded to that provided both the
23 function of the cover glass with respect to -- a lens is
24 made of glass and is transparent and allows light to hit
25 the image sensor.

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1 But the housing or component that held the lens
2 would serve as the means for sealing the cavity and
3 creating the cavity that the image sensor was in.

4 Q In general, is it important for image sensing
5 devices to be hermetically sealed?

6 A In general, it is important for image sensor
7 devices to be hermetically sealed.

8 The specific details of to what extent they are
9 hermetically sealed will depend on the application they
10 are used in, "they" being image sensors.

11 Q Why would it generally be important?

12 A One reason to -- that it's generally important
13 is to prevent the intrusion of moisture into the cavity
14 such that the microlenses or color filter arrays do not
15 see moisture, so that the bond pads and attendant
16 electrode pads are not exposed to moisture.

17 Both of those things can cause problems such as
18 corrosion or swelling of the materials.

19 It's also important to keep environmental
20 contaminants such as alkaline metals out of the cavity.

21 It's also important to keep environmental
22 things such dust and particles from entering into the
23 cavity.

24 Those are some of the reasons that it's
25 important for an image sensor to be hermetically sealed.

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1 Q Those are all reasons that are important for
2 integrated circuits to be sealed in general, isn't it?

3 A So integrated circuits in general do not have
4 the requirement to prevent particles from occluding
5 light from hitting the image sensor.

6 So that specific example would not be a reason
7 for hermetically sealing an integrated circuit that did
8 not have an imaging function.

9 Q An image sensor's package must have an opening
10 to allow light to strike the image sensor; correct?

11 A An image sensor package has to have a means in
12 the package for light to transmit through and hit the
13 photo detectors.

14 In the sense of an opening, the feature in the
15 image sensor package that allows the light may or may
16 not be an opening.

17 But, typically, one would call an image sensor
18 package with a packaging substrate that is disposed both
19 above and below the image sensor, the material of that
20 substrate would have an -- would require there to be an
21 opening or a cavity for which light to penetrate.

22 Q Besides having an opening, is there another
23 means for light to transmit through and hit the photo
24 detectors?

25 A So one example of a package that one may say

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1 does not have an opening is a package that is created --
2 the substrate is transparent or clear to start with.

3 So the entire sub -- material that surrounds
4 the lead frame or the sub -- let's say, for example, a
5 lead frame, the entire material that encloses that lead
6 frame is clear, the entire substrate allows light to hit
7 the image sensing device.

8 So in that context, it may be there's not an
9 opening, but in a package with a substrate that has a
10 material that is opaque or not transparent, there would
11 have to be an opening in order for light to go through
12 the substrate and hit the image sensor.

13 Q Is that the same for back-side and front-side
14 devices?

15 A Generally, it would not depend whether or not
16 the device is front-side or back-side.

17 Q And just so I know we're on the same page, can
18 you explain the difference between a back-side and a
19 front-side device?

20 A So in the field of image sensors, there are
21 generally two types of illumination approaches; one
22 being commonly referred to as front-side illuminated;
23 the other commonly referred to as back-side illuminated.

24 In the context of front-side illuminated, the
25 photo detectors are built on the same side of the

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1 substrate or same surface of the substrate, as an
2 integrated circuit would normally be fabricated and
3 where the devices reside.

4 In the case of a back-side illuminated
5 architecture, the light, instead of being incident on
6 the front side of the substrate, as I just mentioned in
7 the prior architecture, the light is incident on the
8 opposite side of the substrate, and photons are incident
9 on the photo detectors from the back surface rather than
10 front surface.

11 The location of the photo detectors can be
12 included on the front or built throughout the substrate
13 or combinations thereof.

14 Q The light that enters into the opening of an
15 image sensor's package must strike the photosensitive
16 portions of the image sensor without being obstructed;
17 is that correct?

18 A In order for an image sensor to function, the
19 light from the intended incident scene must strike the
20 silicon in the imaging region.

21 It does not necessarily have to be -- there do
22 not necessarily have to be regions where light is
23 occluded from a small portion of the image sensor array.

24 One example would be small regions that are in
25 between individual photo detector elements in order to

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1 reduce optical crosstalk.

2 Q Can you think of any other examples?

3 A One other example would be the -- in some
4 cases, there are -- if one defines the imaging region as
5 the array of detector elements or the aggregation of
6 detector elements, in some cases, a detector element may
7 be used as a reference to -- to generate a reference for
8 dark current to be subtracted from the signal that comes
9 from the detectors that are exposed to light.

10 In those instances, the photo detector elements
11 used to provide a dark current reference, for example,
12 will be shielded from incoming light.

13 Q Thank you. Now, can we talk about the second
14 experience that you had related to the design of image
15 sensor packaging, the one that you said would be simple,
16 low cost, and robust enough to provide engineering
17 samples to customers and demonstration cameras?

18 Was that a commercial package?

19 A That -- excuse me. That package was commercial
20 in the sense that demonstration cameras were sold to --
21 were sold.

22 Q What was your involvement in the design of that
23 package?

24 A My involvement was providing the overall
25 concept and working with the applications engineering

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1 group which built the demonstration camera and working
2 with a person in the packaging facility to make sure the
3 details that -- and the overall approach would be
4 consistent with the requirements of the demonstration
5 camera and able to be manufactured in the packaging part
6 of the facility without undue disruption to the other
7 devices that were being packaged in that facility.

8 Q Do you recall the person in the packaging
9 facility you worked with?

10 A I do not.

11 Q Would that person have been a packaging
12 engineer?

13 A Yes.

14 Q In general, what would be the function of a
15 packaging engineer?

16 A In general, the function of a packaging
17 engineer is two general areas.

18 One is the physical design of the location of
19 specific elements in the package, physical design of the
20 shape and size of a lead frame, would involve the
21 analysis of the interconnection technique, whether or
22 not it was robust with respect to distances from an
23 electrode pad to a connection point in the lead frame.

24 And those would all be done in the context of
25 looking at the proposed device to be packaged, the

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1 specifications for the footprint and size allocated to
2 that package in a product.

3 A second general function would be setting up
4 and maintaining the equipment and process flow for the
5 packaging process itself, monitoring that equipment,
6 monitoring that -- the output of the processes performed
7 by that equipment with respect to what typically would
8 be called a process control.

9 Those are the two general functions of a
10 packaging engineer.

11 Q And for an image sensing device, what would
12 that process flow generally be?

13 A Well, it would depend on the application and
14 type of imaging device it is.

15 Q So can you give an example of one?

16 A I can give an example of one.

17 One example would be a lead frame assembly is
18 encompassed by -- is taken as the root component, is
19 then put in a machine that does injection molding, and a
20 packaging substrate is molded to the lead frame, and
21 that molding process forms -- or attaches to parts of
22 the leads in the lead frame that are now adhered inside
23 of the packaging substrate.

24 Some of -- a portion of the leads of that lead
25 frame are extended out beyond the exterior of the

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1 packaging substrate.

2 And there is an opening in that packaging
3 substrate, and that opening is over the pad on the lead
4 frame where the image sensor would be mounted.

5 Those lead frames are singulated to provide the
6 individual package, so to speak.

7 Image sensors are then bonded or die bonded
8 to -- the singulated image sensor is die bonded to the
9 pad inside of the opening.

10 A wire bond machine will make wire bond
11 connections from the pads on the image sensor to the
12 leads on the lead frame.

13 After that process, a cover glass is provided
14 and placed by -- on top of or inserted into the opening
15 to -- and sealed with an epoxy to provide the
16 transparent means for light to strike the image sensor
17 and to hermetically seal the image sensor.

18 That's one example of a typical process flow.

19 Q What would be different in that flow if it was
20 not using a singulated image sensor?

21 A I'm not sure I understand your question.

22 Q You said that part of the flow includes that
23 the sensors are bonded or die bonded to the singulated
24 image sensor. What does that mean?

25 A So I believe I said a singulated image sensor

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1 is die bonded onto the pad in the lead frame.

2 A singulated image sensor means the sensors are
3 produced on a wafer and that those wafers are diced is
4 the typical term.

5 So they're sonar laser scribed or some process
6 by which the wafer of multiple image sensors is
7 dissected, so to speak, to provide a single image sensor
8 that would be placed into the package.

9 Q Is there a case where more than one die would
10 be placed in the package?

11 MS. GU: Objection, form.

12 THE WITNESS: There are examples of image
13 sensors -- there are examples of image sensing systems
14 where the package includes more than one image sensor.

15 BY MR. KLIEWER:

16 Q But those types of devices would not have been
17 around at the time of the invention of the '714 patent,
18 would they?

19 A The relevant time frame of the '714 patent,
20 which has a priority date of August 2nd, 1995, which the
21 relevant time frame is the early 1990s.

22 In the early 1990s, there were in existence
23 examples of package -- a package for an image sensor
24 system that contained more than one image sensor in the
25 package.

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1 Q Can you give me a specific example?

2 A Yes. One specific example would be an imaging
3 system that uses what is commonly referred to as
4 buttable image sensors, and those imaging systems,
5 multiple image sensors are placed adjacent to each other
6 in the package, and they are aligned in the package so
7 as to create an effectively larger size -- physically
8 larger image sensor to do the imaging function of the
9 system they're used in.

10 Q Were those sorts of devices produced
11 commercially?

12 A Yes, they were.

13 Q The process flow you described earlier would be
14 quite different for that sort of device, wouldn't it?

15 A The process flow is not necessarily different.

16 The process flow example that I provided
17 earlier, instead of placing a single singulated device
18 into the package, there is a process by -- or a series
19 of steps which a second singulated device would be
20 placed into the package.

21 Subsequent to that additional step, which is
22 the same as placing the first singulated device in the
23 package, the rest of the process flow is the same.

24 Q When you say that the device is placed in the
25 package, how is that generally done?

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1 A In the example that I provided, it is placed by
2 a die pickup tool that inserts the singulated die into
3 the opening or cavity in the package and places it on
4 the pad that is in the lead frame or the -- whatever
5 surface is designed for that chip to be placed on.

6 Q What other surfaces would be used other than a
7 lead frame?

8 MS. GU: Objection, form.

9 THE WITNESS: So, for example, a package may be
10 placed onto another substrate which has electrical
11 connection points and leads that are electroplated, and
12 one example might be the form in which printed circuit
13 boards are made.

14 So in that context, the -- there is a substrate
15 which has connection points, and the chip is placed on
16 that substrate and then wire bonded from the pads to the
17 connection points in the process example that I gave
18 earlier.

19 BY MR. KLIEWER:

20 Q And is the example you gave earlier the type of
21 process that would have been used in what you are
22 calling the, quote, relevant time period?

23 A The example I gave was one process that was in
24 use during the relevant time frame.

25 MS. GU: Break soon?

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1 MR. KLIEWER: Sure.

2 MS. GU: Now?

3 MR. KLIEWER: Now.

4 VIDEOGRAPHER: We're going off the record. The
5 time is 10:28 a.m.

6 (Recess Taken.)

7 VIDEOGRAPHER: Here begins media Number 2 to
8 the videotaped deposition of R. Michael Guidash, Volume
9 3. We are back on the record at 10:42 a.m.

10 BY MR. KLIEWER:

11 Q For imaging sense --

12 MS. GU: Oh, dear, day three.

13 BY MR. KLIEWER:

14 Q For image sensor devices, how is the opening in
15 the package generally formed?

16 A There are -- I'll provide two examples.

17 One example is the opening in the package is
18 formed during the molding process of the packaging
19 substrate.

20 So in that sense, the mold itself will have a
21 physical feature that precludes the molding material
22 from creating a continuous surface.

23 One can think of this as if you're taking a
24 cube of material and you mold it into a cube, instead of
25 the mold being a cube shape, the mold will have a finger

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1 or a protrusion that goes in through the top of the mold
2 that creates a region that is devoid of the molding
3 material.

4 That region can go partially through the
5 molding material. It can go from both the top and
6 bottom of the package and creating the molded material.

7 So it's the design and shape of the mold that
8 creates the opening.

9 A second example might be you -- one can
10 connect two pieces of packaging substrate material that
11 are -- one is formed that has an opening and can be
12 placed on one that does not, or you can take two pieces
13 of packaging substrate material that each have a hole
14 formed therein and can then connect them together.

15 Q When you say "packaging substrate," what do you
16 mean?

17 A I mean the material that is used to form the --
18 that is used to attach and adhere to the lead frame in
19 one example.

20 A packaging substrate could also refer to the
21 base material that the -- that is attached to the top
22 and bottom of a lead frame that may not necessarily be
23 molded, but may be placed there independently.

24 But in general, the packaging substrate would
25 be the material that is adhered or connected to the

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1 leads that are used to bring the voltages or signals
2 from the outside world to and from the image sensor.

3 Q And is one example of that packaging material
4 ceramic material?

5 A One example is ceramic; other examples are
6 plastic.

7 Q And in the example where two pieces of
8 packaging substrate material have a hole formed therein,
9 could the substrate material be ceramic?

10 A A package that's created by connecting two
11 pieces of packaging material could be ceramic or
12 plastic.

13 Q Is the process flow for packaging an image
14 sensor different than the process of packaging other
15 integrated circuits?

16 A The process of packaging an image sensor shares
17 a large body of issues and process steps and
18 technologies that are the same as packaging an
19 integrated circuit.

20 One could say the venn diagram of packaging and
21 integrated circuit and that of packaging an image
22 sensor, the overlap region is very large.

23 Image sensor has the additional requirement of
24 the package must have a means of getting light to the
25 image sensor.

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1 And the process of putting the image sensor in
2 the package is typically done in a more stringent, clean
3 room environment due to the issues related with metallic
4 contamination and particles.

5 Q Why would there need to be more stringent
6 requirements for an image sensor compared to something
7 like a memory IC?

8 A A memory IC -- well, a very small particle that
9 could land on an image sensor device would cause a
10 defect in the resulting image. A small particle that
11 may happen to land on the surface of a memory device is
12 of no consequence.

13 So the level of particles in a process area
14 that does image sensor packaging is much more tightly
15 controlled than that of a memory device.

16 Q How about placing the package -- I mean,
17 placing the die in the package, is there a difference on
18 how that is generally done with respect to image sensors
19 compared to other types of integrated circuits?

20 A The main difference is during dicing or
21 singulation of an image sensor, a protection layer is
22 placed over the wafer so that the particles generated by
23 the singulation process do not get stuck or adhere to or
24 land on the image sensor.

25 Q When you say "protection layer," are you

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1 referring to passivation?

2 A No, I am not.

3 Q What would the protection layer be there?

4 A Commonly, the protection layer is a flexible
5 plastic tape that has an adhesive specifically designed
6 not to damage the surface of the image sensor and is
7 removed after the singulation process is done.

8 Or it may be some other layer, not necessarily
9 a plastic tape, but some other temporary layer that's
10 used during the singulation or dicing process and
11 subsequently removed prior to it being sealed in the
12 package.

13 Q Was that also done in the relevant time frame?

14 A A so-called dicing protection layer was done in
15 the relevant time frame of the '714 patent.

16 Q How about the mounting of the die in the
17 package, would that be different?

18 A That's not necessarily different.

19 The mounting is done by die placement, using a
20 die pickup tool, and that is placed often on a piece of
21 epoxy that is -- or conductive epoxy or other adhesive
22 in the package similar to what's done with a memory
23 chip.

24 Q Wouldn't there be special considerations for
25 the placement of the image sensor die in the package

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1 compared to, say, a memory chip?

2 A Depending on the application, there would be a
3 more stringent requirement of physical placement of a
4 die in the package in the X, Y and Z direction than
5 would be the case for a memory chip.

6 Q And why is that?

7 A The general reason is if that package is placed
8 into a -- an optical system, in some cases, the
9 tolerances or the size of that optical system would
10 impose a requirement that the imaging array needs to fit
11 in with -- fit in a certain section of the optical field
12 of the taking lens and be plainer with respect to the
13 taking lens by some specified amount.

14 Q What is a taking lens?

15 A A taking lens is a lens that is used in any
16 imaging system. So it's the lens that is used to
17 transmit the image to the imaging area of the image
18 sensor.

19 So, for example, a taking lens in a camera is
20 different than a micro lens on a sensor.

21 A taking lens would be the lens someone
22 normally would construe looking at a camera as the lens,
23 the camera lens.

24 Q Is the micro lens on a sensor also a taking
25 lens?

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1 A The micro lens on a sensor is not a taking
2 lens.

3 Q Why not?

4 A Taking lens is commonly referred to as the
5 optical element in an imaging system which focuses the
6 incident light onto the surface that is comprised of the
7 imaging array. So it takes the image and transmits that
8 image to the array of imaging elements.

9 The micro lens has a different function. The
10 micro lens is used to take the bundle of arrays that are
11 incident on a pixel, which if incident on the pixel in
12 some cases without a micro lens would hit portions of
13 the pixel that are not efficient at creating electrons
14 or holes that would be subsequently collected by the
15 photo detector.

16 So a micro lens is used to effectively improve
17 the quantum efficiency of a single pixel. It is not
18 used to form an image.

19 Q When you say "form an image," what does that
20 mean?

21 A In the general context of an imaging system,
22 form an image would be use of a lens to focus the image
23 intended to be viewed onto the focal plane of the image
24 sensor array.

25 Q In the relevant time frame of the '714 patent,

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1 what were the size -- the array sizes during that time?

2 MS. GU: Objection, form.

3 THE WITNESS: During the early 1990s, there was
4 a wide variety of array sizes used in image sensors.

5 BY MR. KLIEWER:

6 Q What were the ranges?

7 A I can't answer specifically to include every
8 array size that was commercialized in the relevant time
9 frame in the invention, but, in general, the array sizes
10 could be as small as 128-by-128 pixels, maybe as large
11 as a few million pixels.

12 Q And when you say "pixel," is that the same
13 number or array of photo detectors?

14 A A pixel is commonly referred to as a picture
15 element that's -- a pixel is a pseudo translation of
16 that. In general, each pixel will contain a photo
17 detector.

18 There are some examples of image sensors in the
19 relevant time frame in the invention that had as few
20 as -- less than ten pixels or photo detectors on the
21 image sensor.

22 Q What types of devices would that generally
23 pertain to?

24 A That would pertain to things such as an
25 autofocus sensor, which is an image sensor that looks at

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1 the image and determines whether or not the image is in
2 focus.

3 Sensors that had even fewer would contain a --
4 would have the function of doing autoexposure control.

5 So they're a very low resolution sensor that's
6 looking at the general brightness of the incident scene
7 and subsequently determining the general exposure time
8 that would be required to capture the picture.

9 Q When you say "picture," is that the same as an
10 image?

11 A It could be -- in the case of -- we'll call it
12 a brightness value sensor, that may be determining the
13 exposure to use in capturing the image.

14 It may be related to the exposure to use in
15 some other machine vision application, which really
16 isn't capturing a picture, but it is rather using a
17 photo detector to gather information about an object and
18 make a decision on that information.

19 Q Going back to your experiences related to
20 package design, you mentioned two others: One related
21 to the process and material for clear plastic-injection
22 molded packages for photometer ASICs and another related
23 to the cover glass and related opening of the package
24 for an image sensor to reduce reflections.

25 Were those experiences more or less the same as

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1 the experiences you had in the first two -- or the first
2 two that you were speaking about?

3 MS. GU: Objection, form.

4 THE WITNESS: No, they were different in two
5 key respects.

6 BY MR. KLIEWER:

7 Q Can you explain?

8 A In the case of the clear plastic-injection
9 molded package for a photometer ASIC, the layout of the
10 particular image sensor was such that the photometer
11 pixels were placed in a given region, and there were
12 issues in the product with certain levels of light
13 causing the circuit -- the image sensor and photometer
14 ASIC circuit not to function properly.

15 The first step was to determine what the
16 failures were caused by and what specific circuits were
17 being affected and to what degree they were sensitive to
18 light.

19 The second part of the project involved how to
20 retain the benefit of the low-cost clear
21 plastic-injection molded process with a means to occlude
22 or shield key sensitive circuits on the ASIC from light.

23 Q And you solved that problem with packaging?

24 A Yes.

25 Q How?

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1 A The problem was, in the constraint of cost and
2 time frame, determined to be best solved by packaging by
3 coming up with a process by which an opaque plastic
4 could be placed on the sensitive circuits with a needle,
5 for lack of a better term, a small means to inject this
6 or place this opaque plastic prior to the process of
7 doing the full injection molding of the clear plastic
8 package.

9 This process was flexible because it could be
10 used on different types of photometer ASICs because all
11 of them did not have the same sensitive circuit. It was
12 programmable on the fly by the machine used to put the
13 black plastic down.

14 It did not involve a process step in the wafer
15 fabrication facility which would add cost, and it did
16 not affect the subsequent process steps of packaging,
17 and it did not affect the reliability of the package.

18 Q How were you involved in the design of this
19 package solution?

20 A I was the product engineer and it was my
21 responsibility to solve the problem in the context of
22 the boundary conditions I just stated.

23 I worked with a packaging engineer to
24 brainstorm means to perform -- or implement this
25 solution and worked with the engineer in devising the

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1 approach specified where the precision by which the
2 opaque plastic needed to be placed and its distance away
3 from the photo detecting regions and did the work to
4 show that the solution was robust over many operating
5 conditions in the camera and that it did not affect
6 reliability of the part.

7 Q So that seems like a list of high-level
8 requirements, but how about the design of the packaging
9 itself?

10 A So the design of the package in that case
11 remained the same.

12 I was involved in the design of an addition to
13 the packaging process, understanding from the
14 perspective of the technology of packaging that that
15 solution had to be within the constraints of things such
16 as the plastic material used to shield would have to
17 have a similar thermal expansion coefficient as the
18 plastic that was clear.

19 It had to be such that it did not interact with
20 the passivated surface of the ASIC and things of that
21 nature.

22 Q The shield in this case, what kind of material
23 was that?

24 A I don't recall the specifics of what material
25 we ended up ultimately using.

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1 Q And where with respect to the image sensor die
2 would this shield be placed?

3 A I don't recall the specific physical location.

4 It had to be placed over the specific circuits
5 that were deemed to be sensitive to some levels of light
6 that were causing malfunctions in cameras.

7 Q What kind of circuits would be sensitive to
8 light?

9 A So in general, all circuits will be -- that are
10 built in silicon, if a photon hits in the region of that
11 circuit, the photo electric effect causes an electron
12 hole pair.

13 The electron and hole are now free and need to
14 go and will go somewhere, depending on the specific
15 doping level and shape of the electric field in that
16 region.

17 Depending on the layout of the circuit and
18 depending on how critical the operation of a specific
19 circuit is to level of current, or has floating nodes,
20 or has the resistance of the ground -- the local ground
21 plane or supply plane to the outside world, those
22 factors will determine how sensitive a particular
23 circuit is.

24 In general, in CMOS image sensors, analog
25 circuits are very sensitive to light. Digital circuits

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1 are less sensitive to light.

2 In the case of a photometer ASIC example I
3 provided, all of the circuits were analog circuits. And
4 some of them were more sensitive than others and
5 sensitive enough that normal brightness level
6 encountered in many taking -- picture-taking instances
7 were being affected.

8 So assessment of what types of circuits, in
9 general it's analog, but the exact function of the
10 circuit will determine the specific sensitivity it has
11 to light.

12 Q Wouldn't just placing some opaque material such
13 as electrical tape over the top of the package where the
14 sensitive circuits are work just as effectively?

15 A No.

16 Q Why not?

17 A Well, the electrical tape has many problems.

18 One was the shape of the tape that would need
19 to be done.

20 Two is, it would be not easily physically
21 robust over heat and cold, and being just affixed to the
22 surface of the package are two reasons that that
23 approach was not viable.

24 Second was the cost, and that method most
25 likely would be more expensive.

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1 Q How about just dark ink over the top of the
2 package?

3 A I don't know what you mean by "dark ink" over
4 the top of the package.

5 Q So couldn't you shield the sensitive circuits
6 with ink or paint or some other material like that on
7 the package itself?

8 A I don't recall if those solutions were
9 considered at the time.

10 In general, inks and paints are not opaque.
11 They do have some transmission characteristics,
12 especially in infrared, which is a concern.

13 So I don't recall all of the details of that,
14 but I'm reciting the problem that was at hand and the
15 general solution that was devised to fit the criteria at
16 the time.

17 Q You mentioned the placement of the image
18 sensing die into the package was important to control in
19 the X and the Y and the Z plane.

20 Why would it have been important to control in
21 the Z plane?

22 A It -- depending on the specific optics used in
23 the imaging system, depending on the modulation transfer
24 function required of the optical system, there will be
25 some tolerance that the plane of the image detectors in

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1 the Z direction needs to be coincident with the focal
2 plane created -- the plane of focus created by the
3 optical system.

4 Q When light from the image enters the package
5 and hits the sensor array, is it all absorbed by the
6 sensor array?

7 A No, it is not.

8 Q What happens to the light that's not absorbed?

9 A The light that is not absorbed does not create
10 the photoelectric effect in an electron hole pair in the
11 silicon.

12 Q If it's not absorbed by the sensor array, what
13 happens to it?

14 MS. GU: Objection, form.

15 THE WITNESS: If there is a photon that does --
16 that is incident on the package surface, depending on
17 the wavelength of the photon, and depending on the
18 specific materials of the package, depending on the
19 specific materials of the dielectric stack over the
20 image sensor, the photon can be absorbed in the -- one
21 of the materials.

22 It can be reflected. It can be refracted and
23 directed to a part of the system that is not sensitive
24 to light.

25 BY MR. KLIEWER:

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1 Q Is this a reason to have shielding over those
2 areas?

3 MS. GU: Objection, form.

4 THE WITNESS: Those areas -- it's important to
5 have shielding over areas that are sensitive to photons.

6 It's important to have shielding over areas
7 that may reflect light that was not intended for being
8 incident on the image array are two examples of the
9 regions that are desired to be shielded.

10 BY MR. KLIEWER:

11 Q Why would it be important to shield areas that
12 may reflect light that was not intended for being
13 incident?

14 A The purpose of an image sensor device is to
15 capture the -- and make -- capture and create electron
16 hole pairs on the intended scene.

17 If a photon for some reason happens to strike
18 an element in the package that is reflective, that
19 photon will then -- can reflect into the image sensor
20 and create an incorrect number of electron hole pairs
21 and subsequently have an incorrect number of collected
22 electrons with respect to the scene that is being
23 analyzed or scene that is being viewed -- intended to be
24 viewed.

25 Q Would the angle that the incident light is

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1 hitting the sensor array -- strike that.

2 Would the placement of shielding over sensitive
3 circuits -- strike that.

4 I believe there was one more experience that
5 you had related to the cover glass and related to
6 opening of the package for an image sensor to reduce
7 stray reflections from pieces of the package onto the
8 image sensing area.

9 Was your experience in package design similar
10 in that case to the other three that you mentioned?

11 MS. GU: Objection, form.

12 THE WITNESS: It was similar to the third
13 example regarding photometer ASICs, but different in the
14 source of light that was hitting elements in the image
15 sensor, and, therefore, slightly different than that for
16 the photometer ASIC problem.

17 BY MR. KLIEWER:

18 Q When you said stray reflections from pieces of
19 the package onto the image sensing area, what is that?

20 A A specific example would be light enters the --
21 or transmits through the cover glass and the opening in
22 the package.

23 The image sensor in that particular package
24 had -- has -- and wire bonds disposed in a part of the
25 package that typically sensors of this type were not

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1 disposed in.

2 Light would hit the portions of the wire bonds
3 would be reflected up to the cover glass, reflected back
4 down, reflected off of the wire bond or ball bond in
5 many directions, and end up being incident on the
6 imaging array.

7 Q And that's a problem in the same way that you
8 spoke of earlier where extra photons are hitting the
9 image sensor in places where the light from the image --
10 where it would interfere with the light from the image?

11 MS. GU: Objection, form.

12 THE WITNESS: It's similar to part of my answer
13 to an earlier question where light that was not intended
14 to be used to look at or view the intended image ends up
15 incident on the image array and creating an error in the
16 electrical charges that are created with respect to what
17 was in the image.

18 BY MR. KLIEWER:

19 Q What was your experience in the design of the
20 package in that case?

21 A The experience in this case was directed to
22 being able to utilize the existing package and existing
23 cover glass with small modification to avoid the large
24 tooling costs associated with creating other packages to
25 solve the problem that I mentioned regarding stray

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1 light.

2 Q In this case, were you -- did you actually
3 design a package?

4 MS. GU: Objection, form.

5 THE WITNESS: In this case, the components
6 that -- in the -- that were included in the package, the
7 package comprising the initial substrate, the cover
8 glass materials -- put on the cover glass of materials
9 used to attach the cover glass were changed.

10 So in that context, it's a change to the design
11 of the package, the package containing the components
12 that I just mentioned.

13 BY MR. KLIEWER:

14 Q And your contribution to the design was
15 recommending those changes?

16 A Was in the end working with a packaging
17 engineer proposing solutions and working with a
18 packaging engineer to select which specific
19 implementations of those solutions would fit best in the
20 constraints of equipment, facility, cost, and schedule.

21 MR. KLIEWER: I'm fixing to go on to a new line
22 of questioning, if you want take a break now, or we can
23 go on, whatever.

24 MS. GU: Are you feeling okay? It kind of
25 depends on how much longer -- we're coming up to lunch.

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1 So do you want to take a lunch break now? Is everyone
2 hungry? Or we can go through another segment.

3 MR. KLIEWER: Let's go ahead and take a lunch
4 break now.

5 MS. GU: Okay.

6 VIDEOGRAPHER: We're going off the record. The
7 time is 11:49 a.m.

8 (Lunch Recess Taken.)

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1 AFTERNOON SESSION

2 VIDEOGRAPHER: We're going back on the record.

3 The time is 1:20 p.m.

4 BY MR. KLIEWER:

5 Q Good afternoon.

6 A Good afternoon.

7 Q For image sensors in the relevant time period
8 of the '714 patent, what were typical pixel shapes?

9 A The relevant time period of the '714 patent,
10 which was the early 1990s, typical pixel shapes were
11 square or rectangle, but that does not exclude other
12 shapes.

13 Q And what were typical photo detector shapes?

14 A In that relevant time frame, photo detector
15 shapes were -- for CCD image sensors or CMOS image
16 sensors could vary.

17 Typically, there was a motivation to make them
18 square or rectangular as well, but often they did not
19 always end up in that shape. Not often. And in some
20 instances, they would end up not in that shape.

21 Q What would be the motivation to make them
22 square or rectangle?

23 A The typical motivation to make them square or
24 rectangle would be to ensure they maintained a
25 reasonably uniform response for light coming in from

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1 various incident angles.

2 Q But to maximize the performance of a photo
3 detector in terms of incidence angles, wouldn't you want
4 a round photo detector?

5 A No, that's not necessarily the case.

6 Q Why not?

7 A A round object would not fit in the same space
8 that a square or rectangle would.

9 Its response would fall off more quickly than
10 the case where a square or rectangle would be used.

11 Q I would like to talk about the information you
12 considered in forming your opinion in this matter.

13 Can you tell me all the documents that you
14 considered in forming your opinion?

15 A The documents I used in forming my opinion
16 include the cited prior art references of Yoshino,
17 Wakabayashi, Izumi, Nagano, Hiroosawa, Nita, Hikosaka,
18 Fujii, and Onishi.

19 In addition, I used the '714 patent.

20 In addition, I used the -- a reference which
21 was a dictionary on interconnect and packaging.

22 Q And what was that dictionary?

23 A That dictionary was Electronic Packaging
24 Microelectronics and Interconnect Dictionary.

25 Q Did you consider any other documents in the

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1 formation of your opinion in this matter?

2 A I did not.

3 Q Did you perform a prior art search in this
4 case?

5 A I did not.

6 Q Did you review the file history in this case?

7 A I did not.

8 Q Did you choose the prior art references that
9 you cited just a minute ago on your own independently or
10 were those provided to you?

11 MS. GU: I caution the witness not to disclose
12 any communication with the attorneys.

13 THE WITNESS: I did not find those prior art
14 references on my own. They were provided to me.

15 BY MR. KLIEWER:

16 Q How much time did you spend in forming your
17 opinion and writing your declaration in this matter?

18 A I don't recall a specific amount of time. I
19 would approximate it between -- bracketed between ten
20 and 1,000 hours.

21 Q Some of the prior art references you mentioned
22 are foreign prior art; is that correct?

23 A Some of the references I mentioned were
24 filed -- patent applications or patents filed outside of
25 the United States.

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1 Q And in particular, where outside of the United
2 States?

3 A At least some of the references were filed in
4 Japan.

5 Q And in what language?

6 A I'm not certain of what language they were
7 originally filed in because I did not look at the
8 original. I looked at the translation of that document.

9 Q Did you rely on the translation of those
10 documents in this case?

11 A The references that I relied on for the -- for
12 this case that were translated, I relied on the
13 translated versions.

14 Q Do you have any reason to believe that those
15 were not translated correctly?

16 A Not that I recall.

17 Q Are you an expert in the field of the '714
18 patent?

19 A I am an expert until the field of the '714
20 patent, the field being technologies used to package
21 image sensor devices.

22 Q Just to be clear, that's at least a person of
23 ordinary skill in the art; isn't that correct?

24 A The person of ordinary skill in the art is
25 described in my declaration. The qualifications and

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1 experience requisite for a person of ordinary skill in
2 the art.

3 Q Do you consider yourself a person of ordinary
4 skill in the art?

5 A I consider myself capable of construing an
6 opinion from the position of a person of ordinary skill
7 in the art.

8 Q You said the person of ordinary skill in the
9 art is described in your declaration.

10 Where is that described?

11 A That is described in Paragraphs 52 through 59
12 of my declaration.

13 Q How did you determine who a person of ordinary
14 skill in the art is in this case?

15 A That was on the basis of my experience in
16 working on the '714 -- or working in the field at the
17 relevant time of the invention of the '714 patent and
18 considering the problem solved -- being solved in that
19 relevant time frame, and the people that worked for me
20 or were working in that similar field at the relevant
21 time frame of the invention.

22 Q When you say "the problem being solved," what
23 problem are you referring to?

24 A The problem I'm referring to is the general
25 field of image sensors, more specifically packaging an

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1 image sensor, and packaging an image sensor in a manner
2 that would provide advantages in terms of the process
3 complexity and cost and footprint.

4 Q Are you referring to the problems associated
5 with image sensor packaging in general or specific
6 problems?

7 A I believe I just recited three examples of
8 specific problems.

9 Q What was the problem being solved by the '714
10 patent?

11 A Do you have a copy of the '714 patent for me to
12 review, to refer to?

13 Q I'm handing you what has been marked in this
14 case as Exhibit 1001.

15 A Thank you.

16 MS. GU: Don't worry about it if you can't get
17 one for me. I have -- thank you.

18 THE WITNESS: So one problem that was being
19 solved by the '714 patent is the removal and the use of
20 wire bonds in a package for an image sensor device.

21 An additional problem that the '714 patent was
22 directed to was a package that had an opening in the top
23 of the package to help shield the surface of the image
24 sensor other than the image array from incoming light.

25 Another -- an additional solution that the '714

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1 patent is directed to is a means to include an image
2 sensor and peripheral chip in the same package,
3 additionally to perform -- including an image sensor and
4 peripheral chips in the same package, and additionally
5 providing a shading or shielding mechanism for the image
6 sensor and/or peripheral chips in a manner other than
7 the hole created by the opening in the package were some
8 of the main problems the '714 is directed to.

9 Q In your declaration where you discuss your
10 determination of a person of ordinary skill in the art,
11 do you mention any of these problems?

12 A I'm not certain if I specifically mentioned any
13 one of those problems.

14 However, it is not a requirement to mention the
15 solution of specific problems cited by a piece of art in
16 determining or describing a person of ordinary skill in
17 the art.

18 Q Did you rely on any facts or data that you did
19 not come up with independently in the formation of your
20 opinion?

21 MS. GU: Objection, form.

22 THE WITNESS: I don't recall specifically.

23 However, regardless of how facts or information
24 was provided to me or gleaned by me, the opinion
25 expressed in this declaration is my opinion, and I agree

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1 with what is in this declaration, and I have formed my
2 opinion on the basis of the references I cite in the
3 declaration, as well as my background in the field.

4 BY MR. KLIEWER:

5 Q So you agree with everything that is written in
6 your declaration?

7 A I would agree with the opinions expressed in my
8 declaration.

9 There may be, unaware to me, a typographical
10 error that I would not -- is a potential thing I would
11 not agree to.

12 Q Other than typographical -- strike that.

13 Are you aware of any typographical errors in
14 your declaration at this time?

15 A I am not.

16 Q Other than typographical errors, is there
17 anything in your declaration that you would disagree
18 with?

19 A Could you point to something specific?

20 I've already stated the opinions expressed in
21 my declaration are -- I would not disagree with.

22 Q Can you turn to the very last page of your
23 declaration?

24 Is that your signature on the last page?

25 A Yes, it is.

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1 Q And what was your understanding when you signed
2 this document?

3 A My understanding was as indicated in Paragraph
4 303 of the oath.

5 Q That all statements of your own knowledge are
6 true and that all statements made on information and
7 belief are believed to be true; is that correct?

8 A The portion of a sentence is -- states [as
9 read]: All statements made of my own knowledge are true
10 and that all statements made on information and belief
11 are believed to be true.

12 Q And your signature on this document means that
13 was the case in April of 2016; is that correct?

14 A That is correct.

15 Q Is that also true now?

16 A I'm not sure I understand the context or the
17 point of your -- I don't understand your question.

18 Q Are there any statements of your knowledge or
19 statements made on information and belief that you
20 believe not to be true at this point in time?

21 In other words, could you sign this document
22 making this statement today?

23 A With respect to the opinions in this document
24 and with respect to the level of review I've done, and
25 based on the claims that were construed by the Board, my

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1 opinions -- I would agree with the opinions stated in
2 this document.

3 Q Are there any parts of your declaration that
4 contain opinions that you at one point thought were
5 incorrect?

6 A Not that I am aware of.

7 Q Are there any parts of your declaration that
8 you know are untrue at this time?

9 MS. GU: Objection, form.

10 THE WITNESS: Not that I am aware of.

11 BY MR. KLIEWER:

12 Q Can you turn to Paragraph 30 of your -- I mean
13 Paragraph 20 of your declaration?

14 Here you state that you led the development of
15 the first 3D hybrid stacked BSI, CIS architecture; is
16 that correct?

17 A That's correct.

18 Q And what is your basis for making that
19 statement?

20 A My basis for making that statement is knowing
21 that the first hybrid stacked BSI, CMOS image sensor
22 that was produced and worked was done by my group.

23 Q And what group is that?

24 A Was the CMOS image sensor group at Kodak.

25 Q What device is this referring to?

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1 A It's referring to a research and development
2 device that was built during the research and
3 development phase of one of the CMOS image sensor
4 programs.

5 Q Did you offer any opinions on claim
6 construction in this case?

7 A Offered opinions regarding terms used in claims
8 in this case.

9 Q Which terms did you offer opinions on?

10 A Referring to my declaration, starting on Page
11 31, offered meaning or construction of a term used in a
12 claim, "solid state image apparatus, electrode pad or
13 pads."

14 The term "bump."

15 The term "covers an entire upper surface of
16 said substrate, except an upper surface of the solid
17 state image sensing device."

18 The term "plastic package."

19 And the term "substrate/semiconductor
20 substrate."

21 In each case of offering a meaning for those
22 terms, a specific claim with respect to where those
23 terms were being construed is included with the term.

24 Q Did you come up with the construction of these
25 terms independently or were they given to you?

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1 A I don't recall those details, and that detail
2 is, in my understanding, irrelevant with respect to the
3 opinions I have expressed in my declaration, and I agree
4 with the construction and the opinions expressed in this
5 declaration.

6 Q What standard of claim construction did you use
7 to determine -- let me rephrase.

8 What standard of claim construction did you use
9 that formed your opinions in this case?

10 A The standard for claim construction that I used
11 is stated in my declaration on Page 5, Paragraph 24.

12 Q Is this standard different than the Broadest
13 Reasonable Interpretation standard?

14 A This standard is different because the '714
15 patent is expired.

16 Q To your knowledge, when did the '714 patent
17 expire?

18 A I don't recall the specific date, but it was
19 expired at the time I wrote this opinion.

20 Q What is your understanding of the differences
21 between the standard of claim construction you used here
22 and the Broadest Reasonable Interpretation standard?

23 A One salient difference is, as stated in Claim
24 24 -- excuse me -- in Paragraph 24 of my declaration,
25 that one would use plain and ordinary meaning in

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1 construing the claims of an expired patent versus the
2 broadest reasonable meaning in the case of an unexpired
3 patent.

4 Q Did you offer any opinions -- strike that.

5 Would any of the constructions you used in this
6 case been different under the Broadest Reasonable
7 Interpretation standard?

8 A I don't know because I have not taken the time
9 or technical due diligence to examine that question.

10 MS. GU: Why don't we take a break whenever
11 this runs out.

12 BY MR. KLIEWER:

13 Q Can you turn to Paragraph 24 in your
14 declaration?

15 Do you see the sentence [as read]: The person
16 of ordinary skill in the art reads the claim in the
17 context of the entire patent, including the
18 specification?

19 A Yes.

20 Q Can you read the sentence after that?

21 A [As read]: Next to the language of the claims,
22 the specification is the single best source for
23 interpreting the claim terms.

24 Q Did you use the specification of the '714
25 patent for interpreting the claim terms in this case?

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1 A In this case, the claims were terms that were
2 construed were construed because the spec was not clear
3 on what the term meant because there was not enough
4 detail provided.

5 So as a result, the language of the claims, the
6 portions of -- relevant portions of the spec, the
7 position of a person of ordinary skill in the art, and
8 the other reference such as the dictionary were used to
9 provide more specific meaning to the claim.

10 In some cases, the claim and the spec were
11 confusing with respect to interchanging two terms and
12 meaning one.

13 The reasoning that I just provided in summary
14 is detailed in my declaration starting at Paragraph 75
15 and ending at Paragraph -- through Paragraph 95.

16 Q The cases where you say the claim and the spec
17 were confusing with respect to interchanging two terms
18 and meaning one, what are you referring to there?

19 A I'm referring to Claim 15 of the '714 patent.

20 Q And what terms in Claim 15 are you referring
21 to?

22 A The term "substrate" and the term
23 "semiconductor substrate."

24 MR. KLIEWER: We can go ahead and stop now.

25 VIDEOGRAPHER: This marks the end of media

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1 Number 3. We are going off the record at 1:22 p.m. Oh,
2 sorry. Media Number 2.

3 (Recess Taken.)

4 VIDEOGRAPHER: Here begins media Number 3. We
5 are back on the record at 2:23 p.m.

6 BY MR. KLIEWER:

7 Q Were there any other terms in the claims of the
8 '714 patent that you considered to be interchanging
9 meanings?

10 A The -- all of the terms that in my opinion
11 required to be construed are listed in Paragraphs 75
12 through 95 of my declaration.

13 It is not my recollection -- those are -- the
14 reasons for those terms to be construed are included in
15 those paragraphs.

16 Q Can you turn to Paragraph 93 in your
17 declaration?

18 And then construing the terms "substrate" and
19 "semiconductor substrate," did you consider how those
20 terms were used in the specification?

21 A I did, because the specification is cited in
22 the reasoning for the conclusion I came to with respect
23 to construing substrate and semiconductor substrate in
24 Claim 15.

25 Q Did you cite all the portions of the

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1 specification that you considered in construing these
2 terms?

3 A I recited what I thought were the relevant
4 portions of the specification with respect to construing
5 the term "substrate" and "semiconductor substrate" in
6 Claim 15.

7 Q Were there any other portions of the
8 specification that you considered but did not cite?

9 MS. GU: Is that the end of your question?

10 MR. KLIEWER: Yes.

11 THE WITNESS: I don't recall if there were or
12 not.

13 BY MR. KLIEWER:

14 Q Can you show me any other parts of the
15 specification that you thought were relevant that is not
16 cited here?

17 A I don't recall the details, so I would not be
18 able to do that.

19 That piece of the reference I cite in Claim
20 Paragraph 93 of my declaration, the portions of the spec
21 that I cite I believe are sufficient -- relevant and
22 sufficient to construe the claims as substrate and
23 semiconductor substrate in Claim 15.

24 Q Can you turn to Page 86 of your declaration --
25 correction -- Paragraph 87?

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1 Why did you feel that this term, the "majority
2 of -- "the substantial majority of Claim 8," needed to
3 be construed?

4 A It needed to be construed to indicate that the
5 cover does not necessarily mean to be on the substrate.

6 It was construed in the context of the claims
7 and the figures and descriptions shown in the
8 specification where Claim 8, which is referring to a
9 shading film, is shown in the figures where the shading
10 film could potentially be part of the substrate.

11 It could also be above the substrate, as -- one
12 example is Figure 7, where a shading film is disposed
13 over the substrate.

14 Additionally, Claim 8 is a dependent claim of
15 Claims 6 or 7.

16 The examples shown in 6 and the example shown
17 in 7 with respect to a shading film, in the figures
18 depicting Figures 6 and 7 -- excuse me -- claims that
19 are related to -- the figures that are related to Claims
20 6 and 7 show embodiments where the shading film is
21 disposed above the substrate and the shading film could
22 be disposed on the substrate.

23 Therefore, Claim 8 would -- since it's
24 dependent on Claim 6 or 7 would necessarily need to
25 cover both cases.

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1 Q How would your interpretation of this claim be
2 different under the Broadest Reasonable Interpretation?

3 A I don't know. I was not asked to render an
4 opinion on that, and I have not taken the time to
5 consider that question or do technical due diligence to
6 determine an answer to that question.

7 Q Would you agree with me that typically an image
8 sensor, they are comprised of more than one photo diode
9 or more than one pixel?

10 A I would not agree that -- in a broad sense that
11 an image sensor would have to contain more than one
12 photodiode or more than one pixel.

13 Q Can you explain that?

14 A For example, one -- one example of an image
15 sensor -- so it's a device that's sensing information
16 about an image -- would be a brightness value detector
17 that can be comprised of a single photo detector and be
18 used to ascertain information from an image regarding
19 and directing information with respect to the aperture
20 to be used for capturing a picture or the exposure time
21 to be used for capturing a picture or the presence or
22 absence of whether a specific widget would be in the
23 field of view in the case of machine vision, for
24 example.

25 Q But that's not sensing an image, that's sensing

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1 information about an image; right?

2 MS. GU: Objection, form.

3 THE WITNESS: An image sensor is a -- a
4 semiconductor image sensor is a semiconductor device
5 that uses reflected light or transmitted light from an
6 image to sense or determine something regarding the -- a
7 specific detail or details of what the light has
8 transmitted from or through or reflected off of, or, in
9 general, the amount of light that may have been
10 transmitted from -- transmitted through or reflected
11 from.

12 BY MR. KLIEWER:

13 Q By your definition, a single CDS cell would be
14 an image sensor; is that correct?

15 A A single -- that is not correct.

16 Q Why is that not correct?

17 A A CDS cell is an analog component of an image
18 sensor.

19 Q I'm referring to a discrete device, a CDL --
20 correction -- a CDS light sensor.

21 Is that an image sensor under your definition?

22 A It depends on the context of where that device
23 is being used, what application it's being used in.

24 Q So is your answer then that it could be?

25 A That it -- it could be if you are referring to

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1 CDS as a cadmium-based photo-detecting element.

2 Is that what you're referring to when you say
3 CDS?

4 Q Right. A CDS photo resistor.

5 Could a single CDS photo resistor be a -- an
6 image sensor according to your definition?

7 A A single element of -- a device that has a
8 single element photo detector, meaning an element that
9 is used to measure the amount of light incident on that
10 sensor and determine information in a system that is
11 based on the amount of light hitting that sensor
12 incident from the intended thing to be examined would
13 be -- could be -- would be considered an image sensor.

14 There may be an instance where -- when
15 referring to a term in a specific piece of literature,
16 there may be other considerations in the spec that that
17 spec may not be directed to an imaging system that uses
18 a single photo detector.

19 Q Do you cite any such references or any portions
20 of the specification that support this interpretation of
21 an image sensor?

22 A I'm not sure I understand your question.

23 Q You're interpreting what an image sensor is
24 rather broadly.

25 Is there -- by saying that a single photo

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1 detector device is an image sensor, is there anything in
2 the specification or any citation to any literature or
3 other documents that support this interpretation?

4 MS. GU: Objection, form.

5 THE WITNESS: I'm basing that on my background,
6 and I do not understand how in the case of the '714
7 patent that has any relevance on the opinions I've
8 rendered.

9 BY MR. KLIEWER:

10 Q Can you read Paragraph 32 of your declaration?

11 MS. GU: Out loud?

12 BY MR. KLIEWER:

13 Q Please.

14 A [As read]: I understand that in considering
15 the obviousness of a claim, one must consider four
16 things. These include the scope and content of the
17 prior art, the level of ordinary skill in the art at the
18 relevant time frame, the differences between the prior
19 art and the claim, and any secondary considerations.

20 Q Were there any secondary considerations that
21 you considered in forming your opinion?

22 A I did not use any secondary considerations. I
23 did not view there to be any secondary considerations
24 relevant to forming my opinion.

25 Q If there were secondary considerations, such as

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1 commercial success, that you did not consider, would
2 that possibly change the outcome of your opinion
3 regarding the patentability of any of the claims of the
4 '714 patent?

5 MS. GU: Objection, form.

6 THE WITNESS: Based on my knowledge and
7 understanding of the problems being solved at the
8 relevant time of the invention and the image sensor
9 landscape at the relevant time of the invention, I did
10 not -- it was my opinion there were no secondary
11 considerations to be included.

12 I can't answer the question you posed
13 hypothetically without going through due diligence to
14 consider all the material at hand.

15 BY MR. KLIEWER:

16 Q What I'm asking is: Are there any set of facts
17 possible in your mind under secondary considerations
18 that would cause you to change your determination here?

19 MS. GU: Objection, form.

20 THE WITNESS: On the basis of my consideration
21 of a person of ordinary skill in the art at the relevant
22 time frame, the differences between the prior art and
23 the claim, the fact that the references were using
24 analogous art, the fact that there was motivation to
25 combine would -- to me were sufficient to reach my

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1 conclusion and opinion, and I am not aware of any
2 secondary considerations to be included.

3 And I cannot answer a hypothetical question
4 with respect to the -- what you just asked me without
5 considering them in the context and whether or not they
6 were in the relevant time frame and other things of that
7 nature.

8 BY MR. KLIEWER:

9 Q I'm handing you what's been marked as Exhibit
10 1003 in this case.

11 A Thank you.

12 Q Do you recognize this document?

13 A This is a certified translation of the Yoshino
14 reference.

15 Q Yoshino teaches that element 25, a solid state
16 image sensor, is supported in the package via a molded
17 resin 28; is that correct?

18 A That's correct.

19 Q Did you determine the differences between
20 Yoshino and Claim 6 of the '714 patent?

21 A Yes, I did.

22 Q And is that in your declaration?

23 A Yes. It is stated in at least Paragraph 121 of
24 my declaration.

25 Q Anywhere else?

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1 A The section that describes the difference with
2 respect to Yoshino in the context of Claim 6 are
3 included in Paragraphs 115 through Paragraphs 126, at
4 least.

5 Q Anywhere else?

6 A The information provided in Paragraphs 121
7 through 126, and in my view are sufficient to describe
8 and show the difference between Yoshino and Claim 6.

9 Q Where in Paragraph 115 do you describe the
10 differences between Yoshino and Claim 6?

11 A My statement was a summary of opinion of why
12 Claim 6 is obvious over Yoshino in view of Izumi. That
13 section on that subject is in the paragraphs I just
14 indicated.

15 The totality of the information contained in
16 that section states that Yoshino -- paraphrasing -- does
17 not disclose a peripheral chip packaged in Yoshino's
18 package and discloses that Izumi, in combination with
19 Yoshino, provides the missing element of a -- what we
20 referred to as element 6D, a substrate on which a solid
21 state image sensing device in a peripheral circuit chip
22 are mounted being inserted into the package from a wider
23 opening thereof. End.

24 Q I'm not asking you to recite why you think it's
25 obvious. I'm asking you where you show in your

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1 declaration that you consider the differences and what
2 you consider the differences between Yoshino and Claim
3 6.

4 MS. GU: Objection, form.

5 THE WITNESS: I believe it is clear, starting
6 from Section -- starting from the end of Paragraph 21,
7 the preheading, 6D to -- excuse me -- the preheading to
8 Paragraph 121, it states [as read]: Yoshino discloses a
9 solid state image sensing device by being inserted into
10 the package from a wider opening.

11 As discussed below, it would have been obvious
12 to use a substrate on which a solid state image sensing
13 device and a peripheral circuit chip are mounted, such
14 as that taught in Izumi, in place of Yoshino's single
15 solid state image sensing device.

16 That paragraph indicates that Yoshino does not
17 disclose a solid state image sensing device and a
18 peripheral circuit chip mounted, but rather Yoshino
19 discloses a single solid state imaging device.

20 And then Izumi is used as the reference to
21 combine with Yoshino to form my opinion of obviousness.

22 BY MR. KLIEWER:

23 Q I am handing you what has been marked in this
24 case as Exhibit 1016.

25 MS. GU: Thank you.

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1 BY MR. KLIEWER:

2 Q Do you recognize this document?

3 A Yes, I do.

4 Q Can you explain the problem -- I'm sorry.

5 So what is this document?

6 A This is what I refer to as the Izumi reference
7 in my declaration.

8 Q Thank you. Can you explain what Izumi -- what
9 problem Izumi was trying to solve in this patent?

10 A Izumi is trying to solve a problem that is
11 similar or the same as one of the problems being sought
12 to be solved in the '714 patent.

13 In this case, the problem to be solved is to
14 bring the peripheral chips associated with operating on
15 the output or supplying signals to the image sensing
16 device into closer proximity with the image sensing
17 device in order to reduce noise, in order to have a
18 smaller footprint, and make a more compact package.

19 Q How did Izumi accomplish this?

20 A Izumi accomplished this by means similar to
21 that disclosed in the '714 patent, where an image sensor
22 device and a peripheral chip are mounted and wire bonded
23 to a substrate that contains connection points and
24 conductors to connect the image sensing chip and
25 peripheral chip in the desired manner.

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1 Q I didn't ask about the '714 patent; I asked
2 about Izumi.

3 How did Izumi solve the problem? He states...

4 MS. GU: Is that the end of --

5 MR. KLIEWER: That's the end of the question,
6 yes.

7 MS. GU: Okay. Objection, form.

8 THE WITNESS: I believe I answered the question
9 correctly. I apologize if it was not clear.

10 Izumi solves the problem in a similar manner
11 and the relevant details the same manner.

12 Izumi, just like the '714 patent, mounts the
13 image sensor chip and a peripheral chip -- in this case,
14 the specific examples -- there is more than one
15 peripheral chip -- on a substrate.

16 Those -- the image sensor and the peripheral
17 chip are wire bonded to pads on the substrate to which
18 they are mounted, and the substrate contains connectors
19 that will form the desired interconnect between the
20 image sensor and the peripheral circuit chip.

21 BY MR. KLIEWER:

22 Q Izumi's device has a substrate 1C on which
23 solid state imaging element chip 2 is positioned so as
24 to be located in the left-hand cavity of the package,
25 and the peripheral circuit chips 4A and 4B positioned so

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1 as to be located in the right-hand cavity of the
2 package; is that correct?

3 A Were you asking me if those -- that term is
4 specifically state -- or were you reading from the Izumi
5 patent or --

6 Q I'm asking you if that statement is correct.

7 A Izumi shows an embodiment in Figure 2, at least
8 where the image sensor chip is mounted and wire bonded
9 to a substrate 1C.

10 The peripheral chip 4B is wire bonded to the
11 substrate 1C.

12 In addition, element 2, the image sensor, is
13 enclosed by a cavity on the left-hand side of the
14 figure, formed by another element 1D.

15 And the peripheral chip is mounted and bonded
16 in a second cavity on the right-hand side of Figure 2,
17 that cavity also being formed by an additional element
18 1D.

19 However, the common components of the solution
20 are mounting and wire bonding the image sensor chip and
21 the peripheral chip onto a single substrate 1C.

22 The details of cavities are not relevant or do
23 they need to be retained in combining Izumi and Yoshino.

24 Q You would agree with me that the chips are wire
25 bonded to the top of the substrate?

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1 A Which reference are you referring to?

2 Q The same reference, Figure 2 of Izumi.

3 A The chips are wire bonded to the top surface of
4 substrate 1C -- appear to be bonded to the top surface
5 of substrate 1C in Izumi.

6 Q You would agree with me that leads 5 extend
7 from the underside of the substrate 1C and are fixed to
8 the substrate?

9 A Element 5 extends below the substrate 1C, but
10 that piece of Izumi is not what is being combined with
11 Yoshino. That piece of Izumi does not need to be
12 retained to be combined with Yoshino.

13 Q You would agree with me that Izumi's substrate
14 is attached under the package and not inserted into the
15 package from a wider opening?

16 A Izumi substrate 1C is analogous to the
17 substrate to which the image sensor chip and peripheral
18 chip are bonded to in the '714 patent, and the
19 combination of Izumi is taking the element missing from
20 Yoshino, which is a substrate with an image sensor and
21 peripheral circuit bonded to its substrate.

22 Subsequently, that substrate, which is
23 analogous or the same as the substrate shown in Figure 7
24 of the '714 patent --

25 MR. KLIEWER: Objection, nonresponsive.

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1 BY MR. KLIEWER:

2 Q Mr. Guidash, please listen to my question and
3 answer the question that I am asking you.

4 A Would you repeat your question again, please?

5 Q You would agree with me --

6 MR. KLIEWER: Can you read back the question,
7 please?

8 (Record Read.)

9 THE WITNESS: I would not agree to that.

10 BY MR. KLIEWER:

11 Q Why would you not agree with that?

12 A The reason for lack of agreement is that
13 substrate 1C is part of the package of Izumi.

14 Q Why does Izumi locate his peripheral chips in a
15 separate cavity?

16 A Izumi creates them in a separate cavity to
17 reduce the contamination or debris effect associated
18 with the peripheral chip into the image sensor chip.

19 However, the structure of a single cavity or
20 two cavities is not a relevant detail with respect to
21 Claim 6.

22 MS. GU: Should we take a break soon, or do you
23 think you can push through?

24 MR. KLIEWER: I think we can push through, if
25 it's okay.

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1 THE WITNESS: Yes, that's fine.

2 BY MR. KLIEWER:

3 Q Can you look at Page 50 of your declaration
4 there, above Paragraph 121, where you quote element 6D,
5 can you show me where you have shown that Izumi
6 discloses a substrate inserted into the package?

7 MS. GU: Objection, form.

8 THE WITNESS: The opinion rendered for
9 obviousness combining Yoshino and Izumi does not rely on
10 Izumi showing insertion into a package from a wider
11 opening. That element is shown in Yoshino.

12 The opinion expresses that given the reference
13 of Izumi, which shows a peripheral chip and image sensor
14 mounted on a substrate and wire bonded, that it would
15 have been obvious to combine the substrate of Izumi with
16 the peripheral chip and image sensor mounted in place of
17 the single device disclosed in Yoshino.

18 MR. KLIEWER: Do you already have Yoshino?

19 MS. GU: Yes, we do.

20 BY MR. KLIEWER:

21 Q Can you show me in your declaration where you
22 show that Yoshino discloses a substrate being inserted
23 into the package?

24 A So on Page 45, starting on element cited 1D,
25 just above Paragraph 106 through Paragraph 114, Yoshino

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1 discloses a solid state image sensing device mounted in
2 said package by inserting from an inlet of said opening
3 which has a wider area.

4 Q Where does your declaration discuss this with
5 reference to Claim 6? Strike that.

6 Can you turn to your Paragraph 148 in your
7 declaration?

8 The figure annotated in this paragraph, did you
9 annotate this yourself?

10 A I did not.

11 Q Or provide the color -- the coloring?

12 MS. GU: I don't have a color copy, so I'm just
13 going to take your word for it.

14 MR. KLIEWER: I'm not going to be asking about
15 the colors.

16 MS. GU: Okay. I'll take your word that there
17 are colors here, okay.

18 THE WITNESS: I did not.

19 BY MR. KLIEWER:

20 Q Can you please turn to Paragraph 156 in your
21 declaration?

22 Do you think that element 3 here was
23 mistranslated?

24 MS. GU: Can you point to -- where is element 3
25 referenced in 156?

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1 MR. KLIEWER: The last sentence.

2 MS. GU: Got it, where it says film 8
3 erroneously shown as 3.

4 And that's the element 3 you're referring to;
5 right, Nick?

6 MR. KLIEWER: Right.

7 MS. GU: Thank you.

8 Do you have a copy of it? It would be great to
9 have some context for this.

10 THE WITNESS: That was the next question I had.

11 BY MR. KLIEWER:

12 Q Yes. And, in general, if I forget to give you
13 a reference, please just remind me, and I'm happy to
14 show it to you.

15 A Certainly. Thank you.

16 MS. GU: I'm really hoping you won't have to do
17 that too many more times.

18 MR. KLIEWER: I think we're getting close.

19 Which reference is this?

20 MS. GU: The Hirosawa, 1020.

21 BY MR. KLIEWER:

22 Q I'm handing you what has been marked Exhibit
23 1020 in this case.

24 Do you recognize this as the Hirosawa reference
25 that we're talking about?

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1 A Yes.

2 Q To return to my question, do you think that
3 element 3 here was mistranslated?

4 MS. GU: Objection, form.

5 THE WITNESS: I believe that element 3 shown in
6 Figure 1 is described in the specification and referred
7 to as 8.

8 So in the description of Figure 1, a light
9 shielding plate 8 is described.

10 There is no 8 present in Figure 1. All of the
11 other numeral elements are present in Figure 1.

12 It would be obvious to conclude that what is
13 labeled in Figure 1 as 3 is referred to in the
14 description of Figure 1 in the spec as 8.

15 BY MR. KLIEWER:

16 Q Do you rely on the element shown as 3 in
17 reality being element 8 in your analysis?

18 MS. GU: Objection, form.

19 THE WITNESS: I rely on what is shown as
20 Figure -- excuse me -- element 3 in Figure 1 to be what
21 is described in Figure 1 as a light shielding plate 8 --
22 light shielding film or light shielding plate 8 provided
23 to the Section 2R.

24 MR. KLIEWER: If you want to take a real quick
25 break, I'm going to look over --

1 MS. GU: Yes. I mean, if you're doing that
2 anyway, we should just take a break.

3 VIDEOGRAPHER: We're going off the record. The
4 time is 3:53 p.m.

5 (Recess Taken.)

6 VIDEOGRAPHER: We are back on the record. The
7 time is 4:01 p.m.

8 BY MR. KLEWER:

9 Q You would agree with me that in Izumi, the
10 image sensing device must be bonded to the substrate
11 prior to wire bonding the contacts to the chip; right?

12 A Yes, I would agree with you.

13 MR. KLIEWER: No further questions. I pass the
14 witness.

15 EXAMINATION

16 BY MS. GU:

17 Q Hello, Mr. Guidash.

18 Can you tell me for the purposes of Claim 6 why
19 you combined Yoshino with Izumi?

20 MR. KLIEWER: Objection. That's outside of the
21 scope of the cross examination. Objection, leading.

22 MS. GU: I don't agree that's outside the scope
23 of the cross examination. In fact, I think we spent
24 almost the last half an hour or so on this exact topic.

25 BY MS. GU:

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1 Q But you can answer it. Go ahead.

2 MR. KLIEWER: One moment.

3 I don't believe I questioned Mr. Guidash on his
4 motivation to combine Yoshino and Izumi.

5 MS. GU: You questioned him extensively on the
6 combination of Yoshino and Izumi.

7 So unless you're saying that if I don't ask the
8 exact same questions that you have asked, I'm outside
9 the scope, I completely disagree.

10 MR. KLIEWER: My objection is on the record.

11 MS. GU: That's fine.

12 BY MS. GU:

13 Q Please answer.

14 A So the purposes for combining Izumi with
15 Yoshino for rendering an opinion of obviousness on Claim
16 6 is that Yoshino discloses placing an image sensor
17 through the wider opening and other elements of Claim 6
18 with the exception of element 6D.

19 Q Sorry. Go on.

20 A So Izumi shows that a substrate containing --
21 1C, containing an image sensor and peripheral chip. So
22 a unit, a substrate with an image sensor, with a
23 peripheral chip on that same substrate.

24 The peripheral chip -- the substrate containing
25 the peripheral chip and the image sensor, so one --

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1 element 1C, plus the elements 2, 4B, those -- that part
2 of Izumi can be inserted in the wider opening of the
3 package of Yoshino and affixed to the package of Yoshino
4 in the same manner that Yoshino discloses.

5 It would have been obvious to one of ordinary
6 skill in the art to replace the image sensor of Yoshino
7 with the substrate containing the image sensor and
8 peripheral chip of Izumi.

9 Q Other than the features of Izumi that you just
10 now described in your answer, does any other feature of
11 Izumi -- let me reask that.

12 Other than the features of Izumi that you just
13 now described in your answer, is there any other feature
14 of Izumi that is relevant to the combination described
15 in your declaration with respect to Claim 6, Yoshino and
16 Izumi?

17 MR. KLIEWER: Objection, form. Objection,
18 outside the scope.

19 THE WITNESS: The only elements of Izumi
20 required to be combined with Yoshino are the substrate
21 1C with a peripheral chip and image sensing device
22 mounted on that substrate 1C.

23 BY MS. GU:

24 Q Does the manner of how the image sensing device
25 and peripheral chip is mounted on the Izumi substrate

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1 matter to the combination of Yoshino and Izumi described
2 with respect to Claim 6 of your declaration?

3 MR. KLIEWER: Objection, form. Objection,
4 leading. Objection, outside the scope.

5 THE WITNESS: How they are mounted, the
6 peripheral chip or the package -- excuse me -- the image
7 sensing device, how they are mounted or where they are
8 mounted is not relevant to combining Izumi with Yoshino
9 to render element 6D evident and obvious.

10 Q You mean Claim 6; right?

11 A Claim 6.

12 Q Sorry. Thank you.

13 A Yes.

14 MS. GU: I don't have any other questions.

15 MR. KLIEWER: I don't have any redirect.

16 VIDEOGRAPHER: This concludes today's
17 videotaped deposition of R. Michael Guidash, Volume 3.
18 The number of media used was three. We are off the
19 record at 4:09 p.m.

20 (Time noted: 4:09 p.m.)

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1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby certify:

3 That the foregoing proceedings were taken
4 before me at the time and place herein set forth; that
5 any witnesses in the foregoing proceedings, prior to
6 testifying, were placed under oath; that a verbatim
7 record of the proceedings was made by me using machine
8 shorthand which was thereafter transcribed under my
9 direction; further, that the foregoing is an accurate
10 transcription thereof.

11 I further certify I am neither financially
12 interested in the action nor a relative or employee of
13 any attorney or party to this action.

14 IN WITNESS WHEREOF, I have this date subscribed
15 my name.

16
17 Dated: January 16, 2017

18
19 
20 **LYNNE MARIE LEDANOIS**
21 **CSR No. 6811**

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