

CONFIDENTIAL - DEAN NEIKIRK, PH.D.

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

CASE IPR 2020-00477
U.S. Patent No. 9,667,896

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SAMSUNG ELECTRONICS CO., LTD, and SAMSUNG
ELECTRONICS AMERICA, INC.,

Petitioners,
v.

CELLECT, LLC,
Patent Owner.

-----X

CONFIDENTIAL DEPOSITION
VIA ZOOM VIDEOCONFERENCING
OF
DEAN NEIKIRK, PH.D.
Thursday, October 1, 2020

Reported By:

LINDA J. GREENSTEIN

JOB NO. 1039

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<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 October 1, 2020 3 11:00 A.M. EST 4 5 6 7 Confidential Deposition held via 8 Zoom Videoconferencing of Dean Neikirk, 9 Ph.D., taken by Respective Parties, before 10 Linda J. Greenstein, a Certified Shorthand 11 Reporter and Notary Public of the State of 12 New York. 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>Page 2</p>	<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A P P E A R A N C E S: 3 (All parties appearing via Zoom 4 Videoconferencing) 5 6 7 ROPES & GRAY, L.L.P. 8 Counsel for Petitioners 9 1900 University Avenue 10 6th Floor 11 East Palo Alto, California 12 94303-2284 13 BY: JAMES L. DAVIS, JR., ESQ. 14 650.617.4794 15 james.l.davis@ropesgray.com 16 17 18 19 20 KRAMER LEVIN NAFTALIS & FRANKEL, L.L.P. 21 Counsel for Patent Owner Collect, LLC 22 1177 Avenue of the Americas 23 New York, New York 10036 24 BY: JONATHAN S. CAPLAN, ESQ. 25 212.715.9488 jcaplan@kramerlevin.com Also Present: ROPES & GRAY, L.L.P. Carolyn Redding, Esq.</p>	<p>Page 3</p>
<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 THE COURT REPORTER: Good 3 morning. 4 We're here in the Matter of 5 Samsung versus Collect. 6 Today is Thursday, October 1, 7 2020. 8 Counsel, do you agree that the 9 witness will be sworn today remotely? 10 MR. CAPLAN: That's fine with 11 Collect. 12 MR. DAVIS: Yes. This is Jim 13 Davis for the Samsung petitioners. 14 That's fine with the 15 petitioners. 16 DEAN NEIKIRK, PH.D., 17 having been first duly sworn, was examined 18 and testified as follows: 19 EXAMINATION BY 20 MR. CAPLAN: 21 Q. Good morning, Dr. Neikirk. 22 A. Good morning. 23 Q. Again, I'm Jonathan Caplan 24 representing Collect in this IPR. 25 This IPR, just so we're clear,</p>	<p>Page 4</p>	<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 it's IPR 2020-00477, and it involves U.S. 3 Patent 9,667,896, so I'm guessing you have 4 a lot of papers with you. I just want to 5 make sure you have the right set there. 6 A. Yes, I have the right 7 declaration for that IPR in front of me. 8 Q. Okay. As you know, the two 9 references we were talking about yesterday 10 are involved here as well, so we'll be 11 going over some of the issues in slightly 12 different ways, but we'll try to move 13 through it as quickly as possible. 14 I'd like to start with a copy of 15 the patent, the '896 patent. It's 16 Exhibit 1001. 17 (Exhibit 1001 for 18 identification, U.S. Patent 9,667,896, show 19 to witness.) 20 BY MR. CAPLAN: 21 A. I have Exhibit 1001, the '896 22 patent in front of me. 23 Q. And you agree that the claims 24 that are at issue in this IPR that we'll be 25 talking about are Claims 1, 5 and 21;</p>	<p>Page 5</p>

<p style="text-align: right;">Page 6</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 right? 3 A. 1, 5 and -- 4 Q. 21; right? 5 A. Yes. Those are the claims that 6 I analyzed in my declaration. 7 Q. Yes. Okay. 8 So I just wanted to start 9 with -- we didn't do this yesterday, but I 10 thought here it would be helpful just to go 11 through the claim and make sure we have an 12 understanding on the claim and what it 13 means and how it's put together, so we'll 14 start with Claim 1. I'm just going to walk 15 through the different elements. 16 The first element is a housing. 17 Do you see that in Claim 1? 18 A. I do. 19 Q. Okay. Actually, I should start 20 with the preamble. So the preamble, it's 21 an imaging device comprising, and that 22 imaging device has a housing. 23 For purposes of your testimony 24 in this IPR, can you just give me or put on 25 the record your understanding of "housing."</p>	<p style="text-align: right;">Page 7</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. DAVIS: Object to the form. 3 A. My analysis of element -- this 4 first element, a housing, begins on, in my 5 declaration, on page 68, the page number of 6 the exhibit. So this is Exhibit 1004, I 7 believe, Samsung Exhibit 1004, page 68. 8 And all of these terms I used 9 one of ordinary skill in the art would 10 understand as their plain and ordinary 11 meaning. 12 In this case, or in this 13 example, I was looking at Wakabayashi, and 14 as shown on page 70 of my declaration with 15 some highlighting what in my opinion 16 constitutes a housing. 17 And it -- I think the components 18 were -- I think I actually called them out 19 in paragraph 101 on page 69 of my 20 declaration, so using Wakabayashi's 21 numbering, housing 3, camera case 16 and 22 battery cover 11. And that I believe one 23 of ordinary skill, by the plain and 24 ordinary meaning, would understand that as 25 a housing.</p>
<p style="text-align: right;">Page 8</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. Okay. Just one second. I just 3 want to make sure. It sounds like 4 throughout -- and this came up yesterday -- 5 you're going to be making use of the page 6 numbering that's at the bottom right of the 7 document, the 69 out of the 178. 8 A. I don't recall what we did 9 yesterday. I think -- 10 Q. Sometimes I get crossed up, I'm 11 looking at the wrong thing and then I can't 12 find it. Okay. 13 A. I will try to always use page 14 number of the exhibit. 15 Q. Okay. So it's your testimony, 16 as it's in paragraph 101 of your 17 declaration, that it's all those elements. 18 It's the housing -- and based on 19 Wakabayashi, it's the housing 3 with the 20 front panel 2a and rear panel 2b, the case 21 16 and the battery cover 11 all 22 collectively form the housing? 23 A. Yes, that is right. 24 Q. I don't want to talk over you. 25 A. I'm sorry, I thought you asked</p>	<p style="text-align: right;">Page 9</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 for my opinion. Excuse me. 3 Q. So those elements collectively 4 form the housing in Wakabayashi that 5 relates to the housing that's recited in 6 Claim 1 of the '896 patent; right? 7 A. Yes, in my opinion, it does. 8 Q. And is there -- with respect to 9 the '896 patent itself and your evaluation 10 of the '896 patent, does that -- is that 11 consistent with the meaning of housing set 12 forth in the '896 patent? 13 MR. DAVIS: Objection. 14 Form. 15 A. So I applied plain and ordinary 16 meaning, and the housing is a housing for 17 an imaging device, and, yes, I believe that 18 in terms of plain and ordinary, meaning to 19 one of ordinary skill in the art, what I 20 identified certainly constitutes a housing 21 for the imaging device that's disclosed by 22 Wakabayashi. 23 Q. Before we go on from that, I 24 just have a couple of questions. This may 25 be helpful -- it will be helpful to pull</p>

<p style="text-align: right;">Page 10</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 out Exhibit 1027, which is Wakabayashi. 3 I'm guessing you have it nearby. 4 A. I do. 5 (Exhibit 1027 for 6 identification, Wakabayashi patent, shown 7 to witness.) 8 BY MR. CAPLAN: 9 Q. And if you take a look, it's in 10 Column 14 of Wakabayashi, and it's actually 11 in Claim 1, so that's Column 14 starting at 12 line 50. It's line 50 to the bottom, which 13 would be line 67. 14 Do you see that? 15 A. I do. 16 Q. All right. And I'll just read 17 part of it: "Housing for pivoting said 18 video camera for rotation for horizontal 19 access, including..." 20 And then it lists a number of 21 components 1, 2 and 3: A power supply 22 circuit, an image arrangement, converter 23 circuit and a signal switching means as 24 part of the housing. 25 Do you see that?</p>	<p style="text-align: right;">Page 11</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. I do. 3 Q. That's different than what your 4 declaration says, where you identify the 5 housing as just the front panel 2a, rear 6 panel 2b, camera case 16 and battery cover 7 11; right? 8 A. Well, I mean, to begin, I don't 9 believe that the housing described in 10 Wakabayashi's claim is limiting to what one 11 of ordinary skill would understand what a 12 housing could be. 13 But your specific question in 14 Wakabayashi, this claimed housing, has to 15 have the -- a power supply circuit, an 16 image arrangement converter circuit having 17 a random access memory. 18 So if I just look at that 19 component, that I believe in Figure 22 of 20 Wakabayashi is referring to box labeled 21 104, and 104 -- let's see -- if we were to 22 look at column 9 -- let's see, where is 23 this -- we were working through this 24 yesterday in terms of what does Wakabayashi 25 disclose as being on what board.</p>
<p style="text-align: right;">Page 12</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I believe that the video he 3 calls 104 image converters, image 4 arrangement converter circuit, which he 5 then further describes -- well, that's the 6 same -- the terminology in the claim is 7 image arrangement converter circuit, so 8 that would include circuit board 39. 9 So this housing, at the least, 10 has to include that inside a housing, along 11 with some other things. 12 Q. So housing has a different 13 meaning in Wakabayashi, is that your 14 testimony, than the plain and ordinary 15 meaning. Is that what you're saying? 16 MR. DAVIS: Objection. 17 Form. 18 A. Certainly not, no. 19 He is describing a housing. 20 There can be multiple housings in a device, 21 a system, and he's specifying a housing, 22 one housing. There might well be others. 23 Q. But it's your testimony, though, 24 that housing just has a plain and ordinary 25 meaning; is that right?</p>	<p style="text-align: right;">Page 13</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. Yes, it does. 3 Q. Okay. And that plain and 4 ordinary -- I'm sorry -- that plain and 5 ordinary meaning is different than what 6 Wakabayashi is describing as a housing in 7 Claim 1 that we just looked at? 8 MR. DAVIS: Objection. 9 Form. 10 A. No, absolutely not. That's not 11 what I testified at all. 12 I said he is identifying a 13 specific housing. He's saying there has to 14 be a housing that contains the following. 15 It doesn't mean there might not be other 16 housings. 17 Q. Are you saying that there are 18 multiple housings in Wakabayashi? Is that 19 your testimony? 20 MR. DAVIS: Objection to form. 21 A. I said there might be. I -- 22 Q. I'm asking you -- I'm sorry, are 23 you done? 24 A. No, I was not. 25 I have not analyzed Wakabayashi</p>

<div>Page 14</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 for all possible housings. 3 Q. Okay. As you sit here today, my 4 question is, are there multiple housings in 5 Wakabayashi? 6 A. And I have to answer you that I 7 haven't looked for multiple housings in 8 Wakabayashi. There might be. 9 Q. Do you want to take a minute and 10 look at Wakabayashi to see if there is 11 anything else that you can identify? 12 A. Well, I can take a quick look. 13 That might require a rather substantial 14 analysis, but -- let's see. 15 So I have not analyzed the 16 claims of Wakabayashi at all, so you 17 pointed me to something I haven't looked 18 at. 19 This housing that he identifies 20 in Claim 1, then he identifies certain 21 things in it. I'd have to go back and see 22 whether Wakabayashi -- where those things 23 might happen to be. Let me glance through 24 Wakabayashi. 25 Q. Well, Dr. Neikirk, I don't want</div>	<div>Page 15</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 to get too distracted, you know, in terms 3 about looking. If you want to look a 4 little bit later, we can follow up. 5 But I guess my question would 6 be, does the housing of Claim 1 of the '896 7 include the camera head itself? 8 MR. DAVIS: Objection. 9 Form. 10 A. The claim elements itself -- so 11 I'm not sure what question you're asking. 12 In the '896, it recites housing 13 and then further it states what needs to be 14 in said housing. 15 '896 recites that the image 16 sensor is mounted in the housing. It 17 states that the image sensor includes a 18 first circuit board, so since the image 19 sensor is in said housing, the first 20 circuit board would have to be in said 21 housing. 22 It recites that the circuit 23 board includes array of CMOS pixels, so by 24 inference the array of CMOS pixels needs to 25 be in the housing.</div>
<div>Page 16</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 It states that there is a second 3 -- second circuit board mounted in said 4 housing, and it goes on to state things 5 that the second circuit board needs to 6 include, so all of that would have to be 7 inside the housing. 8 It states that there needs to be 9 a lens mounted in said housing. 10 It states that a power supply 11 needs to be mounted in the housing. 12 And I believe for Claim 1, 13 that's the collection of items that must be 14 in a housing as stated by the '896 patent. 15 Q. And turning back to Wakabayashi 16 then, is -- does the camera head unit -- is 17 the camera head unit 5 in Wakabayashi a 18 separate housing from the housing of board 19 39 in Wakabayashi? 20 MR. DAVIS: Objection to form. 21 A. No. The camera head 5 is part 22 of the housing I identified in Wakabayashi 23 as being disclosed that would meet this 24 limitation in the '896, and as I've 25 illustrated in my -- on page 70 of my</div>	<div>Page 17</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 declaration. 3 Q. All right. 4 Turning back to the '896, Claim 5 1, the next element, it's a large element. 6 I'm not going to read it all. We'll take 7 it in pieces, but it does recite an image 8 sensor mounted in the housing including the 9 first circuit board with a length and a 10 width, a length and a width to find the 11 first plane. And the first circuit board 12 includes the pixels, an array of CMOS 13 pixels, and I'm paraphrasing, so -- I 14 understand that. And the array of pixels 15 each include an amplifier. 16 Do you see that part of Claim 1? 17 A. Give me one moment to get back. 18 Q. Sure. 19 A. So you've described the items 20 discussed in column 22, lines 40 to 46, 21 that looks like, and -- yes, that list of 22 items is there, yes. 23 Q. Okay. I just want to try -- it 24 should be -- I think it's column 21, and I 25 want to make sure we're looking at the same</div>

<p style="text-align: right;">Page 18</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 thing. 3 A. Oh, I'm sorry, I'm sorry, my 4 mistake. I was looking at Claim 6. 5 Q. That's fine. 6 A. Let me get the correct -- column 7 21, lines 53 through 59 it looks like. 8 Yes, my mistake, I'm sorry. 9 Q. Correct. So would you agree 10 that that part of the claim requires this 11 first circuit board that includes an array 12 of CMOS pixels and each of them have an 13 amplifier, that's one requirement of that 14 first circuit board; right? 15 MR. DAVIS: Objection to form. 16 A. So the language says that the 17 circuit board has an array of CMOS pixels 18 thereon, to be precise about the wording, 19 but it does require that there need to be 20 an array, they need to be CMOS pixels and 21 it needs to be thereon the first circuit 22 board, yes. 23 Q. And then picking up at line 60 24 to 62, it looks like -- it further 25 describes that the first circuit board</p>	<p style="text-align: right;">Page 19</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 includes timing and control circuitry 3 that's coupled to the array of CMOS pixels. 4 Do you see that? 5 A. I do. I think it's important to 6 note that, once again, that the timing and 7 control circuitry needs to be thereon the 8 first circuit board. 9 Q. Right. 10 A. And it certainly says that that 11 timing and control circuit being coupled to 12 the array of CMOS pixels, yes. 13 Q. So then you would agree that 14 this part of Claim 1 of the '896 has a 15 first circuit board with CMOS pixels on it, 16 the array of CMOS pixels and the timing and 17 control circuitry; right? 18 MR. DAVIS: Objection to form. 19 A. So it requires that there be -- 20 what it now labels as a first circuit 21 board, thereon that circuit board there 22 needs to be an array of CMOS pixels. 23 Those pixels each have to 24 include an amplifier, and there also has to 25 be timing and control circuitry on that</p>
<p style="text-align: right;">Page 20</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 first circuit board that is coupled to the 3 array of the CMOS pixels. That's certainly 4 what it says. 5 Q. Okay. So a couple of questions 6 about aspects of this part of Claim 1, the 7 first of which is your understanding of a 8 circuit board as it's used in Claim 1 here. 9 A. I'm sorry, what was the 10 question? 11 Q. Your understanding of the 12 circuit board as it's used in Claim 1. 13 A. So -- 14 MR. DAVIS: Objection. 15 A. I apologize. You're asking me 16 what is my understanding? 17 Q. Correct. 18 A. I apologize. 19 Well -- 20 MR. DAVIS: Objection to form. 21 Sorry. 22 A. One of ordinary skill 23 understands a circuit board to be a 24 component upon which circuits are mounted. 25 That's a circuit board.</p>	<p style="text-align: right;">Page 21</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. Is it limited to circuits being 3 mounted on a board or could circuits be 4 integrated as part of the board? 5 MR. DAVIS: Objection to form. 6 A. So there are examples, there are 7 examples where certain kinds of components 8 are made in the manufacturing process of 9 the board itself as opposed to components 10 that are manufactured separately and added 11 to the board, so it could be either. 12 Q. So a silicon chip which has some 13 pin connectors connected to a board, that 14 would be -- it would be an integrated 15 circuit mounted on a circuit board, in your 16 understanding; is that right? 17 A. Well, so an integrated circuit 18 that is packaged, and then that package is 19 mounted on the circuit board, my 20 understanding would be that integrated 21 circuit is thereon the circuit board. 22 Q. And you've used that term 23 "thereon" a few times. 24 How about just the meaning of a 25 circuit or a component on the circuit</p>

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 board? Is there any difference in terms of
3 that language, if something is just on a
4 circuit board?
5 MR. DAVIS: Objection to form.
6 **A. The wording in the claim is**
7 **"thereon," so I was trying to stick with**
8 **the actual words of the claim.**
9 **"Thereon" and "on," I think -- I**
10 **don't really want to substitute a word in**
11 **plain and ordinary meaning -- I haven't**
12 **tried -- I've not tried to do some analysis**
13 **to decide whether "on" is different from**
14 **"thereon."**
15 **The word in the claim is**
16 **"thereon," so that's what I thought about.**
17 Q. Okay. But just as you sit here
18 today, do you have any understanding or
19 reason to treat "on" versus -- different
20 than "thereon"?
21 MR. DAVIS: Objection to form.
22 **A. As I sit here today, I'd have to**
23 **see it in the context -- if we're talking**
24 **about a claim, some hypothetical claim, I'd**
25 **have to see the context of the claim.**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 MR. DAVIS: Object to the form.
3 **A. Control signals are ones to, as**
4 **an example, turn addresses on and off in an**
5 **array.**
6 **In some cases, timing signals**
7 **are control signals, but usually you kind**
8 **of separate timing out to identify a clock**
9 **signal, but that frequently is used in**
10 **conjunction with other signals to do the**
11 **control. Like the language in the claim is**
12 **"timing and control circuitry," so it**
13 **doesn't mean -- again, I haven't tried to**
14 **determine whether they have to be two**
15 **separate blocks. It's a block of circuitry**
16 **that does those things.**
17 **There are many possible circuits**
18 **that could do those things.**
19 Q. Is that a term that's used in
20 the industry? And let's talk about the CCD
21 and CMOS photo detector array industry,
22 "timing and control circuitry."
23 MR. DAVIS: Objection.
24 Form.
25 **A. So in the art, I think it is**

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 **In applying plain and ordinary**
3 **meaning, context does matter, so I don't**
4 **think I can answer that question in a**
5 **hypothetical.**
6 Q. Okay. We also -- there also is
7 the term in Claim 1 "timing and control
8 circuitry."
9 And my question is, what is your
10 understanding of timing and control
11 circuitry?
12 MR. DAVIS: Object to form.
13 **A. Again, in its plain and ordinary**
14 **meaning, I think one of ordinary skill in**
15 **the art would understand its use here as**
16 **circuitry that is used to produce control**
17 **signals and timing signals for -- it's**
18 **coupled to the CMOS array, so I believe**
19 **they would understand that as meaning this**
20 **is for use by the pixels of the CMOS array**
21 **in its function.**
22 Q. You mentioned control signals
23 and timing signals.
24 What's a control signal in that
25 context?

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 **common to find both of those terms: Timing**
3 **circuitry, control circuitry. Sometimes**
4 **it's just referred to as a controller.**
5 **So there are a variety of terms**
6 **that I think one of ordinary skill in the**
7 **art would recognize as being the same.**
8 Q. And the function of the timing
9 and control, is that to control operation
10 of the photo detector array?
11 MR. DAVIS: Objection.
12 Form.
13 **A. That is very clearly context**
14 **sensitive because timing and control can**
15 **control and provide timing signals to many**
16 **other parts of an electronic system.**
17 **In this claim, it states that**
18 **they're coupled to the array of CMOS**
19 **pixels, so at the least these circuits --**
20 **this timing and control circuitry has to be**
21 **coupled to the array of CMOS pixels.**
22 **The claim actually doesn't**
23 **specify what they do in that CMOS pixel**
24 **array.**
25 Q. What is your understanding of

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 timing and control circuitry that's used
3 coupled to CMOS photo detector array? What
4 is the function of the timing and control
5 circuitry?
6 MR. DAVIS: Objection to form.
7 **A. Well, without limiting it, you**
8 **want to add an example. An example can be**
9 **things that identify addresses in an array**
10 **and provide the timing of which you read**
11 **out signals on pixels, so that's an example**
12 **of timing and control for a CMOS pixel**
13 **array.**
14 Q. Is that a functionality that's
15 been known for a long time in the industry
16 in connection with CCD and CMOS photo
17 detector arrays?
18 MR. DAVIS: Objection to form.
19 **A. I think it's certainly the --**
20 **let's call it the box of timing and control**
21 **circuitry is well-known.**
22 **The specifics of how that's**
23 **implemented, I think there are many, many**
24 **choices, but that all of those various**
25 **choices would be collectively referred to**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 ordinary skill in the art would
3 conventionally -- can view as video.
4 **And so calling that pre-video is**
5 **a choice of wording, I think, by '896.**
6 Q. And the last part -- the last
7 language in this part of Claim 1, it's
8 still in column 21, line 63, it says:
9 "Wherein the image sensor is generally
10 square along the first plane."
11 Do you see that?
12 **A. I do.**
13 Q. Your understanding of "generally
14 square," can you tell us that?
15 MR. DAVIS: Objection to form.
16 **A. Well, to make sure we get all**
17 **three words, "generally square shape," and**
18 **I think to one of ordinary skill in the art**
19 **applying plain and ordinary meaning,**
20 **clearly there's no doubt that that includes**
21 **a square.**
22 **I haven't done a separate**
23 **analysis to try to determine, you know,**
24 **what range of shapes other than a square**
25 **that that might include because to me --**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 **as timing and control circuitry.**
3 **I think, yes, that's well-known**
4 **to one of ordinary skill.**
5 Q. Going back to Claim 1, where we
6 had left off, and we're still on column 21.
7 Now we're at -- we're at line -- the end of
8 62. It says "said image sensor producing a
9 pre-video signal."
10 Do you see that?
11 **A. I do.**
12 Q. Your understanding of a
13 pre-video signal is used in Claim 1?
14 MR. DAVIS: Objection to form.
15 **A. Again, I only applied the plain**
16 **and ordinary meanings.**
17 **I think as we discussed**
18 **yesterday, I don't know that "pre-video" is**
19 **a specific term of art, but in the context**
20 **of the claim, where there is a separate**
21 **circuit to convert pre-video to post-video,**
22 **I think one of ordinary skill in the art**
23 **would understand this to be, for instance,**
24 **a signal coming out of the CMOS pixel array**
25 **is not -- it is not yet what I think one of**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 well, I don't -- I don't know that that --
3 that's an analysis that appears to me to be
4 a claim construction analysis.
5 I was asked to just do plain and
6 ordinary. So I have viewed this as being a
7 square, clearly. There is the possibility
8 that some things that are not a square
9 might be included.
10 But in my analysis, if we go to
11 my declaration, I've pointed out that the
12 structures that I point to for some of
13 them, it is a square. I believe
14 Wakabayashi unambiguously shows a square.
15 In other cases, it's obvious
16 that the object pointed to could have been
17 made into a square, and that's how I did my
18 analysis.
19 Q. Did you measure anything in
20 Wakabayashi to determine that it was
21 exactly a square?
22 MR. DAVIS: Objection to form.
23 **A. So I think -- so I did not put a**
24 **ruler -- for instance, Figure 7 of**
25 **Wakabayashi. I believe one of ordinary**

<p style="text-align: right;">Page 30</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 skill looking at 27, now, this is not Claim 3 1. 4 In Claim 1, it's the -- the 5 image sensor has to be generally shaped -- 6 square shaped along the first plane, and 7 the first plane is defined by the first 8 circuit board, which in Wakabayashi I've 9 identified as board 29. 10 So -- 11 Q. Excuse me, are you looking at 12 your declaration, just to -- 13 A. So, I am. Look at -- we've now 14 moved up to -- let me find -- so if you 15 look at page 82 of my declaration, 16 paragraph 122 is where I discuss wherein 17 the image sensor is generally square shaped 18 along the first plane. And associated with 19 that on page 83 of my declaration, I have 20 Wakabayashi's Figure 7, where for the 21 purposes of illustrating the terms, I have 22 it colored. 23 And the image sensor is the 24 circuit board and the CMOS array. 25 In the Wakabayashi, I never said</p>	<p style="text-align: right;">Page 31</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 it was a CMOS. It's a solid-state imaging 3 device. And the plane is determined by 29, 4 the first circuit board. 5 So the claim language of this 6 part would refer back to circuit board 29. 7 And I've pointed out in 8 paragraph 123 that it's not circular, 9 although that doesn't define generally 10 square shape. 11 I pointed out that -- if you 12 look at paragraph 123 and 124, it's either 13 disclosed if shapes other than squares are 14 included, and a bound is established; or, 15 importantly, in paragraph 124, I point back 16 to another section in my declaration, a 17 background section on Wakabayashi. 18 And there I have the, if you 19 will, the details of my analysis that 20 establishes that it would be obvious to 21 make 29 a square. 22 And if it is a square, then it 23 would certainly meet the limitation of 24 generally square shape. 25 Q. So a few things in that response</p>
<p style="text-align: right;">Page 32</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 that I want to go over. 3 First is that it's your 4 testimony that the pertinent component in 5 Wakabayashi to evaluate for the image 6 sensor that is generally square is board 27 7 and 29; is that correct? 8 A. No, that's not what I said. 9 Q. You've highlighted both of those 10 components red in your declaration; 11 correct? 12 A. Yes, I did, to help identify the 13 image sensor. 14 Q. Okay. So the image sensor is 15 both components. 16 That's your testimony? 17 A. It is. 18 Q. Okay. And the component that's 19 generally square you're referring to is 20 board 29; is that correct? 21 A. So the claim language requires 22 that the image sensor is generally square 23 shape along the first plane. 24 It doesn't say every part of the 25 image sensor is generally square shaped.</p>	<p style="text-align: right;">Page 33</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 It says "generally square shaped along the 3 first plane." 4 And earlier in the claim it 5 states that the length and width of the 6 first circuit board define a first plane. 7 The first plane there is the 8 first plane in the requirement about square 9 shaped, which I have on page 83 of my 10 declaration. In the color version of 11 Figure 7, I've used the light blue to 12 indicate the lengths and widths that define 13 the first plane and to show what would need 14 to be generally square shaped, the circuit 15 board 29. 16 Q. Did you say what would need to 17 be square shaped or what is generally 18 square shaped? 19 A. Well, what needs to be generally 20 square shaped. That's what the claim 21 requires. And I've just explained that I 22 believe Wakabayashi's 29, it's obvious that 23 it could be made a square, and a square is 24 certainly generally square shape. 25 Q. Okay. So let's just talk about</p>

<p style="text-align: right;">Page 34</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 board 29, and I'm looking at your 3 declaration on page 83 and component 29. 4 It's in blue. We're talking about the same 5 thing. 6 So at the top of board 29, 7 there's an indent, there's like a 8 semicircular indent. 9 Do you see that? 10 A. Yes, there is. 11 Q. And the edges, the corners of 12 board 29 are beveled. Do you see that? 13 It's shown at the top. You can see that 14 the tops are beveled? 15 A. Well, the corners are beveled, 16 yes. 17 Q. Correct. And from the 18 perspective view here, is it your testimony 19 that the length and the width of board 29 20 are equal? 21 A. I think one of ordinary skill in 22 the art looking at Figure 7 and the rest of 23 the drawings in Wakabayashi, but really 24 Figure 7, would understand that to be 25 something that would be obvious to make a</p>	<p style="text-align: right;">Page 35</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 square shape. 3 Q. Okay. But my question is 4 whether what we're looking at is square 5 shape. 6 So is it your testimony that 7 board 29 in perspective view on page 83 of 8 your declaration with a semicircular indent 9 on top and beveled edges, at least on the 10 top, is generally square? 11 MR. DAVIS: Objection to form. 12 A. My testimony and my statements 13 in my declaration are that it would be 14 obvious to make 29 into a square, and I 15 never said that 29 was a square. It is 16 clearly not a square, but it would be 17 obvious to make it a square. 18 I also pointed out in paragraph 19 123 on page 82 that if it may -- it may 20 directly disclose generally square shaped, 21 but I did not try to establish the bounds 22 on that. 23 I don't know in a plain and 24 ordinary way exactly where the bound on 25 that is.</p>
<p style="text-align: right;">Page 36</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 It's clear that if it is a 3 square, it would meet it no matter what. 4 And at the very least, it's obvious to make 5 it square. It might be in the category of 6 generally square shaped. 7 Q. So hopefully we can agree a 8 rectangle has four sides, two equal length 9 -- two are equal length but longer than the 10 other two which are equal length. 11 Do you agree with that? 12 A. Well, that would be true of any 13 parallelogram, so there's a little bit more 14 to be a rectangle. 15 Q. Let's say if it's just a 16 rectangle, there are 90-degree corners and 17 two sides of equal length that are larger 18 than the other two sides of equal length. 19 That would be a rectangle? 20 A. I think that would, yes, be 21 viewed as a rectangle. 22 I've forgotten in a geometry 23 book whether a square is a subset of 24 rectangle or not, but... 25 Q. Now, so any rectangle could be</p>	<p style="text-align: right;">Page 37</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 made into a square by just shortening the 3 longer side so it's the same length as the 4 other side; right? 5 A. So a rectangle with one side 6 longer than the other, if you were to make 7 all the sides equal, then, yes, obviously 8 that is a square. 9 Q. And it's your testimony that 10 board 29 shows something to a person that 11 is skilled in the art that would make it 12 obvious to make board 29 generally square; 13 is that right? 14 A. No, I actually -- my opinion is 15 that it's obvious to make it a square. 16 More than just generally square, to make it 17 an actual square. And I've cited numerous 18 references that point out that square 19 shaped boards are common. 20 Q. But -- 21 A. It's Section VIII.A.1 of my 22 declaration. 23 Q. We'll go to that in one second, 24 but it's your testimony, though, that board 25 29 is not a square as it's shown on page 83</p>

<p style="text-align: right;">Page 38</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 of your declaration; right? 3 A. So board 29 is not -- is clearly 4 not a square. 5 It has an indent on top. It has 6 rounded corners. 7 Q. So if Wakabayashi shows board 29 8 is not a square, why would you make it into 9 a square when you're analyzing it? 10 A. Well, so let's go back to that 11 section of my declaration. 12 And I believe it starts on page 13 -- I misread the page number in the table 14 of contents. Give me one moment. 15 Q. Sure. 16 A. Okay. It starts on page 32 of 17 the exhibit numbering scheme. Page 29 of 18 the internal document. And there's an 19 overview of Wakabayashi. Let me find the 20 more particular section that we're 21 discussing. I went a little too far. Yes, 22 I skipped too far. 23 So paragraph 65 on page 37 of 24 the exhibit. 25 Q. Okay.</p>	<p style="text-align: right;">Page 39</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. I address the square shape or 3 generally square shape. 4 And if you look at paragraph 66, 5 I discuss that if device -- well, this is 6 device 27, I'm sorry. So there's another 7 -- there should be a separate discussion 8 for 29. 9 So paragraph 66 is a discussion 10 of device 27. We're discussing device 29. 11 Q. I'm not making this a hunt for 12 anything, but it does say in paragraph 66 13 of your declaration, you make reference to 14 imager device 27 and circuit board 29. 15 A. Thank you very much, yes. 16 I looked at the very beginning 17 and saw the reference to 27, but these 18 arguments apply to both, as I stated later 19 in that sentence. 20 So I gave you a number, I've 21 cited a number of examples of generally 22 square shaped situations. I think this is 23 a very common shape to use. 24 Again, 29, I believe one of 25 ordinary skill in the art would recognize</p>
<p style="text-align: right;">Page 40</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 that the length and the width being 3 illustrated there are compatible with a 4 square, and then the only question is do 5 you round the corners and make the divot 6 29. 7 I think to one of ordinary skill 8 in the art, considering that a square board 9 is very obvious, that they would recognize 10 that making 29 a true square is an obvious 11 thing to do. 12 Q. Is it your testimony that the 13 claim requires a true square or not? 14 A. No. My -- what I'm saying is 15 that in trying to understand generally 16 square shaped in a plain and ordinary way, 17 I think one of ordinary skill in the art 18 would recognize one thing that is without 19 question in the bounds of generally square 20 shaped, and that is a square. 21 Q. So a square is generally square. 22 That's your testimony? 23 A. Whatever generally square means 24 is my opinion that a square is in that 25 category.</p>	<p style="text-align: right;">Page 41</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. All right. 3 And a circuit board that has a 4 divot in it and angled edges also can fall 5 within your understanding of generally 6 square; is that right? 7 MR. DAVIS: Objection. 8 Form. 9 A. If a bound were to be 10 established -- I was simply trying to point 11 out that it could be, that this would fall 12 within that bound. 13 But I have not done an analysis 14 to try to establish -- I hate to call it a 15 lower bound, but truly square shaped, we 16 might call that one end of the spectrum. 17 Some other shape would be a different end. 18 And I was simply pointing out 19 that depending on where that end is, that 20 other shape is, 29 might well fall in the 21 category as it is shown. 22 But importantly, I believe it's 23 obvious to one of ordinary skill in the art 24 that they could have used for 29 an actual 25 square, and if they did that, then it is</p>

<p>Page 42</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 without doubt in this description of 3 generally square shape. 4 Q. But that's not what Wakabayashi 5 did. It did not use an exact square for 6 29; right? 7 A. Yes, that's correct. 8 29, as shown, is certainly not a 9 true square. 10 Q. And if you had a circuit board 11 that was an exact square, but you then took 12 an angle off the edges, as is shown in 13 board 29 in Figure 7 of Wakabayashi that 14 we've been looking at, so a perfect square, 15 but the corners cut at an angle like in 16 Wakabayashi, would that still be generally 17 square? 18 MR. DAVIS: Objection. 19 Form. 20 A. I'm not sure whether it would 21 fall into generally square or not. I 22 haven't tried to do an analysis of how much 23 bevel would still fall in that category, if 24 any. 25 I don't know that -- that -- the</p>	<p>Page 43</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 answer to that question. That sounds like 3 a claim construction argument and I've not 4 done any such analysis. 5 Q. You testified earlier that it 6 would be obvious to take the board 29 in 7 Wakabayashi and make it square; correct? 8 A. That's correct. 9 Q. So why not take Wakabayashi 10 board 29 and make it round to fit within 11 the Wakabayashi head unit somehow? 12 MR. DAVIS: Objection to form. 13 A. I actually think that the shape 14 of that circuit board is a design choice 15 open to the designer. So, yes, they could 16 have made it a circle. 17 I think all of these shapes 18 would be available to one of ordinary skill 19 and it would be obvious to use one or 20 another. However, I would point out that a 21 square shape is in some ways the most 22 obvious. 23 It is the easiest to manufacture 24 in terms of circuit board cutting. It 25 provides the least waste in your circuit</p>
<p>Page 44</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 board raw material. 3 Q. Again, that's not the choice 4 that Wakabayashi made in its description; 5 right? 6 A. Well, in Wakabayashi it is clear 7 that he made -- it's called a cutout at the 8 top and chamfers on the corners. That is 9 true. 10 Q. Okay. Going back to Claim 1, 11 going to the next element, the second 12 circuit board element, and that's back in 13 the '896 patent, which is Exhibit 1001, and 14 we're at the bottom of Claim 21 going into 15 -- or bottom of column 21 going to the top 16 of column 22. 17 A. I see that. 18 Q. So you have a second circuit 19 board in the housing that's coupled to the 20 first circuit board. Again, the second 21 circuit board has a length and a width that 22 define the second plane, and the second 23 circuit board includes circuitry to convert 24 pre-video signal to post-video signal. 25 Do you see that?</p>	<p>Page 45</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. I do. 3 Q. So do you agree then that there 4 is a second circuit board, separate from 5 the first circuit board, and that second 6 circuit board includes the pre-video to 7 post-video conversion circuitry. 8 Do you agree with that? 9 A. So the claim states that there 10 is a second circuit board. It has to have 11 a length and width. That establishes a 12 second plane. 13 It hasn't said anything yet 14 about the relationship between the second 15 plane and the first plane in this claim -- 16 this part of the claim. 17 Although, no, actually -- well, 18 it continues on to say they're 19 substantially parallel, so there is that. 20 And it does certainly state that 21 the second circuit board includes circuitry 22 thereon to convert said pre-video signal to 23 post-video signal, so that's certainly what 24 the claim says. 25 Q. Okay. And we'll finish off</p>

<p style="text-align: right;">Page 46</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 because you started going off into the rest 3 of the language, which, in column 22 for 4 the second circuit board, it says that the 5 second board is offset from the first board 6 and the second plane is parallel to the 7 first plane of the first board, so the 8 second circuit board is offset and parallel 9 to the claim of the first board. 10 Do you agree with that? 11 A. I'm just trying to find the -- 12 yes, I'm looking for the offset. I've seen 13 the parallel. 14 Yes, it does state those two 15 requirements for the boards being offset 16 and the planes being parallel. 17 Q. And this pre-video -- the 18 circuitry to convert pre-video signal to 19 post-video signal, what's your 20 understanding of that portion of the claim 21 language? 22 MR. DAVIS: Objection to form. 23 A. So we've already discussed 24 pre-video. In the context, it would be a 25 signal produced by the solid-state imaging</p>	<p style="text-align: right;">Page 47</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 device that is not yet in a video format. 3 This would then indicate that 4 there is circuitry to convert it to such a 5 format, and then I believe they refer that 6 -- they refer to that as post-video signal, 7 so after video conversion. 8 MR. CAPLAN: This is probably a 9 good place to take a first break, if you 10 don't mind. 11 (A recess was taken.) 12 BY MR. CAPLAN: 13 Q. So we were in Claim 1. We just 14 finished off that second circuit board 15 element. Go to the other elements in Claim 16 1: "A lens mounted in the housing that is 17 integral with the imaging device." 18 Do you see that in column 22? 19 A. I do. 20 Q. Okay. Actually, I don't really 21 have any questions at the moment on the 22 lens or the video screen. 23 I do have a question, though, on 24 the power supply element in column 22. It 25 starts on line 18 through 20.</p>
<p style="text-align: right;">Page 48</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. Yes, I see that. 3 Q. So it's a power supply mounted 4 in the housing. It's electrically coupled 5 to the first circuit board to provide power 6 to the array of CMOS pixels and the timing 7 and control circuitry. 8 Do you see that? 9 A. I do. 10 Q. What's your understanding of 11 that power supply element or feature of 12 Claim 1? 13 MR. DAVIS: Objection. 14 Form. 15 A. Well, again, plain and ordinary 16 meaning, a power supply is usually a 17 collection of circuitry that produces 18 whatever voltages the rest of the circuitry 19 needs, provided some other resource of 20 power as an input. 21 Q. Is this related to the driving 22 -- a driver circuit or driving circuits 23 that we discussed yesterday? 24 MR. DAVIS: Objection. 25 Form.</p>	<p style="text-align: right;">Page 49</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A. I mean, I suppose you could 3 characterize a power supply as a driver, 4 but that would be -- that was certainly not 5 what I was discussing yesterday. 6 Q. And in Claim 1, this last part 7 in column 22, continuing on, picking up, I 8 think it looks like line 21, where it says: 9 "The power supply also electrically coupled 10 to the second circuit board to provide 11 power thereto." 12 Do you see that? 13 A. I do. 14 Q. And that second circuit board we 15 talked about before the break is where the 16 pre- to post-video conversion takes place; 17 right? 18 A. The claim requires that on the 19 -- yes, on the second circuit board is 20 where pre- to post-video -- I'm trying to 21 remember whether they used the word 22 "conversion." It says "convert said 23 pre-video to post-video," the claim 24 language. 25 Q. And in the claim, it talks about</p>

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 "said power supply," a term of art in the
3 patent world. But is it your understanding
4 that the same power supply provides the
5 power to all the components listed in that
6 part of Claim 1?
7 **A. Well, it certainly says the**
8 **power supply is electrically coupled to the**
9 **first board, circuit board. And that is to**
10 **provide power to the CMOS pixels and the**
11 **timing and control circuitry. And it is**
12 **also coupled to the second circuit board to**
13 **provide power thereto.**
14 **So it says that it's providing**
15 **power to both -- certain -- certain things**
16 **for sure on the first board, and to -- if**
17 **it's providing power, it has to be running**
18 **power to something, to at least some**
19 **components on the second board.**
20 **Q. I now want to turn to Claim 21,**
21 **which was also addressed in your**
22 **declaration.**
23 **So going through the elements,**
24 **the housing, we spoke before about it, I**
25 **assume you have the same view on housing in**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 **ordinary skill in the art, I believe, would**
3 **understand, that that solid-state imaging**
4 **device 27, because it's solid state, it**
5 **would include a planar semiconductor**
6 **substrate. That's how you fabricate these**
7 **things normally.**
8 **And that's where the image**
9 **sensors are fabricated on and in; and,**
10 **hence, 27 would include a planar substrate.**
11 **Q. So what is the planar substrate**
12 **in item 27 of Wakabayashi that you just**
13 **referred to?**
14 **A. So I think I just explained**
15 **that. That one of ordinary skill, as I've**
16 **said in paragraph 155, would recognize that**
17 **this imager device 27, which is elsewhere**
18 **in Wakabayashi identified as a solid-state**
19 **imaging device.**
20 **And given the drawing of Figure**
21 **7, which clearly indicates that this**
22 **happens to be a -- a planar-type**
23 **structure -- not rounded, hemispherical or**
24 **something -- that they would -- that one of**
25 **ordinary skill would recognize that that**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 Claim 21 as you did in Claim 1; is that
3 right?
4 **A. So --**
5 **MR. DAVIS: Object to form.**
6 **A. I'm checking.**
7 **So, yes, in my declaration, my**
8 **analysis of Claim 21 starts on page 97 of**
9 **the exhibit, and as you can see on page 98**
10 **of the exhibit, I have identified a housing**
11 **from Wakabayashi and it is the same housing**
12 **I identified for Claim 1.**
13 **Q. So going to the next element,**
14 **the image sensor mounted in the housing,**
15 **the image sensor including the planar**
16 **substrate of a length and a width that**
17 **define a first plane.**
18 **Do you see that?**
19 **A. I do.**
20 **Q. So what is your understanding of**
21 **"planar substrate" as it's used in Claim 21**
22 **of the '896 patent?**
23 **A. So as I've discussed on page 99**
24 **of my declaration, the exhibit page 99,**
25 **paragraph 155, I identified what one of**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 **would include a planar semiconductor**
3 **substrate.**
4 **That is, again, as I said, how**
5 **these things are fabricated, so --**
6 **Q. So in --**
7 **A. That is disclosing a planar**
8 **substrate.**
9 **Q. Your testimony is that imager 27**
10 **of Wakabayashi is a planar substrate and --**
11 **is that correct?**
12 **A. That's not quite correct.**
13 **I said it would include a planar**
14 **semiconductor substrate. That is precisely**
15 **what I said in paragraph 155.**
16 **The drawing shown in Wakabayashi**
17 **of 27 is of a -- if you will, a complete**
18 **packaged object. And so I'm trying to**
19 **identify an object that would at the least**
20 **be included that one of ordinary skill in**
21 **the art would recognize as being a**
22 **substrate.**
23 **That's what we call the silicon**
24 **that you fabricate on, and that is flat.**
25 **It's planar.**

<p style="text-align: right;">Page 54</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. So let's talk about just item 27 3 in Wakabayashi. 4 Is item 27 itself a circuit 5 board as well? 6 MR. DAVIS: Object to form. 7 A. I don't think one of ordinary -- 8 one of ordinary skill in the art looking at 9 27 -- you know, I haven't thought about 10 that in terms of, you know, Wakabayashi 11 clearly identifies 29 as a circuit board. 12 He doesn't really call out what 13 this object 27 consists of other than it is 14 a solid-state imager, so I don't know. 15 Maybe, maybe not. 16 Q. So it's your testimony that a 17 solid-state imager is not a circuit board? 18 A. No. 19 MR. DAVIS: Object to form. 20 A. I don't believe that's what I 21 said. 22 I said I haven't considered 23 that, and I think ultimately I said maybe 24 or maybe not. It's not something that I've 25 considered in my analysis, that -- whether</p>	<p style="text-align: right;">Page 55</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 27 could or could not have something in it 3 that would be characterized as a circuit 4 board. 5 Q. Okay. And I'm looking at Figure 6 7, which you're talking about on page -- it 7 looks like 100 of your declaration, 100 of 8 178. And there is an item 28 that's shown 9 between items 27 and 29. 10 Do you see that? 11 A. I do. 12 Q. Do you know what is 28 in 13 Wakabayashi? 14 A. I believe -- I can look to see 15 what words. It is -- I think he identifies 16 it as being some -- a mounting bar, 17 perhaps. Let me find his words. 18 28 itself is identified as -- 19 I'm in Wakabayashi on -- in column 5 at 20 line 50 -- I think that's 58. 21 It says it is mounting plate 28. 22 Q. Okay. So I'm looking in 23 Wakabayashi. It's Exhibit 1027 in column 24 5, and I see what you just identified, and 25 it looks like -- I'm just going to read --</p>
<p style="text-align: right;">Page 56</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 it is lines 62 to 65. 3 It says: "The camera board 4 circuit 29 is fixed on the mounting plate 5 28 with screws 30, and mounting plate 28, 6 in turn, is fixed to the camera case with 7 screws. See Figure 6." 8 Do you see that? 9 A. I do. 10 Q. So you'd agree then that 11 mounting plate 28 is a physical structure 12 disposed between items 27 and 29 used for 13 internal connections within the Wakabayashi 14 device; right? 15 MR. DAVIS: Objection. 16 Form. 17 A. It's used for mounting. 18 So when you use the phrase 19 "internal connections," I believe, if those 20 connections you're including purely 21 mechanical connections, then I would agree 22 that that's -- it's a mounting plate. It 23 uses screws to attach one thing to another. 24 Q. Okay. And when you were talking 25 about -- before the break we were talking</p>	<p style="text-align: right;">Page 57</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 about the plane for board 29, in this same 3 way, you could look at board 28 or item 28 4 -- it's not a board, but the mounting -- 5 what we called the mounting plate 28, and 6 that itself forms a -- has a length and a 7 width and essentially forms a plane; is 8 that right? 9 MR. DAVIS: Objection to form. 10 A. It's certainly nothing I've 11 considered because the planes in the claim 12 language refer to -- are connected to 13 circuit boards that have electrical 14 functionality, if you will. 15 28 is not identified as having 16 any electrical functionality. 17 Does it have in some fashion a 18 length and a width? I suppose, but I 19 haven't had any call to analyze 28, 20 honestly. 21 Q. So I want to make sure I'm 22 clear. 23 So it's your testimony that the 24 planar substrate element is imager device 25 27; right?</p>

<p style="text-align: right;">Page 58</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. DAVIS: Objection to form. 3 A. Let me go back to that. 4 So in my declaration, this would 5 be -- I'm sorry. I've gotten out of place 6 here. There it is. I'm sorry. 7 I had my report open, or 8 declaration, and I moved away from it. 9 So on page 99 of the exhibit -- 10 of Exhibit 1004, my declaration on the '896 11 patent, as I explained in paragraph 155, 12 Wakabayashi clearly describes the imager 13 device 27 as a solid-state imaging device, 14 and a person of ordinary skill would 15 understand that that would include a planar 16 semiconductor substrate. 17 So included within 27 would be a 18 planar semiconductor substrate and it is my 19 opinion that that would -- that that would 20 have a length -- it would have a length and 21 a width, and that establishes this first 22 plane. 23 Q. Okay. So I'll go back to the 24 claim. I think in Claim 21 we kind of went 25 just up to the planar substrate component.</p>	<p style="text-align: right;">Page 59</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I think we actually -- I think 3 we discussed it, the planar substrate, 4 including the array of CMOS pixels 5 including an amplifier. 6 Would you agree that that's 7 what's required in Claim 21? 8 A. Let me get -- if those words are 9 in there, I do recall, but I just want to 10 get to where it is in my declaration. 11 So, yes, in paragraph 100 in my 12 declaration I discuss that particular 13 element, wherein a plurality of CMOS pixels 14 within said array of CMOS pixels include an 15 amplifier, and I discuss that in light of 16 Ackland. 17 MR. DAVIS: I'm just trying to 18 make sure I'm on the same page as you are. 19 Did you say paragraph 100? 20 THE WITNESS: Page 100, 21 paragraph 157. My apologies if I got the 22 numbers -- 23 MR. CAPLAN: That's not hard to 24 mix up because we're looking at all these 25 different things.</p>
<p style="text-align: right;">Page 60</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 BY MR. CAPLAN: 3 Q. Okay. So then picking up in 4 Claim 21, the next part of that portion of 5 the claim starts in line 27. 6 It says: "Planar substrate 7 further including timing and control 8 circuitry thereon, the timing and control 9 circuitry being coupled to the array of 10 CMOS pixels." 11 Do you see that? 12 A. Yes, yes, I do. I'm sorry, I 13 was just looking at the '896 and I got lost 14 at the line number. 15 That's line -- 16 Q. Line 27, I think. 17 A. Am I looking at the wrong thing? 18 It doesn't look like it's line 27. 19 Column 26, right? 20 Q. No, column 25. 21 A. Oh, I'm sorry. That's what I 22 thought. My apologies. I had just gone 23 too far. 24 But, yes, regardless, the 25 element, and it's discussed on page 101 of</p>	<p style="text-align: right;">Page 61</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 my declaration starting at paragraph 160, 3 and it certainly says that: "The planar 4 substrate further includes timing and 5 control circuitry thereon, said timing and 6 control circuitry being coupled to said 7 array of CMOS pixels." 8 And, again, I discuss that in 9 Wakabayashi in view of Ackland for that. 10 Q. Now, let me make sure again 11 we're talking about the right element. 12 You said paragraph 170 we're 13 talking to? 14 A. I'm sorry, paragraph -- in my 15 declaration starting at paragraph 160 on 16 page 101. 17 Q. So it's your testimony then that 18 the timing and control circuitry in Ackland 19 is on the same substrate as the CMOS pixel 20 arrays in Ackland; is that right? 21 A. So in Ackland -- 22 MR. DAVIS: Objection to form. 23 A. -- he discloses timing and 24 control circuitry. 25 In this claim limitation, it</p>

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2 says it's thereon the planar substrate.
3 And I'd say I think I discussed
4 that being included in the planar substrate
5 -- if you look on page 102 of my
6 declaration, in paragraph 162, I referred
7 back to Section VIII.A.4.e, so let me get
8 to that. Let me see if I can find it.
9 So I believe that's on page 78
10 of my declaration -- of Exhibit 1004.
11 Q. Okay. Thank you. I have that.
12 A. And I believe the section starts
13 with paragraph 114, and it shows Figure 6
14 from Ackland on page 79.
15 Q. Okay.
16 A. In paragraph 126, there's some
17 quotations from Ackland where he identifies
18 what timing controller 20 does.
19 Q. I'm sorry, which paragraph?
20 A. For instance, paragraph 116.
21 Q. Okay.
22 A. Paragraph 117 on page 80, I'm
23 pointing to -- again, timing control
24 signals, and given Ackland's discussion of
25 his image sensor, his active pixel imaging

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2 functionally in Figure 6 of Ackland is
3 built into the actual substrate or is
4 placed on the substrate?
5 A. Well --
6 (Reporter clarification.)
7 **THE WITNESS: I accidentally --**
8 **a document hit the space board on the**
9 **keyboard.**
10 MR. DAVIS: Object to form as
11 well. Just so we're all clear, do you want
12 to start the question and answer over
13 again?
14 **THE WITNESS: Yes, please, I**
15 **would appreciate if you would repeat the**
16 **question.**
17 BY MR. CAPLAN:
18 Q. So my question was, do you know
19 if the timing and control feature that's
20 shown, the functionality that's shown in
21 box 20 in Ackland on Figure 6 that's in
22 your report is built into the actual planar
23 substrate or placed on top of the planar
24 substrate?
25 A. Well, the claim language is that

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2 system, I believe one of ordinary skill in
3 the art would interpret Figure 6 as
4 illustrating that the timing and control
5 circuitry, which is clearly present, and
6 the claim element we're talking about
7 requires that the timing and control
8 circuitry -- that the planar substrate
9 includes that thereon, and I believe that
10 that is what Ackland is illustrating in his
11 Figure 6.
12 Q. So it's your testimony that the
13 timing controller 20 as shown in Figure 6
14 of Ackland as included in page 81 of your
15 declaration shows that timing control
16 circuitry is on the same planar substrate
17 as the CMOS pixel array of Ackland; is that
18 right?
19 MR. DAVIS: Objection to form.
20 A. So the claim language requires
21 the planar substrate include that thereon,
22 and, yes, it's my testimony that Ackland is
23 disclosing that requirement.
24 Q. Do you know if the timing
25 controller feature that's shown

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2 it needs to be thereon, and I believe that
3 either of those would satisfy.
4 I haven't tried to parse out the
5 two.
6 MR. DAVIS: My objection -- my
7 objection was missed. I objected to form.
8 Thank you.
9 BY MR. CAPLAN:
10 Q. As you sit here today, though,
11 do you know how the timing and control
12 functionality that you believe is present
13 in Ackland is actually included in the
14 Ackland pixel or the Ackland device?
15 MR. DAVIS: Same objection.
16 A. So, again, the requirement is
17 thereon, and I believe the disclosure of
18 Ackland indicates it is at least -- it is
19 thereon.
20 Whether it is fabricated in or
21 placed on, I haven't tried to -- tried to
22 delineate those two.
23 Q. What is your understanding in
24 the industry at the time how timing and
25 control functionality was implemented for a

<p style="text-align: right;">Page 66</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 CMOS photo detector array? 3 MR. DAVIS: Objection to form. 4 A. Well, I think there are numerous 5 circuits that would be considered to be 6 timing and control circuits, so I can't 7 pick one specifically because there are 8 many. So could you repeat your question? 9 I'm not sure what you were asking about 10 those circuits. 11 Q. Well, my question was your 12 understanding of how timing and control 13 functionality was implemented for a CMOS 14 photo detector array, you know, in 1997, 15 the time period we're been talking about. 16 MR. DAVIS: Objection. 17 Asked and answered. 18 A. I mean, as I said, there are 19 many different circuits that would be 20 broadly called timing and control, and 21 which circuit functioned with which 22 specific array would be dependant on the 23 actual final architecture of the pixels, 24 the desired order of reading out those 25 pixels and so on. So there would be many.</p>	<p style="text-align: right;">Page 67</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I couldn't give you just one. 3 Q. Based on your review of the 4 Ackland patent, what's your understanding 5 of how Ackland implemented it? 6 MR. DAVIS: Object to form. 7 A. I'll look at Ackland, so this is 8 element 20. 9 So much of Ackland focuses on 10 this single poly advantages for his pixel 11 structure. I think the first mention of 12 timing controller 20 is in column 8 at line 13 24, where he states that "a timing 14 controller 20 provides timing signals to 15 the row decoder 10." So he says that's one 16 of the things it does. 17 He goes on to talk about what 10 18 does relative to rows and pixels and 19 control lines. 20 His next mention of 20 is down 21 around line 51, but to complete -- just 22 read the whole sentence, it starts at line 23 48 in column 8 of Ackland. 24 Q. Okay. 25 A. "Output signals from the</p>
<p style="text-align: right;">Page 68</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 amplifiers 18 are provided that common 3 output line 19 in serial fashion based on 4 timing control signals from timing control 5 20. Output signals are then routed." 6 But that's a suitable processing 7 circuitry not shown. And I believe that's 8 the only description of 20. 9 He's clearly identifying it 10 provides timing and control information, 11 but otherwise I don't think he gives any 12 details. 13 Q. What's your understanding of 14 that description in Ackland for the timing 15 and control? 16 MR. DAVIS: Object to form. 17 A. Exactly what he said. 18 It would have to be a circuit, 19 or then I believe there would be numerous 20 circuit implementations that could do it, 21 but you'd have to provide timing signals to 22 decoder 10 and timing output to -- he 23 describes them as the -- to the amplifiers 24 in 18, which if you look at Figure 6, those 25 are, if you will, column-wise. Those</p>	<p style="text-align: right;">Page 69</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 particular amplifiers happen to be 3 column-wise connected. 4 Q. Okay. 5 A. So the timing controller 6 circuitry would have to do those two 7 things. 8 Q. Would a person skilled in the 9 art understand how to implement the timing 10 and control feature as described in 11 Ackland? 12 MR. DAVIS: Object to form. 13 A. No. I think they would 14 recognize that there are probably numerous 15 circuits that can do this. 16 Ackland does not provide any 17 detail about the internal design of the row 18 decoder 10, so in order to design -- 19 there's sort of a double-lined arrow 20 weaving 20 and voiding into 10 in Figure 6 21 of Ackland. 22 Q. Okay. 23 A. That's a pretty common way of 24 drawing not a single wire connection, but a 25 bus-like connection.</p>

<p style="text-align: right;">Page 70</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 So exactly how you design the 3 circuitry and the timing controller would 4 also depend on how you design the row 5 decoder circuitry. 6 I think one of ordinary skill in 7 the art would actually be able to implement 8 both, but the specific circuits would 9 depend on choices made for each. 10 Q. And I believe I asked you this 11 yesterday, but you don't know Mr. Ackland, 12 do you? 13 A. I do not. 14 Q. Right. He was at Lucent 15 Technologies at least when -- he was on a 16 team that developed this technology; right? 17 Do you see that on the first 18 page? 19 A. I see that the assignee -- 20 MR. DAVIS: Object to form. 21 A. I see that the assignee is 22 Lucent Technologies. 23 I don't know anything about his 24 employment status. I don't know. 25 Q. Are you aware that Mr. Ackland</p>	<p style="text-align: right;">Page 71</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 is also -- you referenced in the article we 3 talked about yesterday, Exhibit 1060, that 4 the Business Week article, he's identified 5 there when he was at Bell Labs at the time. 6 Are you aware of that? 7 MR. DAVIS: Objection to form. 8 A. I'd have to go back and look at 9 it. 10 So it does identify that they do 11 -- well, paraphrase, I don't think they 12 quote. 13 They paraphrase a Brian D. 14 Ackland, who was, according to this 15 article, head of the DOSI Systems Research 16 Department at AT&T Bell Labs in Holmdel, so 17 I do see that. 18 Q. So if the timing and control 19 function -- so functional block 20 in 20 Figure 6 of Ackland that we've been talking 21 about was mounted on silicon, that 22 functionality was mounted on silicon, would 23 that meet the requirement for mounted 24 thereon that's used in Claim 21 of the '896 25 patent?</p>
<p style="text-align: right;">Page 72</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. DAVIS: Objection to form. 3 A. I identified the planar 4 semiconductor substrate as representing a 5 planar substrate, and you just -- your 6 hypothetical asked if the timing and 7 control circuitry were on that? 8 I'm trying to -- would you 9 repeat your question, I think I should say. 10 Q. I can rephrase it. 11 If the timing and control 12 functionality in 20 that you identified in 13 Figure 6 of the Ackland patent was mounted 14 on the planar substrate of imager 27 in 15 Wakabayashi, would that meet the claim 16 requirement for a timing and control 17 circuitry that's included in the -- let me 18 rephrase. It got a little too long there. 19 The claim language we're talking 20 about in Claim 21 of the '896 patent is 21 timing and control circuitry thereon, and 22 that's in reference to the planar 23 substrate, "the planar substrate including 24 timing and control circuitry thereon." 25 If the Ackland functional block</p>	<p style="text-align: right;">Page 73</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 20 was mounted on the Ackland planar 3 substrate, would that be mounted thereon? 4 MR. DAVIS: Objection to form. 5 A. The claim language isn't mounted 6 thereon. It's -- the claim language is 7 simply that this timing and control 8 circuitry is thereon the planar substrate. 9 But, yes, if it was mounted on, 10 I believe that is thereon. 11 Q. Continuing on in Claim 21, now 12 we're moving into column 26, the bottom of 13 column 25 into column 26. 14 The image sensor producing a 15 pre-video signal and the image sensor 16 generally square shape along the first 17 plane. 18 In that part of Claim 21, I 19 assume your analysis is similar to what we 20 talked about already in connection with 21 Claim 1; is that right? 22 MR. DAVIS: Objection to form. 23 A. So here I've identified 27, and, 24 yes, I believe what Ackland -- or 25 Wakabayashi shows is an object that is</p>

<p style="text-align: right;">Page 74</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 square. But if you look at page 103 of my 3 declaration at paragraph 169, I refer back 4 to Section VIII.A.1 and pointed out that it 5 would have been obvious to use a square 6 shape. That was an exceedingly common 7 shape. 8 Now, in -- in the right element 9 -- so the image sensor is generally square 10 shaped. The image sensor includes the 11 planar substrate. It doesn't say that the 12 image sensor is only a planar substrate. 13 And for the image sensor in 14 Wakabayashi, I identified 27, which he 15 calls the solid-state imager. 16 So for this element, I believe 17 that one of ordinary skill in the art 18 looking at Figure 7 of Wakabayashi would 19 recognize that as a square, the image 20 sensor, but at the very least, would 21 recognize that it's obvious to make it a 22 square. Very common outline for an imaging 23 system -- imaging array. 24 Q. If Wakabayashi wasn't showing a 25 component, let's say figure 27 or element</p>	<p style="text-align: right;">Page 75</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 27 was not square, why would you change it 3 if Wakabayashi suggested a different shape? 4 A. Well, first of all, he didn't 5 suggest a different shape, and I think it's 6 obvious to use a square. 7 Many, many -- and I think I've 8 got some references -- many, many imaging 9 arrays are configured in a square array and 10 then are packaged in square packages. 11 That's a very common thing to do. 12 Q. Is that your view of 13 Wakabayashi, that it's a suggestion to 14 tailor each of its components however you 15 would desire or you would follow the actual 16 arrangement and structure that's in 17 Wakabayashi? 18 A. Well, I think Wakabayashi has a 19 variety of teaching, and in a specific 20 embodiment that you would look at the 21 teachings. They're illustrated by a 22 specific embodiment. 23 But I don't think one of 24 ordinary skill exercising common sense 25 would necessarily be limited explicitly</p>
<p style="text-align: right;">Page 76</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 exactly to everything in a given embodiment 3 in Wakabayashi. 4 Q. All right. 5 Back in Claim 21, moving onto 6 the next element in our discussion here, 7 we're in column 26 now, line 3. 8 A. Give me just a moment so I 9 can -- 10 Q. Sure. 11 A. -- get my '896 open again. 12 Okay, I'm sorry, you're in 13 column 26 now? 14 Q. Yes, starting at line 3. 15 Now we have a circuit board 16 mounted in the housing. The circuit board 17 coupled -- electrically coupled to the 18 planar substrate, the length and the width, 19 to find a second plane and include 20 circuitry to convert pre-video to 21 post-video. 22 Do you see that? 23 A. I do. 24 Q. And this language is similar to 25 the circuit board element, the second</p>	<p style="text-align: right;">Page 77</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 circuit board element that we discussed in 3 Claim 1. 4 Do you agree with that? 5 MR. DAVIS: Object to form. 6 A. So I'm looking in my 7 declaration, Exhibit 1001 at page 104 at 8 paragraph 170. 9 Q. Okay. 10 A. So here it requires electrical 11 coupling to the planar substrate for the 12 identified circuit board, lengths and 13 widths to define a second plane, and then 14 requirements about where the circuitry is. 15 And you were asking whether that 16 is similar to Claim 1? 17 Q. Well, we discussed the -- a 18 second -- let me ask a different question. 19 Do you agree that this element 20 of Claim 21, the circuit board element that 21 is coupled to the substrate, that circuit 22 board requires or includes the pre- to 23 post-video conversion circuitry on it? 24 Do you agree with that? 25 A. The claim says clearly this</p>

<p style="text-align: right;">Page 78</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 circuit board includes circuitry to convert 3 pre- to post-video, so, yes, I agree with 4 that. 5 Q. And when it includes it, what's 6 your understanding, though, of "includes"? 7 A. Well, in this case, it doesn't 8 happen to use "on" or "thereon," but I 9 would take that to mean -- I think one of 10 ordinary skill reading the word "includes" 11 -- well, no, actually it does say 12 "thereon," so it has to be thereon the 13 circuit board. That's what the claim 14 language says. 15 The particular circuitry we're 16 talking about is thereon said circuit 17 board. I think that means it's on it, at 18 least. In it, perhaps; but on it, at 19 least. 20 Q. Okay. And that circuit board 21 that we're talking about which includes 22 this pre- to post-video conversion 23 circuitry is offset from the planar 24 substrate and the plane of that board is 25 parallel to the plane of the planar</p>	<p style="text-align: right;">Page 79</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 substrate. 3 Do you see that? 4 MR. DAVIS: Objection to form. 5 A. So the claim language, yes, 6 identifies this -- this -- said circuit 7 board as being offset in the substrate and 8 it also requires the plane of that circuit 9 board to be parallel to the first plane of 10 the planar substrate, so, yes, those are 11 requirements of the claim. 12 Q. So that circuit board with the 13 pre- to post-video conversion circuitry on 14 it is separate and parallel to the planar 15 substrate, which has the CMOS pixel array 16 and the timing and control circuitry on it 17 or with it. 18 Do you agree with that? 19 A. You used the word "separate." 20 This is a circuit board that is 21 coupled to the planar substrate and it is 22 offset. You happened to use the word 23 "separate," which isn't in the claim. 24 But if it was separate and 25 offset, I think it would satisfy the claim</p>
<p style="text-align: right;">Page 80</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 language. 3 MR. DAVIS: I apologize to 4 interrupt, but I wanted to object to form 5 as well. 6 MR. CAPLAN: You can have a 7 standing objection. You don't like any of 8 my questions. 9 BY MR. CAPLAN: 10 Q. Okay. Just going through the 11 rest of the elements -- the lens, the video 12 screen -- I don't have any questions at the 13 moment. 14 The power supply. We spoke 15 earlier about the power supply element in 16 Claim 1. 17 Is your understanding of the 18 power supply term in Claim 26 the same as 19 what we discussed already in Claim 1? 20 A. So the discussion of that is in 21 my declaration on page 109 starting at 22 paragraph 179. 23 And I actually did specifically 24 say that my analysis for Claim 1, the 25 corresponding element, is similar and</p>	<p style="text-align: right;">Page 81</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 applicable, so, yes -- my apologies, once 3 again. I'm trying to think if I can move 4 my keyboard. 5 (Reporter clarification.) 6 THE WITNESS: Would you read the 7 question and I'll try to provide the answer 8 in its entirety again. Sorry. 9 BY MR. CAPLAN: 10 Q. So my question was, the power 11 supply element in Claim 26, I was going to 12 ask you or am asking you about your 13 understanding of that term and whether it 14 was the same as what we already discussed 15 for the power supply element in Claim 1. 16 MR. DAVIS: Object to form. 17 A. And that's discussed on page 109 18 of my declaration starting at paragraph 19 179, and as I stated in paragraph 180, the 20 -- my analysis for the element in Claim 1 21 is similar and equally applicable to this 22 claim. So the answer ultimately is yes, 23 it's the same basic thing. 24 Q. Just one or two questions before 25 maybe we take our next break.</p>

<p style="text-align: right;">Page 82</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 In Wakabayashi, if you look at 3 the abstract, and we've talked about it a 4 little bit yesterday, it has the ability to 5 rotate about an axis, to make the -- I 6 guess the video camera, the image sensor or 7 the imager device 27 can rotate. 8 Do you see that? 9 A. You specified the abstract. 10 I was just looking to see what 11 is in the abstract. 12 Yes, about midway through the 13 abstract it states "the video camera, which 14 has an imager device and a lens, is pivoted 15 on an edge," so, yes, that is one of the 16 things he's discussing here. 17 Q. And so the Wakabayashi device 18 with regard to the imager element 27 has 19 the ability to mechanically be moved; 20 right? 21 A. Yes, that is Wakabayashi, yes. 22 Q. And it moves relative to other 23 components in the camera. 24 Is that your understanding, that 25 not everything in the camera moves when you</p>	<p style="text-align: right;">Page 83</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 rotate the imager device; is that right? 3 MR. DAVIS: Objection to form. 4 A. Yes, my understanding is that 5 you -- that the user is able to rotate, 6 yes. 7 Q. Okay. And so if -- we were just 8 talking about was Claims 20 and 21, about 9 one of the claim elements being that 10 certain elements -- certain circuit boards 11 are parallel to other elements, either a 12 second circuit board parallel to a first 13 circuit board or a circuit board parallel 14 to a planar substrate. 15 My question is, how do you 16 design -- why would you look to Wakabayashi 17 as having parallel boards when it's 18 designed specifically to have this rotating 19 feature with regard to the imager device? 20 MR. DAVIS: Object to form. 21 A. Well, because it's specifically 22 -- because specifically it is designed to 23 operate in more than one configuration or 24 orientation of which one that's repeatedly 25 illustrated is the one in which they would</p>
<p style="text-align: right;">Page 84</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 be parallel. 3 If you look at Figure 10, in 4 that configuration -- for instance, circuit 5 board 29 and 39. I'll pick two circuit 6 boards of Wakabayashi. 7 In the orientation he showed in 8 Figure 10, they would be parallel. That 9 happens to be the orientation where the 10 camera is pointed back towards the display. 11 I believe that is the most 12 common configuration he illustrates. 13 But if you, I think, look at 14 Figure 13 and 14, he talks about situations 15 that invert the image -- that was a lot of 16 what he talked about -- which would 17 correspond to rotating 5 from its version 18 that looks back at the screen. 19 I think perhaps we might have 20 called that a selfie mode the other day. 21 Q. Yes. 22 A. If you rotate that 180 degrees, 23 that inverts the image. He spends a lot of 24 time talking about the deal with inversion. 25 Well, in that configuration, it</p>	<p style="text-align: right;">Page 85</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 would also be parallel. 3 Now, he doesn't say that you 4 can't rotate it to some other angle, but 5 clearly he indicates, for instance, in 6 Figure 11, at least two, and both of those, 7 at the limits of rotation, are parallel. 8 MR. CAPLAN: We'll take a 9 15-minute break here and then kind of a 10 similar schedule to yesterday, Jim and Dr. 11 Neikirk and Carolyn, if that's okay with 12 you, we'll go until 2 o'clock Eastern and 13 then we'll break for lunch. 14 Is that all right? 15 THE WITNESS: That's fine with 16 me. 17 MR. DAVIS: Great. 18 MR. CAPLAN: 15 minutes. 19 Thank you. 20 (A recess was taken.) 21 BY MR. CAPLAN: 22 Q. Dr. Neikirk, if you could turn 23 in the Wakabayashi patent to Figure 3. 24 A. Yes, I'm at Figure 3 -- I'm 25 sorry -- Figure 3, yes, I'm there.</p>

<p style="text-align: right;">Page 86</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 Q. And Figure 3 is just another</p> <p>3 view of -- let me see exactly what it says.</p> <p>4 I don't want mischaracterize it,</p> <p>5 but, according to Wakabayashi, Figure 3 is</p> <p>6 a cross-sectional view along line AA in</p> <p>7 Figure 1.</p> <p>8 A. Yes, I see that.</p> <p>9 Q. This shows some of the</p> <p>10 components of the device that is described</p> <p>11 in the Wakabayashi patent; right?</p> <p>12 A. Yes, it does.</p> <p>13 Q. I think we may have talked about</p> <p>14 this figure a little bit yesterday, but not</p> <p>15 too much, so I just want to confirm with</p> <p>16 you some of the things that are shown in</p> <p>17 here.</p> <p>18 So item or reference number 27,</p> <p>19 that's the imager device that we've been</p> <p>20 talking about, and we've been mainly</p> <p>21 referencing Figure 7, but it's the same</p> <p>22 element 27.</p> <p>23 Do you agree with that?</p> <p>24 MR. DAVIS: Objection.</p> <p>25 Form.</p>	<p style="text-align: right;">Page 87</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 A. So that's the device that</p> <p>3 Wakabayashi refers to as -- where is it --</p> <p>4 sorry.</p> <p>5 Q. That's fine. Take your time.</p> <p>6 A. So at one point he calls it an</p> <p>7 imager device, but he also refers to it</p> <p>8 repeatedly as solid-state imager device.</p> <p>9 Yes, that's what that element</p> <p>10 is.</p> <p>11 Q. And it's the same element 27</p> <p>12 that we've discussed, you know, at some</p> <p>13 length in connection with your declaration</p> <p>14 and, in particular, Figure 7; is that</p> <p>15 right?</p> <p>16 A. Yes, that's correct.</p> <p>17 Q. Okay. Now, there is also an</p> <p>18 element 29.</p> <p>19 Do you see that in Figure 3?</p> <p>20 A. I do.</p> <p>21 Q. Okay. And that also is an</p> <p>22 element that we've talked about previously</p> <p>23 in connection with Figure 7. I believe we</p> <p>24 called it the camera circuit board 29?</p> <p>25 A. Yes, that is -- pardon me.</p>
<p style="text-align: right;">Page 88</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 Q. Go ahead.</p> <p>3 A. Yes, that's what Wakabayashi</p> <p>4 calls it, camera circuit board 29.</p> <p>5 Q. All right.</p> <p>6 And that's the same board 29</p> <p>7 that we've been talking about yesterday and</p> <p>8 today in Wakabayashi; right?</p> <p>9 A. We have talked about it numerous</p> <p>10 times, yes.</p> <p>11 Q. Okay. And at the bottom, do you</p> <p>12 see reference to element 39; right?</p> <p>13 Do you see that?</p> <p>14 A. I do.</p> <p>15 Q. That's the same 39 that we</p> <p>16 talked about at some length, perhaps not as</p> <p>17 much, in connection with Figure 7.</p> <p>18 Do you recall that?</p> <p>19 A. Yes, it is.</p> <p>20 Q. And it's the same 39; is that</p> <p>21 right?</p> <p>22 A. I would certainly take it to be,</p> <p>23 yes.</p> <p>24 Q. And in the patent, and you</p> <p>25 pointed out this portion before, but in</p>	<p style="text-align: right;">Page 89</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 column 6, lines 5 to 7, it refers to</p> <p>3 circuit board 3; right?</p> <p>4 A. It does.</p> <p>5 Q. Okay. Now, focusing just on</p> <p>6 element 29 and 39, is that one circuit</p> <p>7 board, 29 and 39? Do those together -- are</p> <p>8 they one circuit board?</p> <p>9 MR. DAVIS: Object to form.</p> <p>10 A. I -- I -- certainly looking at</p> <p>11 Figure 7 and Figure 5 and other figures,</p> <p>12 Figure 3, I certainly would never describe</p> <p>13 those two as being one circuit board.</p> <p>14 Q. So you'd agree then that 29 and</p> <p>15 39 are each separate circuit boards.</p> <p>16 Do you agree with that?</p> <p>17 A. They -- well, yes. They are</p> <p>18 electrically connected to one another, but</p> <p>19 they are separate circuit boards, yes.</p> <p>20 Q. Separate circuit boards but</p> <p>21 electrically coupled.</p> <p>22 You agree with that, okay; is</p> <p>23 that right?</p> <p>24 A. They are electrically coupled</p> <p>25 and that's shown in Figure 7 and I believe</p>

<p style="text-align: right;">Page 90</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 they are separate circuit boards, yes. 3 Q. Okay. Now element 27, which is 4 -- I think they call it imager device 27, 5 and element 29, it says "circuit board 29." 6 Is that one circuit board? 7 MR. DAVIS: Object to form. 8 A. In Wakabayashi, he describes 29 9 as being a circuit board, and he describes 10 27 as being a solid-state imager or image 11 device. I keep forgetting which phrase he 12 uses. 13 So I don't believe one of 14 ordinary skill would view that as being -- 15 29 is one circuit board and 27 is on 29. 16 Q. Would you agree 27 is a separate 17 component from circuit board 29? 18 MR. DAVIS: Objection to form. 19 A. So I think that, again, one of 20 ordinary skill would view the components 21 that end up being mounted on a circuit 22 board were separate certainly at one point. 23 Now they're electrically connected. 24 As to whether they become part 25 of the circuit board, well, they're mounted</p>	<p style="text-align: right;">Page 91</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 on it. I haven't really tried to think of 3 whether that makes them part of the board 4 or not. 5 Q. Board 29 and board 39 are 6 different circuit boards. 7 Would you agree with that? 8 A. Yes, I think one of ordinary 9 skill in the art would view those as being 10 different boards because they are both 11 described as a circuit board and they're 12 illustrated as being connected by an 13 element 56, which I don't recall -- he 14 doesn't call it a ribbon cable, he calls it 15 something else, but by some set of wiring. 16 Q. Okay. And element 27, the 17 solid-state imager, and circuit board 29 18 are different components. 19 You already -- I just asked you 20 that, you agreed with that, but those are 21 different components; right? 22 MR. DAVIS: Objection to form. 23 A. So I don't recall whether you 24 called 29 a component before. It's 25 described as a circuit board.</p>
<p style="text-align: right;">Page 92</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 And I don't know whether -- I 3 haven't considered whether that's renamed a 4 component. 5 I would say that 29 and 27 were 6 separate objects that are now electrically 7 connected, where 27 is clearly illustrated 8 as being mounted directly -- or mounted on 9 29. 10 Q. And the solid-state imager is 11 itself a circuit board, isn't it? 12 MR. DAVIS: Objection to form. 13 A. No, I think we had that 14 discussion earlier and I didn't agree to 15 that. 16 I haven't thought about whether 17 something like that could be viewed as 18 being a circuit board or not. 19 Q. What is your understanding of a 20 circuit board? 21 A. Well -- 22 MR. DAVIS: Object to form. 23 A. Dr. Wakabayashi specifically 24 describes 29 and 39 as circuit boards. 25 There is no further discussion of a type of</p>	<p style="text-align: right;">Page 93</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 circuit board. 3 A circuit board is something 4 that contains and supports circuitry, 5 electrical circuitry, in some broad sense. 6 Again, this is a not a term that 7 I have tried to analyze in other than what 8 I think is the plain and ordinary context 9 and as explicitly disclosed by Wakabayashi. 10 He calls them circuit boards. 11 Q. We're going to turn to a couple 12 of pages in your declaration now so let me 13 just get to that, the right one. 14 We can turn to page 71 of 178. 15 There's something particular I'm 16 going to ask you, what's been labeled as 17 element 1.b. 18 A. Yes, I'm there. 19 Q. Paragraph 103. 20 And this -- and I'm going to 21 paraphrase -- is the image sensor, it's in 22 the housing, which has a first circuit 23 board with a length and a width that 24 defines a first plane and includes an array 25 of CMOS pixels.</p>

<p style="text-align: right;">Page 94</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Do you see that? 3 A. I do. It includes an array of 4 CMOS pixels thereon, yes. 5 Q. So my question for you is just 6 to make sure we understand exactly what is 7 the component that you've identified as the 8 first circuit board for this element 1.b. 9 A. So let's point to the specific 10 places it would be in my declaration. 11 So you asked about the first 12 circuit board. 13 Q. Right, the element 1.b, the 14 first circuit board element in 1.b. 15 A. So the next several paragraphs 16 focus on the image sensor, or solid-state 17 imager device. But, for instance, if you 18 look at -- well, so if you look at page 73 19 of my declaration in Figure 7, I have text 20 there for circuit board. I have that text 21 highlighted in blue, and you can see the 22 blue highlighting on the figure. 23 It's -- I don't know whether I 24 could call it unfortunate, the surface 25 appears red and I didn't really mean that</p>	<p style="text-align: right;">Page 95</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 to say that 29 is two things. It's a 3 circuit board. 4 And as I'm trying to indicate 5 there, 29 is, in my opinion, discloses the 6 required first circuit board of the claim 7 language. 8 You can see that on page 74 as 9 well, where I have a cross-sectional view 10 in color coding, and I have first circuit 11 board highlighted in blue in the labeling 12 on Figure 3 that was added, and I don't 13 know whether -- how clear your copy is, but 14 it's the object 29 that's colored blue. 15 Q. Okay. I do have a color copy. 16 I'm not embarrassed to say, but 17 it's just a fact, so -- but I'm color 18 blind, so it always takes me a little while 19 to navigate stuff. 20 So 29 is blue. Okay. 21 So it's your testimony that 29 22 is the first circuit board? 23 A. Yes. The required first circuit 24 board in element 1.b, the way I labeled it 25 back on page 71.</p>
<p style="text-align: right;">Page 96</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I have identified Wakabayashi as 3 being circuit board 29. That's the 4 disclosure of that element, yes. 5 Q. And I see that there's 6 differences if it's red. 7 So the highlighting or the color 8 that's red indicates the image sensor 9 component? Is that your testimony? 10 A. No. The labeling in Figure 7, 11 the red, is image sensor including first 12 circuit board, so the image sensor is not 13 just 27, nor is it just 29. 14 If you look at the claim 15 language, the image sensor includes first 16 circuit board and array of CMOS pixels 17 thereon the first circuit board. 18 In Wakabayashi, that's 27 and 19 29, where 27 is the first circuit board, 20 and as I discussed -- discussed in 21 paragraph -- oh, where do I -- 108 I 22 discuss the combination with Ackland to 23 disclose that one of ordinary skill in the 24 art would view 27 as coming from Ackland's 25 disclosure of a CMOS array.</p>	<p style="text-align: right;">Page 97</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. So your analysis of this 3 element, and it's set forth in your 4 declaration, doesn't consider whether a 5 solid-state imager component 27 is a 6 circuit board, does it? 7 MR. DAVIS: Object to form. 8 A. No. No, it doesn't because the 9 claim language doesn't say whether it is or 10 is not. 11 It just says that the first 12 circuit board includes an array of CMOS 13 pixels thereon. And in my discussions in 14 paragraph -- I don't know, 3 through 110 -- 15 I show that that is the case for 16 Wakabayashi in light of Ackland. 17 Q. As you sit here today, do you 18 have an opinion as to whether the imager, 19 the solid-state imager component 27, 20 including whatever you want to take from 21 Ackland to be that component, is a circuit 22 board? 23 A. No. 24 MR. DAVIS: Object to form. 25 A. I haven't -- I haven't thought</p>

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 **about that, so, no, I don't have an opinion**
3 **as I sit here now.**
4 Q. And it's your testimony then
5 that the solid-state imager element 27 is
6 on what you've identified as the first
7 circuit board 29 through the -- it looks
8 like the metal pins between those two
9 components; is that right?
10 **A. So the claim language is that**
11 **that CMOS, an array of CMOS pixels, must be**
12 **thereon the first circuit board.**
13 **And, yes, as I think is clearly**
14 **shown, one of ordinary skill in the art**
15 **would view 27 as being thereon 29.**
16 **It's mounted on it, as would any**
17 **other components added to the circuit board**
18 **itself to form a final functioning**
19 **electrical circuit.**
20 Q. Those connections -- it's your
21 testimony that 27 is mounted on board 29
22 through those metal pin connections; right?
23 **A. Well, it is electrically**
24 **connected and physically attached to. It**
25 **is mounted on via --**

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 like in Figure 7 in your declaration, that
3 is a physical connection, isn't it?
4 **A. Well, it's an electrical**
5 **connection that is embodied by a physical**
6 **object, so, sure, there is some physical**
7 **connection. But as Wakabayashi shows, it's**
8 **certainly not the mechanical support**
9 **element. In fact, he goes to great lengths**
10 **to try to make sure that it is very**
11 **flexible.**
12 **So one of ordinary skill in the**
13 **art reading the claim language, which is**
14 **what I am trying to apply, and seeing the**
15 **word "thereon," I think an ordinary meaning**
16 **to that would not characterize 29 as being**
17 **thereon 39.**
18 **I just don't think that's the**
19 **plain and ordinary meaning of that phrase,**
20 **or word, it's a word.**
21 Q. Boards 39 and 29 are both
22 connected to the overall housings of
23 Wakabayashi, though, aren't they?
24 **A. They are mechanically connected**
25 **to the overall housings, yes.**

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 Q. So -- I'm sorry, I'm sorry. I
3 didn't mean to -- I didn't know if you were
4 done.
5 **A. The last thing I've said in my**
6 **answer was "via those pins." At that**
7 **point, I'm done with my answer.**
8 Q. Now, you testified earlier that
9 board 39 is electrically connected to board
10 29; right?
11 **A. I did.**
12 Q. So is board 39 mounted on board
13 29?
14 **A. No, it's not physically**
15 **mechanically supported by 39.**
16 **It is connected with, but board**
17 **29 is mechanically supported by mounting**
18 **plate 28, which is then affixed within the**
19 **rotating head 5, and I don't think one of**
20 **ordinary skill would then interpret the**
21 **ribbon -- the flexible connector -- I don't**
22 **know whether it's 51 or 56, one or the**
23 **other or both -- as determining that 29 is**
24 **thereon 39.**
25 Q. Well, that cable in 56, it looks

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 Q. So if two boards are
3 electrically connected and stacked, let's
4 say, electrically connected and stacked,
5 does that become one board because they're
6 connected that way?
7 MR. DAVIS: Objection.
8 Form.
9 **A. So you've introduced a new word**
10 **that I don't think we've ever talked about,**
11 **so "stacked" meaning --**
12 Q. Placed above or below.
13 **A. And they are electrically**
14 **connected, but you've given me no other**
15 **information about --**
16 Q. They're just as shown in Figure
17 7 of Wakabayashi between the imager element
18 27 and board 29, right, those are connected
19 by those pins, so let's say you have two
20 other boards that are connected that way.
21 MR. DAVIS: Object to form.
22 **A. So this is a hypothetical**
23 **because it certainly is not in Wakabayashi,**
24 **and I'm trying to understand your**
25 **hypothetical.**

<p style="text-align: right;">Page 102</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 So what is the mounting 3 mechanism of the one circuit board relative 4 to the other? 5 Q. Let me ask a different question. 6 If you look in Figure 3 of 7 Wakabayashi -- 8 A. I'm at Figure 3. 9 Q. In Figure 3, how is element 27 10 connected, electrically or physically or 11 both, to element 29? 12 MR. DAVIS: Objection to form. 13 A. Well, if you look at Figure 7, 14 you see what I think we both described as 15 pins, and you could also see those in 16 Figure 3, and you could even see them 17 protruding through 29, as if these were -- 18 you were using a through-hole printed 19 circuit board for mechanical and electrical 20 connection. So I think that's what's 21 illustrated there. 22 Q. So that was my question. 23 Are any two circuit boards that 24 are connected in that manner, does that 25 become one circuit board?</p>	<p style="text-align: right;">Page 103</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. DAVIS: Objection to form. 3 A. It's not -- that's a 4 hypothetical I haven't thought about. It's 5 not in Wakabayashi, it's not in the context 6 that I considered, so I don't know. 7 Q. So hypothetically, if you have 8 two circuit boards, let's say you have two 9 circuit boards, whatever 29 is in 10 Wakabayashi, you had two of them, and you 11 connected them physically with those pins, 12 do those two boards now connected by the 13 pins become one board or are they still two 14 boards connected by the pins? 15 MR. DAVIS: Objection to form. 16 A. That would be an analysis where 17 I'd need complete context and I'd need -- 18 I'd need a lot of -- you know, the rest of 19 the information, the context, to try to 20 understand what was there, so I'm not going 21 to render an opinion on that on the fly. 22 Q. What additional information 23 would you need to evaluate that scenario of 24 two boards electrically connected and 25 physically connected by pin connections?</p>
<p style="text-align: right;">Page 104</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. DAVIS: Objection to form. 3 A. I believe it's your 4 hypothetical. I don't know. 5 Again, I haven't considered this 6 so I couldn't give you a list off the top 7 of my head. 8 Q. Okay. So in element 1.b, it's 9 your testimony that circuit board 29 in 10 Wakabayashi is the first circuit board that 11 meets that element; right? 12 A. Yes, it is. 13 Q. Okay. So let's go to element 14 1.g, which is on page 83 of your 15 declaration, Exhibit 1004. 16 A. Element 1.g? 17 Q. 1.g, yes. 18 This is the second circuit board 19 element that must be coupled to the first 20 board. And the second circuit board, as we 21 discussed earlier, includes the circuitry 22 to convert the pre-video to the post-video. 23 A. Yes, that is part of -- some of 24 the limitations that are called out in 25 element 1.g.</p>	<p style="text-align: right;">Page 105</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. So in element 1.g, what is the 3 structure in Wakabayashi that corresponds 4 to the second circuit board feature of 1.g? 5 A. So in the text on page 84, I am 6 discussing circuit board 39. And in the 7 figure on page -- I may have said -- yes, 8 on page 84. In the figure on page 86, and 9 I apologize, it is color, so you may not -- 10 Q. That's fine. 11 A. -- render. But I have text 12 above in quotation marks, "second circuit 13 board having a length and width defining a 14 second plane," and the color on the page is 15 green. 16 Q. Okay. 17 A. Object 39, and the figure is 18 green, and that's to show that it's 39 in 19 Wakabayashi that I believe discloses -- 20 that in my opinion discloses this 21 particular element, the second circuit 22 board. 23 Q. And that second -- okay, strike 24 that. 25 Wakabayashi circuit board 39 is</p>

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 the second circuit board of element 1.g,
3 which, according to element 1.g of Claim 1,
4 defines a second plane and includes the
5 circuitry to convert the pre-video to the
6 post-video; is that right?
7 **A. Those are the requirements for**
8 **that circuit board. And in my discussion**
9 **from Wakabayashi, I point to circuit board**
10 **39 and then -- let's see.**
11 **If you look at paragraph 130 on**
12 **page 88, I explain my opinion that it would**
13 **have been obvious to one of ordinary skill,**
14 **who would have been motivated and found it**
15 **obvious to locate the circuitry that**
16 **generates the video signal 103.**
17 **That's the labeling in -- excuse**
18 **me while I look -- in Wakabayashi's Figure**
19 **22.**
20 Q. Okay.
21 **A. So in paragraph 130 on page 88,**
22 **I'm discussing that it would have been --**
23 **one of ordinary skill would have been both**
24 **motivated and found obvious and**
25 **straightforward to locate that circuitry**

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1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.
2 substrate on which the image sensing
3 region, the pixels, for converting light
4 into charge is fabricated.
5 **And so I am pointing to 27,**
6 **which would include a planar semiconductor**
7 **substrate, planar and substrate, the two,**
8 **the requirement of this claim element.**
9 **That's where the CMOS pixels**
10 **would be fabricated; hence, thereon the**
11 **CMOS pixels would be thereon.**
12 Q. So it's your testimony that an
13 imager device 27 is the planar substrate
14 required by element 21.b; is that correct?
15 MR. DAVIS: Objection to form.
16 **A. To be more precise, as I just**
17 **read and is stated in my declaration, 27**
18 **includes a planar semiconductor substrate.**
19 Q. I'm asking you, what is the
20 particular structure in Wakabayashi that
21 you identify and are going to rely on as
22 the planar substrate element recited in
23 Claim 21?
24 MR. DAVIS: Objection to form.
25 **A. The planar substrate that is**

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 **that generates the video signal on circuit**
3 **board 39.**
4 Q. Okay. I want to move forward in
5 your declaration to Claim 21, which is an
6 element, I believe it's element 21.b. it's
7 on page 98 of 170 of your declaration.
8 **A. Yes, element 1.b is -- the**
9 **discussion begins on page 98, yes.**
10 Q. So this element, 21.b, it says
11 -- and, again, paraphrasing, an image
12 sensor and the housing that includes a
13 planar substrate, a length and a width,
14 that includes the array of CMOS pixels.
15 And my question is, what is the
16 structure in Wakabayashi that you identify
17 as the planar substrate element 21.b?
18 **A. So as I discussed in paragraph**
19 **155 on page 99, I pointed to Wakabayashi's**
20 **imager device 27, which he also calls a**
21 **solid-state imager device, and then pointed**
22 **out that, as discussed earlier in Section**
23 **VIII.A.1, a person of ordinary skill in the**
24 **art would have understood that imager**
25 **device 27 includes a planar semiconductor**

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1 **CONFIDENTIAL - DEAN NEIKIRK, PH.D.**
2 **part of 27.**
3 Q. Is there something else besides
4 element 27 of Wakabayashi that you're
5 relying on as the planar substrate?
6 **A. So something that is not part of**
7 **27? You said "something else."**
8 **I said that I was relying on the**
9 **planar substrate that is included in 27.**
10 Q. Okay.
11 **A. You asked me something else. I**
12 **don't know what you mean by "something**
13 **else."**
14 Q. Okay. I think that was clear
15 now. I appreciate that.
16 Now, 21.b also makes reference
17 to the planar substrate including the array
18 of CMOS pixels; right?
19 MR. DAVIS: Objection to form.
20 **A. The array of CMOS pixels are**
21 **thereon, right.**
22 Q. And I want to make sure I
23 understand.
24 So it's your testimony that the
25 planar substrate, which you identify as

<p style="text-align: right;">Page 110</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 being included in element 27 of 3 Wakabayashi, also includes the array of 4 CMOS pixels; is that right? 5 MR. DAVIS: Objection. 6 Form. 7 A. That's not how -- that's not 8 what the claim language said and that's not 9 what I said. 10 The CMOS pixels are thereon that 11 planar substrate, as required by the claim. 12 You said "included." I mean, 13 that's not a word in the claim. That's not 14 how the claim is phrased. 15 Q. Well, I'm looking in your 16 report, your declaration on page 98, and 17 you bolded the claim language, and element 18 21.b says "said planar substrate including 19 an array of CMOS pixels thereon." 20 A. Yes, and my apologies, it does 21 use the word "including," "including 22 thereon," and -- they're both there. 23 So, yes, I'm saying that 27, 24 which contains that planar substrate, and 25 that planar substrate would be that, in</p>	<p style="text-align: right;">Page 111</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 combination with Ackland -- I'll use 3 Ackland -- would include an array of CMOS 4 pixels thereon. 5 Q. Is it your opinion then that the 6 pixel array of element -- the element 27 is 7 circuitry that's also included on board 29? 8 MR. DAVIS: Object to form. 9 A. So the -- some of the -- well, 10 things that are part of 27 are thereon 11 circuit board 29. 12 Q. And how are they thereon circuit 13 board 29? 14 A. Because 27 is thereon 29. 15 I mean, one of ordinary skill 16 would look at this and recognize that this 17 27 being electrically connected to and 18 supported by 29, which is the circuit 19 board, whose normal function is to support 20 other electronic components and 21 interconnect them, that's exactly what this 22 is doing. 23 Q. Okay. Element 21.d in your 24 report, it's on page 101. 25 A. I'm there.</p>
<p style="text-align: right;">Page 112</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. This is the element which adds 3 to the planar substrate further includes 4 the timing and control circuitry thereon 5 that's coupled to the CMOS array? 6 A. Yes. 7 Q. And I just want to understand 8 exactly what structure you're relying on to 9 meet the element of the timing and control 10 circuitry thereon. 11 A. So here I'm discussing Ackland. 12 Ackland discloses a timing 13 controller labeled 20. And that's what I'm 14 pointing to. It's in paragraph 160. 15 Q. 160? 16 A. I believe, yes. 17 Q. Okay. 18 A. It identifies Ackland and then 19 identifies the element of Ackland. 20 Q. Okay. If you turn to element 21 21.g in your report that's on page 104 of 22 your report. 23 A. I'm there. 24 Q. Okay. And this element is the 25 circuit board that's coupled to the planar</p>	<p style="text-align: right;">Page 113</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 -- electrically coupled to the planar 3 substrate, but this circuit board in 21.g 4 is a length and a width defining a second 5 plane and includes the circuitry to include 6 the pre-video to post-video. 7 My question is, and make sure 8 we're clear as to exactly what structure 9 you identified, that the circuit board 10 element in -- or the circuit board feature 11 in element 21.g. 12 A. So for 21.g, I discuss that -- 13 it begins in paragraph 170 and continues, 14 but if you look at figure -- at page 106, I 15 have, again, my apologies, used colors to 16 highlight -- 17 Q. No, no, that's fine. 18 A. And I have in quotation marks 19 "second plane of said circuit board being 20 substantially parallel." I happen to use 21 that language. 22 But that corresponds to 39. And 23 so I'm identifying 39 as being the required 24 circuit board here of element 21.g. 25 So I'm identifying element 39 of</p>

<div>Page 114</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Wakabayashi as corresponding to the circuit 3 board discussed in element 21.g of the '896 4 patent. 5 MR. CAPLAN: This is probably a 6 good point to break for lunch. 7 (A luncheon recess was taken 8 from 1:57 p.m EST to 2:46 p.m. EST) 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</div>	<div>Page 115</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 A F T E R N O O N S E S S I O N 3 (Time Resumed: 2:46 p.m. EST) 4 DEAN NEIKIRK, PH.D., 5 having been previously duly sworn, resumed 6 and testified as follows: 7 CONTINUED EXAMINATION 8 BY MR. CAPLAN: 9 Q. Dr. Neikirk, welcome back. 10 We're going to get started. 11 Let me turn back to your 12 declaration, your declaration for the '896 13 patent, and talk about Claim 1, a different 14 aspect of it. Let me just find that. 15 So if you can turn in your 16 declaration to page 71 OF Exhibit 1004, and 17 that's addressing element 1.b. 18 A. I'm there. 19 Q. You we talked about this element 20 before lunch, element 1.b, but I have a 21 different aspect I want to talk to you 22 about. 23 Now, again, paraphrasing, 24 element 1.b has the image sensor in the 25 housing with a first circuit board having a</div>
<div>Page 116</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 length and a width, and wherein said length 3 and width defined of said first circuit 4 board or defined a first plane, and I want 5 to talk to you about the plane feature. 6 And when we spoke before lunch, 7 I believe you testified that as far as the 8 element that is the first circuit board in 9 Claim 1 of the '896 patent, that was 10 circuit board 29. 11 Do you recall that? 12 A. I do. 13 Q. Okay. So my question now is the 14 -- I just want to make sure we understand 15 what you're identifying as the first plane 16 of that first circuit board. 17 A. So I think the easiest thing to 18 do is to look at Figure 7 that I've 19 reproduced on page 70, and I have, again, 20 used blue to highlight the periphery of 29. 21 So I believe applying plain and 22 ordinary meaning to all of these words, one 23 of ordinary skill in the art would 24 recognize a length and a width there, and 25 that they would recognize that that clearly</div>	<div>Page 117</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 defines a plane, the plane of that circuit 3 board. 4 I've gone no further than that 5 in trying to say anything more. I think 6 that that's very clear. 7 I don't know what else really to 8 say about it. 9 Q. Okay. So you would agree then 10 that element 27, that solid-state imager 11 element 27, is not in the plane of circuit 12 board 29. 13 Do you agree with that? 14 MR. DAVIS: Objection to form. 15 A. So of course this doesn't talk 16 about a plane defined by anything, so a 17 plane defined by what characteristics of 18 27? I would have to ask to fill in the 19 blanks here. 20 Q. Well, I'm just asking you, but 21 my question was that element 27 shown in 22 Wakabayashi is not in the same plane that 23 you've identified for circuit board 29; is 24 that correct? 25 A. So I was trying to understand</div>

<p style="text-align: right;">Page 118</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 what characteristics of item 27 you were 3 pointing to as defining a plane. 4 That's all I was asking for 5 clarification on. 6 Q. Well, as shown in Figure 7 you 7 have in your declaration here on page 73, 8 you see the -- that the element 27 is in 9 red; right? Do you see that? 10 A. I'm sorry, on page -- 11 Q. It's page -- 12 A. I do see it. 13 Q. Right. Is that element 27, is 14 that in the plane that you've identified 15 for circuit board 29? 16 A. So I'm just still trying to 17 understand what characteristics of 27 18 you're using to identify a plane for it. 19 That's all I'm trying to ask. 20 Q. Well -- 21 A. Board 29, the claim language 22 says use the width -- what does it say -- 23 length and width to do that. 24 Q. Okay. 25 A. So it's clear what I'm using to</p>	<p style="text-align: right;">Page 119</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 guide me to identify a plane associated 3 with 29. 4 I'm just asking for, in your 5 question, what characteristic of 27 did you 6 want me to use. 7 Q. Fair enough. 8 So since the plane in circuit 9 board 29 was defined by the length and the 10 width of the board, so don't we use the 11 same approach for element 27, the length 12 and the width of element 27, if they form a 13 plane, that is not the same plane as you 14 identified for circuit board 29; is that 15 correct? 16 A. Yes, that using the length and 17 width of 27 as defining a plane, 18 determining a plane, that is not a plane 19 that is the same as the plane associated 20 with 29. 21 Q. Okay. Let me just get my copy 22 of Wakabayashi, which I misplaced at the 23 moment. Okay. Here we go. 24 I want to ask you a similar 25 question about the second circuit board</p>
<p style="text-align: right;">Page 120</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 element in Claim 1, so let me just go to 3 that. That's 1.g. okay, yes. 4 So element 1.g of the '896 5 patent, it's on page 83 of your 6 Exhibit 1004. 7 A. I'm there. 8 Q. We talked about this as well 9 earlier today, but, again, different focus. 10 This is the second circuit board 11 that includes the circuitry to convert the 12 pre- to post-video, and the claim says that 13 the second circuit board has a length and a 14 width and that defines a second plane. 15 And my question is to have you 16 identify exactly what you define as the 17 second plane in element 1.g. 18 A. So I think the easiest way to 19 see that is probably on page 87 using the 20 cross-section from Figure 3 of Wakabayashi. 21 Q. Okay. 22 A. Where I have 29 labeled "first 23 circuit board" and 39 labeled "second 24 circuit board" and the plane defined by the 25 length and the width.</p>	<p style="text-align: right;">Page 121</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 You see the length and the width 3 in Figure 5 right above that. 4 It's the plane, which -- the 5 claim language uses "defined," so the plane 6 defined by that length and width is the 7 plane of 39. You can see it relative to 8 the plane of 29 in that cross-section of 9 Figure 3. 10 Q. And the plane of 39 is different 11 from the plane of 29. 12 Is that your testimony? 13 A. Yes, it is. 14 Q. Okay. So now I want to go to 15 Claim 21, which is the same issue there, 16 21. 17 So element 21.b on page 98 of 18 your report. 19 A. Yes. 20 Q. That element talks about a 21 planar substrate, and we talked about the 22 planar substrate earlier today, but here it 23 has "wherein said length and width of said 24 planar substrate define a first plane." 25 So I want to ask you about that</p>

<p style="text-align: right;">Page 122</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 first to make sure we understand exactly 3 what you've identified as the first plane 4 of the planar substrate. 5 A. So I think if you look at page 6 100, the image sensor 27 is illustrated, 7 there is a length and a width associated 8 with that, and hence with the planar 9 substrate inside that. That defines 1. 10 You can also see it in 11 cross-section if you look at Figure 3 of 12 Wakabayashi. Perhaps look at my 13 declaration page 107 and you see the red 14 object, which is 27, which the planar 15 substrate is in. 16 And you see in that 17 cross-section, that would define the plane, 18 the plane coming in and out of the page to 19 be descriptive in what direction the plane 20 extends. 21 Q. And going back to the language 22 of 21.b, you've identified the portion of 23 imager element 27 as the plane. 24 Then the next part of the claim, 25 21.b, and, again I'm on page 98 of your</p>	<p style="text-align: right;">Page 123</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 declaration, says "said planar substrate 3 including an array of CMOS pixels thereon." 4 Do you see that? 5 A. I do. 6 Q. Now, the CMOS pixels, the array 7 of CMOS pixels that you've identified in 8 connection with this element, is that array 9 in the same plane that you identified as 10 the first plane? 11 MR. DAVIS: Object to form. 12 BY MR. CAPLAN: 13 Q. Let me put it this way, just to 14 rephrase it. 15 Are the array of CMOS pixels 16 that you identified for element 21.b in the 17 first plane that you identified for element 18 21.b? 19 MR. DAVIS: Object to form. 20 A. I have not considered that. 21 The requirement is to identify a 22 plane associated with the planar substrate 23 and if the CMOS pixels are thereon on that 24 planar substrate. 25 There's nothing in the claim</p>
<p style="text-align: right;">Page 124</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 language that led me to want to consider 3 what the plane would be defined by. 4 And, once again, I'd have to ask 5 you what characteristic of the CMOS pixels 6 would you be pointing to to even try to 7 identify a plane. 8 Q. You've identified the array in 9 Ackland here as meeting the array of pixel 10 feature of Claim 21; right? 11 A. Yes. 12 Q. Okay. So is that CMOS pixel 13 array of Ackland in the first plane that 14 you've identified for element 21.b? 15 MR. DAVIS: Object to form. 16 A. So if you look at page 99, my 17 paragraph 155, and we discussed this 18 earlier, I identified a planar 19 semi-substrate on which the image sensing 20 region for converting light into charge is 21 fabricated. 22 Thus far in the claims we have 23 used lengths and widths to define planes. 24 I have not considered what the length and 25 the width of the CMOS pixels thereon would</p>	<p style="text-align: right;">Page 125</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 be, and, I mean, I had no reason to do 3 that. I -- I don't know. 4 Q. Okay. Well, that was my 5 question, but I'll ask it formally. 6 So as you sit here today, do you 7 have an opinion as to whether the pixel 8 array of Ackland, which you are using to 9 meet the claim element, the array of 10 pixels, or CMOS pixels in Claim 21, is that 11 Ackland array in the same -- is that in the 12 first plane? 13 MR. DAVIS: Object to form. 14 A. So as I sit here today, no. I 15 don't know. I have not formed an opinion 16 one way or the other. 17 Q. What would you need to form an 18 opinion about that? 19 A. A lot of things, but I haven't 20 sat down to make a list of such things 21 because it's not part of the claim -- it's 22 not part of my analysis. I couldn't give 23 you a list sitting here today. 24 Q. So if you turn in your 25 declaration to page 104, and that's element</p>

<div>Page 126</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 21.g. 3 A. Okay, I'm there. 4 Q. This is directed to a circuit 5 board. This is the circuit board that 6 includes the circuitry to convert pre-video 7 signal to a post-video signal, and that 8 board has a length and a width that define 9 a second plane. 10 Do you see that aspect of 11 element 21.g? 12 A. I do. 13 Q. So, again, I want to understand 14 what is the second plane that you've 15 identified for element 21.g? 16 A. So I think the easiest place to 17 see that is on page 106 of my declaration, 18 where I have color-coded Figure 7 in 19 conjunction with -- that's Figure 7 from 20 Wakabayashi -- in conjunction with Figure 3 21 shown on page 107, also color-coded. 22 And in the cross-section shown 23 in Figure 3, the plane of the planar 24 substrate, if you will, would be in and out 25 of the page.</div>	<div>Page 127</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 The plane of circuit board 39, 3 which is the one that I've identified, is 4 corresponding to this structure, is -- 5 would also extend in and out of the page, 6 and sort of the perspective view you see in 7 Figure 7. 8 Q. I know you said it's green. 9 So the green shaded area of 39, 10 that's the second plane element; correct? 11 MR. DAVIS: Objection to form. 12 A. So that -- the length and width 13 of that define the second plane. 14 39, if you look at it in the 15 plan view, straight on, this cross-section 16 in Figure 3 kind of has a cutaway, but it 17 is illustrated as a planar circuit board, 18 flat circuit board. And there would be -- 19 there's a length and a width that would 20 define the plane, yes. 21 Q. Okay. Now I'd like to talk a 22 little bit about timing and control, in 23 particular in connection with the Ackland 24 patent. We'll go back in your declaration 25 to get the right element. Okay.</div>
<div>Page 128</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I think it's 1.b again -- okay, 3 element 1.d. sorry about that. 4 So page 78 of your declaration. 5 It's under the heading "Element 1.d." 6 A. I'm there. 7 Q. So this element recites that the 8 first circuit board includes timing and 9 control circuitry thereon that's coupled to 10 the array of CMOS pixels. 11 Do you see that? 12 A. I do. 13 Q. Okay. So I just want to ask you 14 exactly what you are identifying as the 15 timing and control circuitry that satisfies 16 that claim element. 17 A. So as illustrated in Figure 6, 18 in Ackland there is a block labeled "Timing 19 Controller." Ackland also has descriptions 20 of things that it does. I think we went 21 over that earlier. 22 And that, I believe, would -- 23 shows when there's an illustration of one 24 of ordinary skill of the required timing 25 and control circuitry.</div>	<div>Page 129</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 Q. What's your understanding of the 3 functionality that is included in the box 4 labeled "timing controller 20" in Ackland? 5 MR. DAVIS: Objection to form. 6 A. I'll go to Ackland's description 7 of 20. And, in particular, I would point 8 to the description, for instance, in column 9 8 starting at line 24, where it states that 10 "the timing controller 20 provides timing 11 signals to the row decoder 10." It then 12 goes on to explain what the decoder does. 13 If you continue to read down, 14 you'll find starting at line 48, I believe 15 it is, or 47, in column 8: "Output signals 16 from the amplifiers 18 are provided to the 17 common output line 19 in serial fashion 18 based on timing control signals from the 19 timing control 20." 20 So I would rely on what Ackland 21 has said in this disclosure as indicating 22 functions that his timing controller 23 provided, the functions of both timing and 24 controlling. 25 Q. And it's both of those, I asked</div>

<div>Page 130</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 you about timing controller 10 and then you 3 also, when you went to Figure 6 of Ackland, 4 you pointed out correctly that row decoder 5 10 also has a role to play. 6 So my question is, is it the 7 case that timing controller 20 and row 8 decoder 10 together form the timing and 9 control function described in Ackland? 10 MR. DAVIS: Objection to form. 11 A. So I haven't -- whether you 12 could look at another combination of 13 elements and also call that timing and 14 control, I haven't considered. 15 The claim language requires 16 timing and control circuitry, and what 17 Ackland says about 20 is clearly that it is 18 timing and -- provides timing and control 19 signals; and, hence, there would be 20 circuitry to produce those. 21 Whether other parts of Ackland 22 are involved in control, they may well be 23 or they may not. 24 There are access transistors in 25 each pixel. Well, I don't -- those might</div>	<div>Page 131</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 also be control elements, but I don't see 3 that the requirement in 1.d of -- in 4 Section 1.d of my declaration that timing 5 control circuitry identified there would 6 have to include every single thing you 7 could possibly view as being involved in 8 control. 9 It's not that narrow or that 10 broad. It just says "timing and control 11 circuitry." Well, I think Ackland's 12 description of 20 is clearly that. 13 Q. And is Ackland's description 14 shown in Figure 6 a complete description of 15 the timing and control function for his 16 CMOS array? 17 MR. DAVIS: Object to the form. 18 A. I didn't say it was. I don't 19 know whether it is. I really haven't 20 thought of it in those terms. 21 What I was trying to understand 22 was, does Ackland have timing and control 23 circuitry, and certainly 20 is that. 24 I didn't try to do an analysis 25 to say every piece of Ackland that's there</div>
<div>Page 132</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 that could possibly be viewed as a control 3 element, where is it. 4 Certainly there is control 5 function in 20. When I read the claim 6 language of the '896 patent, it just says 7 "timing and control circuitry." 8 Q. Would a person skilled in the 9 art be able to implement a timing and 10 control function for the Ackland CMOS pixel 11 array based on the description in the 12 Ackland patent that you're referring to? 13 MR. DAVIS: Objection to form. 14 A. Well, he gives a description of 15 a lot of things, and I think that one of 16 ordinary skill could take all of that. 17 But in so doing, they would have 18 timing and control circuitry at least in 19 20. They might have it elsewhere as well. 20 But there's nothing -- that's 21 fine. The claim language doesn't say every 22 piece of said timing and control circuitry. 23 I'm using plain -- plain and 24 ordinary understanding of one of ordinary 25 skill reading timing control circuitry.</div>	<div>Page 133</div> <div>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I don't see the word "every 3 exhaustive piece of." 4 20 is a timing controller and 5 the description in Ackland fits timing and 6 control circuitry. 7 Q. When you make reference to the 8 description in Ackland, you're talking 9 about -- in Ackland, column 8, I think you 10 identified lines 24 to 52. 11 Is that what you're referring 12 to? 13 MR. DAVIS: Objection. 14 Form. 15 A. No. I read lines 24 through 25 16 or 26. The first sentence. It starts at 17 24. I also read the sentence that starts 18 at line 48 that runs through, I believe, 19 51. 20 And my opinion, those two 21 sentences standing on their own clearly 22 indicate that 20 is timing and control 23 circuitry. 24 Q. And you testified earlier that 25 timing and control circuitry was well-known</div>

<p style="text-align: right;">Page 134</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 in the art at the time, is that right, as 3 applied to CMOS pixel arrays? 4 MR. DAVIS: Object to form. 5 A. I believe what I most likely 6 testified to was that it was well-known and 7 that there were many circuits that could 8 implement those functions. 9 Q. I believe you mentioned 10 something similar before, that there were 11 many circuits to implement timing and 12 control. And my question isn't about could 13 10 people implement it 10 different ways. 14 My question is, was the general 15 approach to implementing timing and control 16 functionality for a CMOS photo detector 17 well-developed in 1997? 18 MR. DAVIS: Object to form. 19 A. I think Ackland, for instance, 20 would indicate just that. 21 There's a particular array 22 configuration shown in Ackland and he 23 discusses -- Ackland discusses timing and 24 control in block 20, so I think that would 25 be a good example of exactly that.</p>	<p style="text-align: right;">Page 135</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 MR. CAPLAN: Could we take a 3 short break here? 4 (A recess was taken.) 5 BY MR. CAPLAN: 6 Q. Dr. Neikirk, in your declaration 7 -- let me do it this way: 8 Can we turn in your declaration 9 to element -- let me get the right one here 10 -- it's probably going to be 1.b. let me 11 just double-check. 12 Yes, if you can turn to page 83 13 of your declaration in element 1.g. 14 A. I'm there. 15 Q. Okay. And in this element 1.g, 16 which we've talked about a few times, in 17 the second circuit board, which I'm not 18 going to go through all of it again, but 19 one of the aspects of the second circuit 20 board in element 1.g is a second circuit 21 board being offset from the first circuit 22 board. 23 Do you see that feature? 24 A. Yes, I do. It's on -- it goes 25 onto page 84 of my declaration. I see</p>
<p style="text-align: right;">Page 136</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 that. 3 Q. That's correct. Page 83 to 84, 4 that's correct. 5 I just want to make sure I 6 understand your understanding of "offset" 7 as used in Claim 1. Tell me your 8 understanding -- 9 A. I'm sorry, is that the question? 10 Q. That's the question, yes. 11 MR. DAVIS: Objection to form. 12 A. Well, so my understanding is 13 plain and ordinary meaning. 14 In terms of how that is 15 illustrated in Wakabayashi, I can tell you 16 about that. 17 Q. Okay. If you would, please. 18 A. Okay. The easiest place I think 19 to see that is in the cross-section. Let 20 me look at the text first and see if I can 21 point you to the text, but then the picture 22 is always -- is good as well. 23 So -- all right. There it is. 24 So in the text really I think 25 you'd see most of it in paragraph 125, but</p>	<p style="text-align: right;">Page 137</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 it points to, in Wakabayashi, Figures 3 and 3 7, which are reproduced on page 86 and 87 4 of my declaration. 5 And Figure 7 is a clear 6 illustration of what the two circuit boards 7 are that I have identified in Wakabayashi, 8 the first and second circuit board, we've 9 discussed this extensively, as well as the 10 fact that the lengths and widths would 11 define a plane for each. 12 If you look at the cross-section 13 on page 87 of my declaration, you can see 14 the cross-section of 29 and the 15 cross-section of 39, and you can see -- 16 well, actually, let me look at this, so 17 what needs to be offset. 18 The circuit boards need to be 19 offset, excuse me. It doesn't say the 20 planes. The circuit boards. 21 So actually I think the easiest 22 thing to do is to look at Figure 7. You 23 see 29 and 39, and 39 is, if you will, 24 offset to the left of 29 in Figure 7. 25 If you look at Figure 5, we know</p>

<p style="text-align: right;">Page 138</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 that circuit board 29 is inside the camera 3 head 5, and you see that the circuit board 4 39 is offset, if you will, in that picture, 5 if you will, to the left and below. 6 So that illustrates an offset 7 between the two circuit boards. 8 Q. So you've illustrated that with 9 the way you've highlighted Figure 7 and 10 Figure 5 in your declaration on page -- 11 pages 86 and 87; right? 12 A. And I would also include Figure 13 3. I think that provides further 14 clarification. 15 Q. And it looks like in paragraph 16 128, which is on page 86, the end of that 17 paragraph on page 86 you state that, "In 18 addition, the two figures," and I believe 19 that's the figures you're talking about, 20 "also show that the circuit board 39 is not 21 stacked behind circuit 29, but rather 22 circuit board 39 is arranged in an offset 23 position from circuit board 29." 24 Is that correct? 25 A. That is exactly what I wrote</p>	<p style="text-align: right;">Page 139</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 there, yes. 3 MR. CAPLAN: I don't have any 4 more questions at this time. 5 Thank you, Dr. Neikirk. 6 THE WITNESS: Thank you. 7 MR. DAVIS: No questions for 8 petitioners either. 9 MR. CAPLAN: We appreciate it. 10 (Time noted: 3:32 p.m. EST). 11 12 <u>DEAN NEIKIRK, PH.D.</u> 13 Subscribed and sworn to before me 14 this ____ day of ____, 2020. 15 16 17 18 19 20 21 22 23 24 25</p>
<p style="text-align: right;">Page 140</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 C E R T I F I C A T E 3 4 I, Linda J. Greenstein, Professional 5 Shorthand Reporter and Notary Public in and 6 for the State of New York, do hereby 7 certify that, DEAN NEIKIRK, PH.D., the 8 witness whose deposition is hereinbefore 9 set forth, was duly sworn and that such 10 deposition is a true record of the 11 testimony given by the witness to the best 12 of my skill and ability. 13 I further certify that I am neither 14 related to or employed by any of the 15 parties in or counsel to this action, nor 16 am I financially interested in the outcome 17 of this action. 18 IN WITNESS WHEREOF, I have hereunto set 19 my hand this 8th day of October 2020. 20 21 <u>Linda Greenstein</u> 22 Linda J. Greenstein 23 24 My commission expires: January 31, 2021 25</p>	<p style="text-align: right;">Page 141</p> <p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D. 2 I N D E X 3 4 WITNESS EXAMINED BY PAGE 5 DEAN NEIKIRK, Mr. Caplan 4 6 PH.D. 7 8 ----- INFORMATION REQUESTS ----- 9 10 DIRECTIONS: 11 12 RULINGS: 13 14 TO BE FURNISHED: 15 16 REQUESTS: 17 18 MOTIONS: 19 20 ----- E X H I B I T S ----- 21 22 NO. PAGE 23 (Exhibit 1001 for identification, 5 24 U.S. Patent 9,667,896, show to 25 witness.) (Exhibit 1027 for identification, 10 Wakabayashi patent, shown to witness.) (Exhibits retained by counsel)</p>

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<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 DEPOSITION ERRATA SHEET</p> <p>3</p> <p>4 Our Assignment No.: 1039</p> <p>5 Case Caption: Samsung v. Collect, LLC</p> <p>6</p> <p>7 DECLARATION UNDER PENALTY OF PERJURY</p> <p>8</p> <p>9 I declare under penalty of</p> <p>10 perjury that I have read the entire</p> <p>11 transcript of my Deposition taken in the</p> <p>12 captioned matter or the same has been read</p> <p>13 to me, and the same is true and accurate,</p> <p>14 save and except for changes and/or</p> <p>15 corrections, if any, as indicated by me on</p> <p>16 the DEPOSITION ERRATA SHEET hereof, with</p> <p>17 the understanding that I offer these</p> <p>18 changes as if still under oath.</p> <p>19 _____</p> <p>20 DEAN NEIKIRK, PH.D.</p> <p>21 Subscribed and sworn to on the ____ day of</p> <p>22 _____, 20 ____ before me.</p> <p>23 _____</p> <p>24 Notary Public,</p> <p>25 in and for the State of _____.</p>	<p>1 CONFIDENTIAL - DEAN NEIKIRK, PH.D.</p> <p>2 DEPOSITION ERRATA SHEET</p> <p>3 Page No.____Line No.____Change to:_____</p> <p>4 _____</p> <p>5 Reason for change:_____</p> <p>6 Page No.____Line No.____Change to:_____</p> <p>7 _____</p> <p>8 Reason for change:_____</p> <p>9 Page No.____Line No.____Change to:_____</p> <p>10 _____</p> <p>11 Reason for change:_____</p> <p>12 Page No.____Line No.____Change to:_____</p> <p>13 _____</p> <p>14 Reason for change:_____</p> <p>15 Page No.____Line No.____Change to:_____</p> <p>16 _____</p> <p>17 Reason for change:_____</p> <p>18 Page No.____Line No.____Change to:_____</p> <p>19 _____</p> <p>20 Reason for change:_____</p> <p>21 Page No.____Line No.____Change to:_____</p> <p>22 _____</p> <p>23 Reason for change:_____</p> <p>24 _____</p> <p>25 _____</p>
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