

1 Neikirk
2 UNITED STATES PATENT AND TRADEMARK OFFICE

3
4 BEFORE THE PATENT TRIAL AND APPEAL BOARD

5
6 SAMSUNG ELECTRONICS, CO. LTD., and
7 SAMSUNG ELECTRONICS AMERICA, INC.,
8 Petitioner,

9 v.

10 CELLECT, LLC,
11 Patent Owner

12 Case IPR2020-00475
13 U.S. Patent No. 9,186,052

14 Case IPR2020-00512
15 U.S. Patent No. 9,186,052

16 DEAN PAUL NEIKIRK, Ph.D.

17 New York, New York

18 Friday, March 5, 2021

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22
23 Reported by: Steven Neil Cohen, RPR

24 Job No. 1064
25

<p>1 Neikirk 2 March 5, 2021 3 11:01 a.m. 4 5 Videotaped Videoteleconference 6 Deposition of DEAN PAUL NEIKIRK, Ph.D., 7 taken pursuant to notice, at Dripping 8 Springs, Texas, before Steven Neil Cohen, a 9 Registered Professional Reporter and Notary 10 Public of the State of New York. 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>Page 2</p> <p>1 Neikirk 2 APPEARANCES 3 4 KRAMER LEVIN NAFTALIS & FRANKEL LLP 5 1177 Avenue of the Americas 6 New York, New York 10036 7 Attorneys for Patent Owner 8 BY: JONATHAN S. CAPLAN, ESQ. 9 MARCUS COLUCCI, ESQ. 10 JEROME MA, ESQ. 11 212-715-9488 12 jcaplan@kramerlevin.com 13 mcolucci@kramerlevin.com 14 jma@kramerlevin.com 15 16 17 18 19 20 21 22 23 24 25</p>
<p>1 Neikirk 2 ROPES & GRAY LLP 3 1900 University Avenue 4 Sixth Floor 5 East Palo Alto, California 94303-2287 6 Attorneys for Petitioner 7 BY: JAMES L. DAVIS, JR., ESQ. 8 CAROLYN REDDING, ESQ. 9 650-617-4794 10 james.l.davis@ropesgray.com 11 carolyn.redding@ropesgray.com 12 13 ALSO PRESENT: 14 Tim Jezek, Esq. 15 16 17 18 19 20 21 22 23 24 25</p>	<p>Page 3</p> <p>1 Neikirk 2 THE COURT REPORTER: Everyone, 3 we have the same transcript delivery? 4 MR. CAPLAN: That is fine. 5 MR. DAVIS: Yes. 6 THE COURT REPORTER: I will make 7 a brief statement before we begin. 8 My name is Steven Neil Cohen. I 9 am a New York State notary and a 10 Registered Professional Reporter. 11 This deposition is being held 12 via videoconferencing equipment. The 13 witness and reporter are not in the 14 same room. The witness will be sworn 15 in remotely pursuant to agreement of 16 all parties. The parties stipulate 17 that the testimony is being given as 18 if the witness was sworn in person. 19 Let me remind everyone that only 20 one person can speak at a time. If 21 two people are speaking at the same 22 time the audio will disable and I will 23 not hear anything anyone is saying. 24 Thank you. 25 DEAN PAUL NEIKIRK, Ph.D., called as a</p>
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1 Neikirk
2 witness by the Patent Owner, having
3 been duly sworn, testified as follows:
4 EXAMINATION
5 BY MR. CAPLAN:
6 Q. Good morning, Dr. Neikirk.
7 **A. Good morning, Mr. Caplan.**
8 Q. I just want to confirm you are
9 able to give full and complete testimony
10 today, no reason you cannot do that?
11 **A. Yes, I am. No reason I could not.**
12 Q. Today this deposition relates to
13 two of the IPR proceedings just so we are
14 clear I will give you -- will clue you into
15 where we will start.
16 So it is IPR 2020-00512 and also
17 IPR 2020-00475.
18 But I plan on starting with the
19 512 proceeding so if you have -- in the past
20 you have your documents so you have your
21 declaration in connection with that, we will
22 be making reference to that.
23 And also probably looking at
24 Dr. Lebby's documents in the 512 proceeding.
25 **A. Yes, I have both of them ready to**

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1 Neikirk
2 In paragraph 10 you will see you
3 are talking about the -- this paragraph is
4 directed to the swift reference as applied
5 to the '052.
6 Do you see that?
7 **A. I do.**
8 Q. And also for the record because it
9 is -- we already mentioned it the Swift
10 reference is already marked as Exhibit 1005
11 in this proceeding.
12 So just to get back, in paragraph
13 10 you see the last sentence, it says that
14 you disagree, I am paraphrasing, you
15 disagree with Dr. Lebby's opinion that Swift
16 describes an AP CMOS -- pardon me -- an APS
17 CMOS image sensor with camera on chip
18 architecture and that you disagree.
19 Do you see that?
20 **A. Yes, I do see that.**
21 Q. Okay. In the next paragraph,
22 paragraph 11 it is your position and I want
23 to confirm it that Swift does not expressly
24 disclose its pixel arrangement nor how
25 timing of its image sensor 51 is controlled.

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1 Neikirk
2 **go.**
3 Q. So I want to start in your
4 declaration at the beginning. I am on
5 paragraph 10 of your declaration.
6 **A. Just to clarify. My reply**
7 **declaration?**
8 Q. Your reply declaration. It is
9 Exhibit 1086 but it is your declaration that
10 was fairly recent, right? February 1st?
11 **A. Yes. I do have that in front of**
12 **me.**
13 Q. For some reason the copy I have it
14 doesn't have a signature on it but I assume
15 it was executed and this is your final one?
16 **A. The copy I happen to have in front**
17 **of me does have my signature. This is the**
18 **document I signed.**
19 Q. Very good.
20 All right. In paragraph 10 of
21 your declaration you are talking about and
22 again we are in the '052 patent, for the
23 record, U.S. Patent 9,186,052, which I
24 believe is also -- has already been marked
25 in a proceeding as Exhibit 1001.

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1 Neikirk
2 Do you see that?
3 **A. Yes. That is the second sentence**
4 **in paragraph 1, that's correct.**
5 Q. That is your testimony in
6 connection with the Swift reference, that it
7 does not expressly disclose the pixel
8 arrangement nor how timing of its image
9 sensor is controlled, correct?
10 **A. Yes. That's correct.**
11 Q. It is also your testimony that it
12 leaves -- that the Swift reference leaves it
13 to a person of ordinary skill in the art as
14 to how the pixels arrangement would be
15 configured and how the timing of its image
16 sensor would be controlled, is that right?
17 **A. Yes. That's correct. That is the**
18 **rest of the second sentence in paragraph 11,**
19 **yes.**
20 Q. But you also agree that the Swift
21 reference expressly references the Fossum
22 APS CMOS image sensor, is that right?
23 **A. Well, I believe what the Swift**
24 **reference does is it refers to a CMOS active**
25 **pixel sensor and then going to Swift, and I**

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1 **Neikirk**
2 **may have this in paragraph 11 as well, but**
3 **the direct quotation is on page 10 of Swift**
4 **starting at the top paragraph.**
5 **It states "The image sensor 51 is**
6 preferably of the CMOS APS (active pixel
7 sensor) type."
8 Then it says "APS acts similarly
9 to a random access device when each pixel
10 contains its own selection and read-out
11 transistors."
12 The next sentence and the last
13 sentence in this paragraph is, "Further
14 information on APS-type sensors may be found
15 in the publication Laser Focus World
16 June 1993, page 83. June 1993.
17 That is specifically what Swift
18 says.
19 Q. So the Swift reference itself
20 directs the reader to the Fossum article,
21 the Laser Focus World June 1993 article,
22 correct, in connection with the APS CMOS
23 image sensor in Swift; is that right?
24 MS. REDDING: Objection. Form.
25 **THE WITNESS: What it says is**

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1 **Neikirk**
2 **is what Swift is saying.**
3 **So certainly Swift is telling**
4 **one of ordinary skill that if they**
5 **want to learn more about APS sensors**
6 **they can learn more there. That is**
7 **all that Swift is saying.**
8 BY MR. CAPLAN:
9 Q. I just want to pull up the -- that
10 actual article.
11 I want to make sure I have the
12 right number. I think that is Exhibit 2004
13 that we are talking about.
14 Do you have that article?
15 **A. I am sure I do. Just give me one**
16 **moment to find it in the stack. 2004.**
17 **I am not seeing 2004 but let me**
18 **look. This is the Laser Focus article.**
19 Q. Correct, from June 1993, correct?
20 **A. I believe that it may have more**
21 **than one exhibit number. I have a copy**
22 **labeled Exhibit 1048.**
23 **Just to try make sure we are**
24 **talking about the same article, the exhibit**
25 **I have references a June 1993 Laser Focus**

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1 **Neikirk**
2 **that further information on APS**
3 **sensors -- APS-type sensors may be**
4 **found there.**
5 **It doesn't say that all details**
6 **of APS sensors are there nor does it**
7 **say that the APS sensor referred to by**
8 **Swift must be precisely as described**
9 **there.**
10 **It does provide that as a**
11 **reference to one of ordinary skill, to**
12 **the reader, to learn more about them,**
13 **yes.**
14 BY MR. CAPLAN:
15 Q. Since it is your testimony that
16 Swift leaves it to a person of ordinary
17 skill in the art to apply known imaging
18 technologies you would agree that Swift
19 itself directs that a person of skill in the
20 art to the Fossum article that is actually
21 referenced in Swift, right?
22 MS. REDDING: Objection. Form.
23 **THE WITNESS: What Swift says is**
24 **that further information on APS type**
25 **sensors may be found in there. That**

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1 **Neikirk**
2 **World article, pages 83 through 87 and the**
3 **author of that article is Eric R. Fossum.**
4 **That is what my exhibit 1048 is.**
5 Q. I believe that is the same
6 article. I just want to just make sure.
7 Yes. Okay. I think we are
8 talking about the same. That is the same
9 article.
10 **A. I do have that in front of me.**
11 MR. CAPLAN: Off the record.
12 (Discussion off the record)
13 BY MR. CAPLAN:
14 Q. Dr. Neikirk, sorry for that little
15 delay but I believe we were talking about
16 Exhibit 1048 which is the Laser Focus World
17 article from June of 1993 which is
18 referenced in the Swift reference itself; is
19 that right?
20 **A. Yes. I have that article in front**
21 **of me. That is the one that was referenced,**
22 **yes.**
23 Q. So hopefully this is picking up
24 where I was.
25 So your testimony which you

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1 Neikirk
2 previously went over in paragraph 11 of your
3 supplemental -- of your second declaration
4 you make the statement that Swift leaves it
5 to a person of ordinary skill to apply known
6 imaging technologies in connection with the
7 pixel arrangement and timing of its image --
8 controlled timing of the image sensor,"
9 right?
10 MS. REDDING: Objection to form.
11 **THE WITNESS: Yes.**
12 **The sentence in paragraph 11 is**
13 **that "Swift does not expressly**
14 **disclose its pixel arrangement nor how**
15 **timing of its image sensor 51 is**
16 **controlled and leaves it to a person**
17 **of ordinary skill in the art to apply**
18 **known imaging technologies."**
19 **That is exactly what it says**
20 **there, yes.**
21 BY MR. CAPLAN:
22 Q. So if Swift does leave it to a
23 person of skill in the art to -- you
24 understand the pixel arrangement and control
25 of timing would that person of skill in the

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1 Neikirk
2 imaging application?
3 Do you see that portion of the
4 article?
5 **A. Yes. That is the first, I don't**
6 **know if you want to call it a sub-- it**
7 **appears right below the title, yes.**
8 Q. And "on chip electronics" is a
9 reference to the camera on a chip approach
10 that we have discussed in your prior
11 depositions, is that right?
12 MS. REDDING: Objection to form.
13 **THE WITNESS: No, it is not.**
14 **The words "camera on a chip"**
15 **nowhere appear in this article. And**
16 **the only specific reference to "on**
17 **chip electronics" other than the**
18 **pixels themselves I believe occurs on**
19 **page 85 of the article.**
20 **And there is a single sentence**
21 **at the end of a paragraph. It says,**
22 **"At jet propulsion laboratory this**
23 **approach is being pursued in**
24 **conjunction with on chip analog to**
25 **digital conversion to explore cameras**

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1 Neikirk
2 art look to Exhibit 1048, the Fossum article
3 that is actually referenced in Swift to
4 understand those issues as purportedly
5 taught by Swift?
6 MS. REDDING: Objection to form.
7 **THE WITNESS: I believe one of**
8 **ordinary skill in the art would look**
9 **to the literature in general more**
10 **broadly than just this but I wouldn't**
11 **exclude the laser focus article**
12 **certainly.**
13 BY MR. CAPLAN:
14 Q. So if we look at the laser focus
15 article, Exhibit 1048, you see that the
16 heading "Active Pixel Sensors Challenge
17 CCDs," do you see that heading, which I
18 believe is the first page of the article.
19 **A. That is the title of the article,**
20 **yes, I do see that.**
21 Q. Yes. And there is a heading
22 underneath the title and it says, "With
23 random access nondestructive read-outs and
24 easy integration of on chip electronics
25 active pixel sensors may supplant CCDs

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1 Neikirk
2 **on a chip for future micro space**
3 **application."**
4 **So I will correct something I**
5 **said. That is the only place it uses**
6 **the words "camera on a chip" but the**
7 **only additional electronics it refers**
8 **to is analog to digital conversion and**
9 **furthermore it states that this is**
10 **something that they are pursuing, not**
11 **that they have completed.**
12 **And it goes on to discuss work**
13 **elsewhere in other laboratories, none**
14 **of which discussed, for instance,**
15 **inclusion of timing and control**
16 **circuitry.**
17 **So there really is nothing else**
18 **in this article specifying what**
19 **electronics might be incorporated on**
20 **the chip or I believe they usually say**
21 **may be.**
22 BY MR. CAPLAN:
23 Q. So it is your testimony that a
24 person skilled in the art would not
25 understand the phrase on the first page of

<p style="text-align: right;">Page 18</p> <p>1 Neikirk</p> <p>2 this article "Easy integration with on chip</p> <p>3 electronics to include integration of image</p> <p>4 processing with the CMOS imager pixel array</p> <p>5 and timing and control," is that right?</p> <p>6 MS. REDDING: Objection to form.</p> <p>7 THE WITNESS: It is my testimony</p> <p>8 that the first sentence states, "With</p> <p>9 random access nondestructive read-out</p> <p>10 and easy integration with on chip</p> <p>11 electronics active pixel sensors may</p> <p>12 supplant CCDs."</p> <p>13 So, first of all, this is merely</p> <p>14 indicating the possibility.</p> <p>15 And, secondly, it only says "on</p> <p>16 chip electronics." It does not give</p> <p>17 any details of what kind of on chip</p> <p>18 electronics.</p> <p>19 Perhaps one example, and, in</p> <p>20 fact, we have seen this in Ackland an</p> <p>21 example is to put timing control on</p> <p>22 the chip but in this article itself</p> <p>23 the only electronics it calls out is</p> <p>24 analog to digital conversion.</p> <p>25 And again merely states that is</p>	<p style="text-align: right;">Page 19</p> <p>1 Neikirk</p> <p>2 something JPL is pursuing for future</p> <p>3 micro spacecraft applications. That</p> <p>4 is all this states in the article</p> <p>5 itself.</p> <p>6 BY MR. CAPLAN:</p> <p>7 Q. This article is from June of 1993,</p> <p>8 correct?</p> <p>9 A. Yes, it is.</p> <p>10 Q. It is approximately four years</p> <p>11 before the filing date -- the earliest</p> <p>12 filing date of the '052 patent?</p> <p>13 A. Approximately. I know that is</p> <p>14 '97. '97, yes.</p> <p>15 Q. So it is your testimony though</p> <p>16 that a person skilled in the art reading</p> <p>17 Exhibit 1048 wouldn't understand the easy</p> <p>18 integration with on chip electrons to</p> <p>19 include the camera on a chip functionality</p> <p>20 at least including the pixel array, timing</p> <p>21 and control and image processing; is that</p> <p>22 your testimony?</p> <p>23 MS. REDDING: Objection. Form.</p> <p>24 THE WITNESS: I have already</p> <p>25 testified to exactly what this article</p>
<p style="text-align: right;">Page 20</p> <p>1 Neikirk</p> <p>2 shows.</p> <p>3 It states only that this is</p> <p>4 something that is a capability, that</p> <p>5 it uses the phrase "on chip</p> <p>6 electronics" without further</p> <p>7 specification as to what types and it</p> <p>8 furthermore gives one and only one</p> <p>9 example which is analog to digital</p> <p>10 conversion.</p> <p>11 As I have discussed in paragraph</p> <p>12 12, I believe, in my declaration, I</p> <p>13 think it is paragraph 12, I have given</p> <p>14 examples of other pieces of art which</p> <p>15 one of ordinary skill would also be</p> <p>16 aware of which gives examples of what</p> <p>17 may or may not be included on the same</p> <p>18 chip with the APS sensors but Swift</p> <p>19 never uses the phrase "camera on a</p> <p>20 chip" nor does Swift say you must put</p> <p>21 all electronics on that chip.</p> <p>22 BY MR. CAPLAN:</p> <p>23 Q. Does Swift -- anywhere in Swift</p> <p>24 does it say that it is not -- let me</p> <p>25 rephrase that.</p>	<p style="text-align: right;">Page 21</p> <p>1 Neikirk</p> <p>2 Is there anywhere in Swift where</p> <p>3 it expressly states that the APS CMOS image</p> <p>4 sensor is not the camera on a chip</p> <p>5 implementation?</p> <p>6 MS. REDDING: Objection to form.</p> <p>7 THE WITNESS: As I stated in</p> <p>8 paragraph 11 of my declaration, Swift</p> <p>9 doesn't expressly discuss a pixel</p> <p>10 arrangement nor how, for example,</p> <p>11 timing electronics is done.</p> <p>12 Swift leaves it to one of</p> <p>13 ordinary skill in the art so Swift</p> <p>14 never states what cannot be there nor</p> <p>15 what must be there. Swift leaves it</p> <p>16 to one of ordinary skill in the art.</p> <p>17 As I have also pointed out in</p> <p>18 page 11 or paragraph 11, the fact that</p> <p>19 not including "electronics" was the</p> <p>20 conventional. Okay. That's what the</p> <p>21 patent owner conceded, that not</p> <p>22 including the electronics was the</p> <p>23 conventional CMOS image sensor.</p> <p>24 That would be a -- that would be</p> <p>25 a choice open to one of ordinary</p>

<p style="text-align: right;">Page 22</p> <p>1 Neikirk</p> <p>2 skill.</p> <p>3 BY MR. CAPLAN:</p> <p>4 Q. You pointed out when we were</p> <p>5 looking at Exhibit 1048 it actually makes</p> <p>6 several references to CCD technology.</p> <p>7 My question is if Swift does not</p> <p>8 expressly disclose the pixel arrangement or</p> <p>9 control the timing or control of timing of</p> <p>10 the image sensor couldn't the design choice</p> <p>11 then in implementing Swift be a CCD since</p> <p>12 that is also mentioned in Exhibit 1048?</p> <p>13 MS. REDDING: Objection. Form.</p> <p>14 THE WITNESS: What Swift says on</p> <p>15 page 10 of Swift is that the image</p> <p>16 sensor 51 is preferably of a CMOS APS</p> <p>17 active pixel sensor type.</p> <p>18 The only expressed disclosure is</p> <p>19 CMOS APS.</p> <p>20 I don't believe Swift says</p> <p>21 anywhere that no other choice is</p> <p>22 possible but the expressed disclosure</p> <p>23 is of CMOS APS.</p> <p>24 BY MR. CAPLAN:</p> <p>25 Q. With regard to a camera on a chip</p>	<p style="text-align: right;">Page 23</p> <p>1 Neikirk</p> <p>2 technology does that require that all of the</p> <p>3 processing circuitry is on the same chip as</p> <p>4 the image sensor or the pixel array?</p> <p>5 MS. REDDING: Objection. Form.</p> <p>6 THE WITNESS: The phrase "camera</p> <p>7 on a chip" architecture is Dr. Lebbys</p> <p>8 phrase, not mine, and I believe he has</p> <p>9 used it in his declarations in various</p> <p>10 ways.</p> <p>11 I don't know what he envisioned</p> <p>12 as required. It seems to be that</p> <p>13 whenever it is convenient for him to</p> <p>14 state that certain electronics is on</p> <p>15 the chip then that becomes part of a</p> <p>16 camera on a chip.</p> <p>17 I see no definition in Fossum's,</p> <p>18 the Laser Focus article, I see no</p> <p>19 definition of what a "camera on a</p> <p>20 chip" is.</p> <p>21 BY MR. CAPLAN:</p> <p>22 Q. Would a person skilled in the art</p> <p>23 in October of 1997 have an understanding of</p> <p>24 the term "camera on a chip"?</p> <p>25 MS. REDDING: Objection. Form.</p>
<p style="text-align: right;">Page 24</p> <p>1 Neikirk</p> <p>2 THE WITNESS: Given the</p> <p>3 references that we have looked at,</p> <p>4 they would understand it as a phrase</p> <p>5 that was used broadly but rarely with</p> <p>6 any specificity as to what is included</p> <p>7 on the chip, no.</p> <p>8 BY MR. CAPLAN:</p> <p>9 Q. There is a reference that we have</p> <p>10 talked about in the past, I think it is</p> <p>11 Exhibit 2050, that is by Dr. Ackland, a</p> <p>12 reference that is being used in these</p> <p>13 proceedings as well.</p> <p>14 Do you have a copy of Exhibit</p> <p>15 2050?</p> <p>16 A. I should. Yes. Looking into it.</p> <p>17 I do have that article, yes, that</p> <p>18 reference.</p> <p>19 Q. I will pull that up as well.</p> <p>20 That is an article -- first of</p> <p>21 all, you do have a copy of Exhibit 2050?</p> <p>22 A. Yes, I do.</p> <p>23 Q. That is an article by Dr. Ackland,</p> <p>24 correct?</p> <p>25 A. Yes. This is an ISSCC 96 article</p>	<p style="text-align: right;">Page 25</p> <p>1 Neikirk</p> <p>2 and there were two articles, Brian Ackland</p> <p>3 and Alan Dickinson.</p> <p>4 Q. Right.</p> <p>5 And the title of that article is</p> <p>6 "Camera On A Chip," right?</p> <p>7 A. That is the title, yes.</p> <p>8 Q. Dr. Ackland is someone you would</p> <p>9 consider to be at least a person of ordinary</p> <p>10 skill in the art, wouldn't you?</p> <p>11 MS. REDDING: Objection.</p> <p>12 THE WITNESS: Yes. At this</p> <p>13 particular point in time Dr. Ackland</p> <p>14 was certainly active in the area of</p> <p>15 CMOS image sensors. He has at least</p> <p>16 one patent for a single level</p> <p>17 polysilicon APS sensor.</p> <p>18 BY MR. CAPLAN:</p> <p>19 Q. In this article, Exhibit 2050,</p> <p>20 entitled "Camera On A Chip," he describes in</p> <p>21 fact the CMOS APS image sensor; isn't that</p> <p>22 right?</p> <p>23 MS. REDDING: Objection. Form.</p> <p>24 THE WITNESS: In this particular</p> <p>25 article he certainly talks about CMOS</p>

<p style="text-align: right;">Page 26</p> <p>1 Neikirk 2 sensors broadly, yes. 3 BY MR. CAPLAN: 4 Q. In fact he talks about, looking 5 through the article here, he does more than 6 talk about CMOS imagers broadly. He talks 7 about current developments in CMOS imager 8 technology and the significance of the trend 9 and the current technology to be integration 10 of on chip electronics. Isn't that what he 11 is talking about here? 12 MS. REDDING: Objection to form. 13 THE WITNESS: What he says, and 14 I want to be precise to quote directly 15 from his article, is on page -- it is 16 Bates number page 3 of Exhibit 2050 17 but it was the article page 24 and the 18 first full paragraph on that page 19 starts with, "Arguably, the most 20 important advantage of the CMOS APS 21 approach, however, is the ability to 22 integrate much of the camera timing 23 control signal processing circuitry 24 onto the same silicon die." 25 That is what he says. He says</p>	<p style="text-align: right;">Page 27</p> <p>1 Neikirk 2 that this provides an ability, not a 3 requirement. 4 He furthermore says "much." He 5 does not say "all." And he even 6 states that that is arguably the most 7 important advantage, not that it is 8 the definitively most important 9 advantage. 10 So in that statement certainly 11 he is mentioning the ability to 12 integrate a variety of types of 13 electronics and he calls out timing, 14 control and signal processing 15 circuitry but he clearly states that 16 this is an ability to integrate much 17 of this, he doesn't state all of this, 18 and he doesn't go into any further 19 detail in that paragraph as to whether 20 it is how much. He leaves that open. 21 And, again, he is arguing this 22 is an ability, not a requirement. 23 His own patent, the Ackland 24 patent, that we have used actually 25 doesn't do all of this. It does not</p>
<p style="text-align: right;">Page 28</p> <p>1 Neikirk 2 do signal processing, for instance, on 3 the chip. It does it externally. 4 BY MR. CAPLAN: 5 Q. You would agree that a person 6 skilled in the art reading Exhibit 2050 7 would understand that the trend for CMOS 8 imager technology was on-chip integration of 9 many if not most of the functionality. 10 Would you agree with that? 11 MS. REDDING: Objection. Form. 12 THE WITNESS: I don't think I 13 would phrase it that way and that is 14 not how Ackland himself phrased it. 15 He just -- he pointed out that 16 it is an arguably important advantage 17 that this provides an ability. He 18 didn't say it was "the trend." I 19 don't know what you meant by "the 20 trend." 21 I believe one of ordinary skill 22 in the art reading this article would 23 take it at face value for exactly what 24 it says. 25</p>	<p style="text-align: right;">Page 29</p> <p>1 Neikirk 2 BY MR. CAPLAN: 3 Q. Figure 2 in Exhibit 2050 which is 4 on page -- it looks like page 22, it 5 actually shows a figure of a camera on a 6 chip, multimedia camera. 7 Do you see that? 8 MS. REDDING: Objection to form. 9 THE WITNESS: Yes. That is -- 10 it shows a black die indeed. 11 BY MR. CAPLAN: 12 Q. That includes as shown in that 13 Figure 2 the CMOS sensor timing A to D, 14 signal processing and digital interface all 15 as a camera on a chip functionality; do you 16 see that in Figure 2? 17 A. I see all of those blocks and it 18 is inside a dotted line called "camera die." 19 so that is what it shows. 20 It also shows that it goes on to 21 things like video Kodak -- Codex, and its -- 22 et cetera, so it clearly provides that 23 output to other things. 24 Q. So is it your testimony that in 25 light of Exhibit 2048, the Fossum article I</p>

<p>Page 30</p> <p>1 Neikirk 2 think was Exhibit 1048, that a person 3 skilled in the art looking at Swift would 4 not have an understanding of how to 5 implement the pixel array or the timing 6 control for the image sensor based on -- 7 MS. REDDING: Objection to form. 8 THE WITNESS: No. That is not 9 my testimony. 10 My testimony was that Swift 11 leaves this to one of ordinary skill 12 in the art and in my declaration I 13 have pointed out a variety of pieces 14 of art that disclose different ways of 15 doing it. 16 So one of ordinary skill in the 17 art reading, for instance, 18 Dr. Ackland's article would understand 19 the words that he used, that there is 20 an ability to integrate much of the 21 electronics, an ability, not a 22 requirement. 23 Looking at -- the Laser Focus 24 article, let me get that back, that 25 is -- I have lost track of which</p>	<p>Page 31</p> <p>1 Neikirk 2 exhibit number that one was. 3 BY MR. CAPLAN: 4 Q. I think it was Exhibit 1048. We 5 have been talking about the Fossum article. 6 A. Yes. That article certainly talks 7 a lot about the APS pixel itself and that 8 one paragraph refers to camera on a chip for 9 future microspace applications and gives an 10 example only on chip analog to digital 11 conversion. 12 So reading these references I 13 believe one of ordinary skill in the art 14 would learn there are numerous ways to do 15 this and the references that I have 16 discussed in my declaration, for instance -- 17 well, we just talked about abilities and 18 possibilities, that is in paragraph 11 in 19 Ohta. 20 In Exhibit 2050 patent owner 21 conceded the conventional sensors did not 22 have camera timing and control and signal 23 processing integrated onto the same die. 24 Ackland's patent, which was 25 Exhibit 1006, does not have all electronics</p>
<p>Page 32</p> <p>1 Neikirk 2 integrated on the chip so I believe one of 3 ordinary skill in the art would be aware -- 4 not I believe, one of ordinary of skill in 5 the art is presumed to be aware of all of 6 this literature presenting many options of 7 which they can select. 8 And Swift leaves it to the person 9 of ordinary skill to make their decisions as 10 to what and how to incorporate the various 11 circuitry. 12 Q. You just made reference to 13 "Exhibit 1006." That is the Ackland '141 14 patent, correct? 15 A. That's correct. 16 Q. And in particular with Figure 6 17 there is an arrow that says to processing 18 circuitry that you have talked about in the 19 past, correct? 20 A. That's correct. 21 Q. And that arrow on Figure 6 is your 22 basis for saying that the Ackland does not 23 teach on chip processing, correct? 24 A. No. 25 MS. REDDING: Objection to form.</p>	<p>Page 33</p> <p>1 Neikirk 2 THE WITNESS: Sorry. 3 No. That is not correct. 4 BY MR. CAPLAN: 5 Q. What is your basis for saying that 6 Ackland does not teach on chip processing? 7 A. All the Figure 6 including the 8 clear labeling of active pixel imaging 9 system which excludes processing circuitry 10 along with the written description in the 11 patent. The totality of this clearly 12 indicates to one of ordinary skill the app. 13 The other processing circuitry is 14 not part of the active pixel imaging system. 15 It is not on that chip. 16 Q. Where -- 17 A. It is not solely an arrow on 18 Figure 6. It includes that arrow. 19 Q. Where in Exhibit 1006 does it say 20 that the processing circuit is not on the 21 same chip as the image processing circuitry 22 that is also shown in Figure 6? 23 MS. REDDING: Objection. Form. 24 THE WITNESS: Sorry. The 25 other -- in Figure 6 there is no image</p>

<p style="text-align: right;">Page 34</p> <p>1 Neikirk</p> <p>2 processing circuitry shown other than</p> <p>3 to processing circuitry.</p> <p>4 What is shown in the active</p> <p>5 pixel imaging system is the timing</p> <p>6 control as well as the pixels,</p> <p>7 corroded coder, and a set of</p> <p>8 amplifiers. That is what is shown.</p> <p>9 There is no image processing</p> <p>10 shown at all other than to processing</p> <p>11 circuitry. That is outside of the</p> <p>12 boundaries clearly zone in Figure 6 of</p> <p>13 the dotted line active pixel imaging</p> <p>14 system.</p> <p>15 BY MR. CAPLAN:</p> <p>16 Q. So my question is -- I want to</p> <p>17 understand is that, is the fact that the two</p> <p>18 processing circuitry language that is</p> <p>19 pointed to with an arrow in Figure 6 is</p> <p>20 outside the dotted box labeled "active pixel</p> <p>21 imaging system," that is your basis for</p> <p>22 saying that the processing circuitry is not</p> <p>23 on the same chip as that active pixel</p> <p>24 imaging system?</p> <p>25 MS. REDDING: Objection. Form.</p>	<p style="text-align: right;">Page 35</p> <p>1 Neikirk</p> <p>2 THE WITNESS: As I believe I</p> <p>3 have testified repeatedly that is not</p> <p>4 the sole basis.</p> <p>5 The written description in line</p> <p>6 with that figure is clear.</p> <p>7 For instance, column 8 starting</p> <p>8 at line 48, I believe it is, states</p> <p>9 "Output signals from the amplifiers</p> <p>10 are provided to the common output line</p> <p>11 in serial fashion based on the timing</p> <p>12 control signals from the timing</p> <p>13 controller 20. The output signals are</p> <p>14 routed to suitable processing</p> <p>15 circuitry not shown."</p> <p>16 Those sentences combined with</p> <p>17 Figure 6 and the rest of the</p> <p>18 disclosure of Ackland make it clear to</p> <p>19 one of ordinary skill that Ackland's</p> <p>20 active pixel imaging system is what he</p> <p>21 shows inside the dotted box in Figure</p> <p>22 6 and that the suitable processing</p> <p>23 circuitry is external to that. It is</p> <p>24 an output.</p> <p>25 Ackland calls the signals that</p>
<p style="text-align: right;">Page 36</p> <p>1 Neikirk</p> <p>2 are placed on line 19 in Figure 6,</p> <p>3 that is called the common output line.</p> <p>4 It is not an output if it doesn't</p> <p>5 leave the chip.</p> <p>6 It is an internal signal if it</p> <p>7 is on a chip.</p> <p>8 BY MR. CAPLAN:</p> <p>9 Q. You would agree though that the</p> <p>10 Ackland patent in that same column 8, the</p> <p>11 last line which is line 51 to 52 says, "The</p> <p>12 output signals that you are referring to are</p> <p>13 routed to suitable processing circuitry, not</p> <p>14 shown." Right?</p> <p>15 MS. REDDING: Objection to form.</p> <p>16 Go ahead.</p> <p>17 BY MR. CAPLAN:</p> <p>18 Q. You agree that is what it says?</p> <p>19 A. It says "output signals."</p> <p>20 MS. REDDING: Objection.</p> <p>21 THE WITNESS: Yes, I agree. It</p> <p>22 says, "The output signals are routed</p> <p>23 to suitable processing circuitry, not</p> <p>24 shown."</p> <p>25 An output signal is what is</p>	<p style="text-align: right;">Page 37</p> <p>1 Neikirk</p> <p>2 routed.</p> <p>3 BY MR. CAPLAN:</p> <p>4 Q. So even in light of your</p> <p>5 understanding of the Ackland patent, the</p> <p>6 Ackland article, Exhibit 2050 does not</p> <p>7 change your view of how a person skilled in</p> <p>8 the art would understand the teaching of the</p> <p>9 Ackland patent in terms of being a camera on</p> <p>10 a chip implementation?</p> <p>11 MS. REDDING: Objection. Form.</p> <p>12 THE WITNESS: The Ackland patent</p> <p>13 never uses the words "camera on a</p> <p>14 chip."</p> <p>15 The disclosures -- the teachings</p> <p>16 of the Ackland patent are clear.</p> <p>17 It certainly doesn't say that</p> <p>18 Dr. Ackland, Mr. Ackland might not</p> <p>19 have worked on other things as he</p> <p>20 discusses a capability in the Ackland</p> <p>21 ISSCC 96 article.</p> <p>22 I don't see those as</p> <p>23 incompatible but the teachings of the</p> <p>24 Ackland patent are clear and really</p> <p>25 the promise or capabilities promised</p>

<p style="text-align: right;">Page 38</p> <p>1 Neikirk</p> <p>2 by CMOS integration is what is</p> <p>3 presented in the ISSCC 96 paper, not</p> <p>4 any requirement that everything has to</p> <p>5 be in one place.</p> <p>6 In fact, even he -- Ackland says</p> <p>7 in that article, "much." He doesn't</p> <p>8 say everything.</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. A few times you mentioned either</p> <p>11 "required" or "must be" and I want to follow</p> <p>12 up on that because -- and ask you the</p> <p>13 question that with regard to Exhibit 2050</p> <p>14 since we are talking about that, what does</p> <p>15 Exhibit 2050 motivate a person skilled in</p> <p>16 the art to do when looking at or considering</p> <p>17 a CMOS image sensor technology if you are</p> <p>18 looking to build it.</p> <p>19 What does Exhibit 2050 motivate a</p> <p>20 person skilled in the art to understand?</p> <p>21 MS. REDDING: Objection. Form.</p> <p>22 THE WITNESS: I haven't done an</p> <p>23 analysis of that.</p> <p>24 Dr. Lebby cited Exhibit 2050 to</p> <p>25 support his assertion that a camera on</p>	<p style="text-align: right;">Page 39</p> <p>1 Neikirk</p> <p>2 a chip could not have and I believe we</p> <p>3 can go to -- we should go to specific</p> <p>4 portions of Dr. Lebby's reports</p> <p>5 because he cites this more than once.</p> <p>6 I don't want to misquote him.</p> <p>7 But what I looked at was when</p> <p>8 Dr. Lebby cited to this reference</p> <p>9 supporting his opinion whether the</p> <p>10 reference supported his opinion. And</p> <p>11 in general terms what I always found</p> <p>12 was it did not.</p> <p>13 Again, in general terms I would</p> <p>14 say taking this article at face value</p> <p>15 it teaches capabilities and abilities.</p> <p>16 And that is what it teaches.</p> <p>17 BY MR. CAPLAN:</p> <p>18 Q. So is it your testimony that the</p> <p>19 Ackland article, Exhibit 2050 is neutral.</p> <p>20 It says you could do this, you could do</p> <p>21 that. These are the abilities.</p> <p>22 It doesn't push a person skilled</p> <p>23 in the art in any particular direction?</p> <p>24 MS. REDDING: Objection. Form.</p> <p>25 THE WITNESS: The explicit words</p>
<p style="text-align: right;">Page 40</p> <p>1 Neikirk</p> <p>2 are, "Arguably, the most important</p> <p>3 advantage of the CMOS APS approach,</p> <p>4 however, is the ability to integrate</p> <p>5 much of the camera timing control and</p> <p>6 signal processing circuit onto the</p> <p>7 same silicon die."</p> <p>8 Those are the words which</p> <p>9 clearly states an ability.</p> <p>10 It also states that this is</p> <p>11 arguably the most important advantage.</p> <p>12 Certainly I believe it shows to</p> <p>13 one skilled in the art that there is a</p> <p>14 promise, there is an ability in the</p> <p>15 future to do these things.</p> <p>16 But I don't think it states in</p> <p>17 any way, shape or form, that one of</p> <p>18 ordinary skill in the art would not</p> <p>19 consider alternatives that already</p> <p>20 exist including placing timing and</p> <p>21 control electronics either on chip or</p> <p>22 off chip or placing image processing</p> <p>23 off chip. That was the conventional</p> <p>24 CMOS approach to place much of the</p> <p>25 electronics on the chip as the patent</p>	<p style="text-align: right;">Page 41</p> <p>1 Neikirk</p> <p>2 owner admitted.</p> <p>3 BY MR. CAPLAN:</p> <p>4 Q. Dr. Ackland's article, Exhibit</p> <p>5 2050 isn't the only exhibit that Dr.--</p> <p>6 Dr. Lebby cited for the proposition that "By</p> <p>7 1997 camera on a chip technology was the</p> <p>8 dominant approach for CMOS image sensor</p> <p>9 technology; there were others as well,"</p> <p>10 correct?</p> <p>11 MS. REDDING: Objection to form.</p> <p>12 THE WITNESS: We would have to</p> <p>13 go and look.</p> <p>14 You said that Dr. Lebby cited</p> <p>15 others for a specific proposition that</p> <p>16 camera on a chip, I didn't quote you</p> <p>17 precisely but was the dominant.</p> <p>18 I don't want to mischaracterize</p> <p>19 Dr. Lebby's declaration in terms of</p> <p>20 precisely how he phrased that. So we</p> <p>21 would really need to go his</p> <p>22 declaration.</p> <p>23 Point me to some place and I</p> <p>24 will take a look at those references.</p> <p>25</p>

<p style="text-align: right;">Page 42</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. We will see about that but I want</p> <p>4 to ask you this.</p> <p>5 How about why would a person</p> <p>6 skilled in the art considering the Ackland</p> <p>7 article 2050 that is looking to implement a</p> <p>8 CMOS imager -- image sensor not go with the</p> <p>9 camera on a chip approach?</p> <p>10 MS. REDDING: Objection. Form.</p> <p>11 THE WITNESS: The literature</p> <p>12 which the prior art which one of</p> <p>13 ordinary skill in the art would be</p> <p>14 aware of not simply this article but</p> <p>15 the other -- but all of the prior art</p> <p>16 in the field and as that owner</p> <p>17 admitted the conventional approach was</p> <p>18 to place electronics off of the chip</p> <p>19 and I think one of ordinary skill in</p> <p>20 the art would always consider the</p> <p>21 conventional approach that they might</p> <p>22 consider some integration.</p> <p>23 That is possible too but that is</p> <p>24 different from saying they would not</p> <p>25 consider the conventional approach</p>	<p style="text-align: right;">Page 43</p> <p>1 Neikirk</p> <p>2 which places electronics off the chip.</p> <p>3 BY MR. CAPLAN:</p> <p>4 Q. So it is your testimony that by</p> <p>5 October 1997 that the conventional approach</p> <p>6 for CMOS image sensor technology was to have</p> <p>7 circuitry on separate components not the</p> <p>8 camera on a chip approach?</p> <p>9 MS. REDDING: Objection.</p> <p>10 THE WITNESS: The patent</p> <p>11 owner -- excuse me.</p> <p>12 As I pointed out in paragraph 11</p> <p>13 of my declaration the patent owner</p> <p>14 conceded and I agree that in 1997 the</p> <p>15 conventional approach was to place</p> <p>16 electronics in various locations.</p> <p>17 Ackland's patent, for instance,</p> <p>18 illustrates that.</p> <p>19 Other patents that I mentioned I</p> <p>20 believe in paragraph 12 discuss</p> <p>21 different things. Ricquier talks</p> <p>22 about placing electric -- certain</p> <p>23 electronics elsewhere than on the</p> <p>24 chip.</p> <p>25 All of those would have been</p>
<p style="text-align: right;">Page 44</p> <p>1 Neikirk</p> <p>2 known to one of ordinary skill in the</p> <p>3 art. It would have been amongst the</p> <p>4 choices they could make.</p> <p>5 BY MR. CAPLAN:</p> <p>6 Q. We will come back you keep talking</p> <p>7 about what the patent owner has admitted but</p> <p>8 I want to know your opinion as you sit here</p> <p>9 now that in October of 1997 that is it your</p> <p>10 opinion that CMOS imager technology, the</p> <p>11 dominant approach at that time, was to have</p> <p>12 components for CMOS image sensor all on</p> <p>13 different circuit boards or chips?</p> <p>14 MS. REDDING: Objection. Form.</p> <p>15 THE WITNESS: I have formed no</p> <p>16 such opinion about what was dominant.</p> <p>17 What was dominant? What was</p> <p>18 dominant in my analysis was</p> <p>19 irrelevant.</p> <p>20 The question is what teachings</p> <p>21 were available and known to one of</p> <p>22 ordinary skill, not what teaches were</p> <p>23 dominant.</p> <p>24 So I haven't done any analysis</p> <p>25 to try to decide what was dominant.</p>	<p style="text-align: right;">Page 45</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. How do you know what a person</p> <p>4 skilled in the art would understand at that</p> <p>5 time?</p> <p>6 MS. REDDING: Objection. Form.</p> <p>7 THE WITNESS: By looking at the</p> <p>8 prior art that is available to one of</p> <p>9 ordinary skill in the art which we had</p> <p>10 discussed extensively which shows</p> <p>11 examples of placing electronics in a</p> <p>12 variety of locations.</p> <p>13 BY MR. CAPLAN:</p> <p>14 Q. Is it your opinion that someone</p> <p>15 reading the '052 patent, let's talk about</p> <p>16 claim 2 since that is what involved in the</p> <p>17 512 IPR, would find each element of the</p> <p>18 claim in the Swift reference?</p> <p>19 MS. REDDING: Objection. Form.</p> <p>20 THE WITNESS: I don't believe</p> <p>21 that I have an opinion that stated</p> <p>22 that claim 2 was anticipated by Swift.</p> <p>23 The grounds that I have</p> <p>24 discussed for claim 2, and let me go</p> <p>25 to that, we probably should go to my</p>

<p style="text-align: right;">Page 46</p> <p>1 Neikirk</p> <p>2 original -- since that is what is</p> <p>3 discussed in all its detail.</p> <p>4 So for claim 2 that Section 8D</p> <p>5 of my original declaration which is</p> <p>6 Exhibit 1004, the obviousness</p> <p>7 discussion there, is over Swift and</p> <p>8 Ricquier and Suzuki. That is -- I did</p> <p>9 not render an opinion that said Swift</p> <p>10 anticipates claim 2.</p> <p>11 BY MR. CAPLAN:</p> <p>12 Q. You agree there is no single</p> <p>13 reference that contains all the elements of</p> <p>14 claim 2, correct?</p> <p>15 MS. REDDING: Objection. Form.</p> <p>16 THE WITNESS: The grounds -- the</p> <p>17 analysis that I did is a combination</p> <p>18 of Swift, Ricquier and Suzuki. That</p> <p>19 is not a single reference. That is</p> <p>20 true.</p> <p>21 BY MR. CAPLAN:</p> <p>22 Q. For that ground --</p> <p>23 MR. CAPLAN: We have been going</p> <p>24 about an hour so this might be a good</p> <p>25 time to break.</p>	<p style="text-align: right;">Page 47</p> <p>1 Neikirk</p> <p>2 THE WITNESS: Okay.</p> <p>3 MR. CAPLAN: Even though we had</p> <p>4 a little bit of loss, let's take a</p> <p>5 short break here. 15 minutes?</p> <p>6 THE WITNESS: That is fine with</p> <p>7 me.</p> <p>8 (Recess)</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. Dr. Neikirk, before the break we</p> <p>11 were talking about the state of the art and</p> <p>12 I just want to go back to that a little bit</p> <p>13 and get your understanding in October of '97</p> <p>14 what a person skilled in the art understood</p> <p>15 about designing and building CMOS image</p> <p>16 sensors. So what was your understanding of</p> <p>17 the field at that time?</p> <p>18 MS. REDDING: Object to form.</p> <p>19 THE WITNESS: As I have</p> <p>20 repeatedly discussed there were many</p> <p>21 references available at the time.</p> <p>22 Many of them included electronics in</p> <p>23 various locations other than simply</p> <p>24 the pixel -- the chip containing the</p> <p>25 pixel array, so I would say that is a</p>
<p style="text-align: right;">Page 48</p> <p>1 Neikirk</p> <p>2 broad description of what was known to</p> <p>3 one of ordinary skill in the art at</p> <p>4 the time.</p> <p>5 Ricquier, Swift, Ackland's</p> <p>6 patent, all of those would have been</p> <p>7 known to one of ordinary skill in the</p> <p>8 art.</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. So what would have motivated a</p> <p>11 person of skill in the art to make</p> <p>12 particular choices at that time in this</p> <p>13 field?</p> <p>14 MS. REDDING: Objection. Form.</p> <p>15 THE WITNESS: I have some very</p> <p>16 explicit discussion of motivation in</p> <p>17 mind, specific references in my</p> <p>18 original report, so, for instance --</p> <p>19 and I believe right now I think we are</p> <p>20 talking about the '512 which I --</p> <p>21 right now I am looking at my second</p> <p>22 declaration.</p> <p>23 BY MR. CAPLAN:</p> <p>24 Q. Correct.</p> <p>25 A. That also has a discussion but</p>	<p style="text-align: right;">Page 49</p> <p>1 Neikirk</p> <p>2 really I think we should go back to, for</p> <p>3 instance, in my original declaration,</p> <p>4 Exhibit 1004, if you look at paragraph -- if</p> <p>5 you look at page 148 there is a section on</p> <p>6 motivation to combine Swift and Ricquier;</p> <p>7 page 150, motivation to combine Swift,</p> <p>8 Ricquier and Suzuki, so we can go there and</p> <p>9 discuss motivations to combine these</p> <p>10 references.</p> <p>11 I will try to -- first section.</p> <p>12 So Section 3, yes, there is an explicit</p> <p>13 section dedicated to motivation to combine</p> <p>14 that actually starts on page -- it is Bates</p> <p>15 page 151 of Exhibit 1004, it is paragraph</p> <p>16 237. And that talks about Swift -- the fact</p> <p>17 that Swift does not expressly state in</p> <p>18 paragraph 238 that its CMOS active pixels</p> <p>19 are in an array but we are clear VIOS</p> <p>20 additional implementation detail. For</p> <p>21 instance, is it 256 by 256 dressable</p> <p>22 photodiode array. Identifies that it was</p> <p>23 done -- realized in 1-1/2 micron standard</p> <p>24 CMOS technology.</p> <p>25 Swift didn't expressly disclose</p>

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1 **Neikirk**
2 **how the timing is controlled other than**
3 **referring to simply sensor selection readout**
4 **symmetry Ricquier provides such information.**
5 **Paragraph 239 discusses -- further**
6 **discusses motivation. Swift and Ricquier in**
7 **the same -- they are all analogous to the**
8 **'052 patent. They are related to solid**
9 **state image sensors used in cameras. That**
10 **is clearly in Ricquier and Swift.**
11 **Swift and Ricquier are pertinent**
12 **to the problems identified in '052 arranging**
13 **CMOS circuitry. Ricquier discusses that, so**
14 **does Swift. You know, doing that to**
15 **minimize device size or profile errors, to**
16 **reduce imaging. All of those are addressed.**
17 **Noise reduction is expressly addressed in**
18 **Ricquier.**
19 **Ricquier specifically identified**
20 **that using the timing controller which is**
21 **located on chip added flexibility. That is**
22 **on page -- Bates page 152 of my 1004**
23 **declaration.**
24 **And it goes on to identify**
25 **numerous other reasons. Those are all what**

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1 **Neikirk**
2 **to a person of ordinary skill in the art to**
3 **apply known imaging technologies."**
4 **That is what I said.**
5 **Q. So it is your testimony that the**
6 **lack of description in Swift would motivate**
7 **a person skilled in the art to look at**
8 **Ricquier, is that your testimony?**
9 **MS. REDDING: Objection. Form.**
10 **THE WITNESS: My testimony is**
11 **that the teachings of Swift leave**
12 **numerous implementation details to one**
13 **of ordinary skill in the art.**
14 **One of ordinary skill in the art**
15 **would be motivated to look at**
16 **references to learn of the various**
17 **options and there might -- there are**
18 **many. One of the options would be**
19 **Ricquier.**
20 **BY MR. CAPLAN:**
21 **Q. My question is what motivated or**
22 **what would -- let's talk about you.**
23 **What motivated you to look at**
24 **Swift and to be motivated to look at**
25 **Ricquier to combine that with Swift?**

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1 **Neikirk**
2 **would lead one of ordinary skill in the art**
3 **to use Ricquier and Swift.**
4 **Q. There is a lot there so I just**
5 **want to go back and I have a couple of**
6 **questions on that answer.**
7 **So I believe you just testified**
8 **that in your earlier report you -- which you**
9 **testified here, that Swift doesn't provide**
10 **detail about the CMOS active pixel array.**
11 **Do you recall that?**
12 **A. Well, so the first sentence in**
13 **paragraph 238 of my declaration, Exhibit**
14 **1004, states, "While Swift does not**
15 **expressly state that its CMOS active pixels**
16 **are in an array," it goes on to say**
17 **"Ricquier provides this additional**
18 **implementation detail."**
19 **In my declaration -- it has an**
20 **exhibit number but my declaration on the**
21 **'512 petition, my second declaration, in**
22 **paragraph 11 again I pointed out, second**
23 **sentence, "Swift does not expressly disclose**
24 **its pixel arrangement nor timing of its**
25 **image sensor, 51, its control, and leaves it**

Page 53

1 **Neikirk**
2 **MS. REDDING: Objection. Form.**
3 **THE WITNESS: I have already**
4 **gone over the various motivations to**
5 **one of ordinary skill in the art and**
6 **that was, for instance, on Bates page**
7 **151 of my original declaration, the**
8 **declaration Exhibit 1004 starting at**
9 **paragraph 237 and following through**
10 **paragraph 240. And I already read a**
11 **number of those to you.**
12 **Those included that Ricquier**
13 **provides details. That is in**
14 **paragraph 238.**
15 **In paragraph 239 -- in the same**
16 **field apart that they are all related**
17 **to solid state image sensors, that**
18 **Ricquier talks about for instance**
19 **noise reduction, that would be a**
20 **reason to look to it, that Ricquier**
21 **talks about advantages of using a**
22 **timing controller that was located off**
23 **chip specifically that provided**
24 **flexibility or fitting components into**
25 **available space. That is not**

<p style="text-align: right;">Page 54</p> <p>1 Neikirk</p> <p>2 Ricquier. That would be Swift. And</p> <p>3 to allow for more compact head. That</p> <p>4 is discussed in Ricquier, pages 3 and</p> <p>5 4.</p> <p>6 BY MR. CAPLAN:</p> <p>7 Q. So my question is what can you</p> <p>8 point to in Swift that would suggest to you</p> <p>9 or any person skilled in the art to look to</p> <p>10 Ricquier. Is there anything -- it sounds to</p> <p>11 me your testimony is you could look at</p> <p>12 Ricquier and pick a feature out but I want</p> <p>13 to know what is it in Swift that tells you</p> <p>14 or any person skilled in the art to look to</p> <p>15 Ricquier for that feature?</p> <p>16 MS. REDDING: Object to form.</p> <p>17 THE WITNESS: As an example as I</p> <p>18 just pointed out from paragraph 239 of</p> <p>19 my original declaration Swift had</p> <p>20 stated that there was a desire to</p> <p>21 allow for a more compact camera. That</p> <p>22 would be part of it.</p> <p>23 Let me look in my second</p> <p>24 declaration because I believe there is</p> <p>25 also discussion there.</p>	<p style="text-align: right;">Page 55</p> <p>1 Neikirk</p> <p>2 Actually most of the discussion</p> <p>3 about motivation is in my original so</p> <p>4 I pointed you to paragraphs 237</p> <p>5 through 240 that give a number of</p> <p>6 examples.</p> <p>7 Well, Swift's circuit board 52</p> <p>8 to minimize overall camera size, that</p> <p>9 was an explicitly -- one of Swift's</p> <p>10 goals.</p> <p>11 There are other references broad</p> <p>12 knowledge of arranging components in</p> <p>13 different ways to achieve a compact</p> <p>14 overall arrangement.</p> <p>15 Ricquier provides teachings</p> <p>16 about APS sensors.</p> <p>17 Swift preferably wants to use an</p> <p>18 APS sensor.</p> <p>19 One of ordinary skill in the art</p> <p>20 is aware of the art broadly including</p> <p>21 Ricquier and it provides teachings</p> <p>22 about how to arrange circuitry and the</p> <p>23 sensors.</p> <p>24 BY MR. CAPLAN:</p> <p>25 Q. Where in Ricquier does it address</p>
<p style="text-align: right;">Page 56</p> <p>1 Neikirk</p> <p>2 the desire to be a small camera size that</p> <p>3 you alluded to as part of the motivation</p> <p>4 from Swift?</p> <p>5 A. That is part of Swift.</p> <p>6 MS. REDDING: Objection to form.</p> <p>7 THE WITNESS: That is part of</p> <p>8 Swift and Ricquier is teaching more</p> <p>9 about APS sensors and among those</p> <p>10 teachings about locating timing and</p> <p>11 control circuitry off chip.</p> <p>12 One of ordinary skill in the art</p> <p>13 would understand that placing</p> <p>14 circuitry on available boards can be</p> <p>15 done advantageously to achieve</p> <p>16 smaller, more compact head. This</p> <p>17 is -- I just -- basic obvious stuff</p> <p>18 about laying out components on boards.</p> <p>19 BY MR. CAPLAN:</p> <p>20 Q. But if your testimony is that</p> <p>21 Ricquier is about APS sensors and APS</p> <p>22 sensors and APS CMOS sensors are described</p> <p>23 in the '052 patent itself, in particular,</p> <p>24 the work of Dr. Fossum in camera on a chip,</p> <p>25 why are you looking to Ricquier as opposed</p>	<p style="text-align: right;">Page 57</p> <p>1 Neikirk</p> <p>2 to what the patent is actually teaching to</p> <p>3 the art?</p> <p>4 MS. REDDING: Objection to form.</p> <p>5 THE WITNESS: One of ordinary</p> <p>6 skill in the art is aware of all of</p> <p>7 the art, that is a fundamental</p> <p>8 assumption and they would be aware of</p> <p>9 more than just Dr. Fossum's article in</p> <p>10 Laser Focus World which was a high</p> <p>11 level trade journal article. It is</p> <p>12 fine but they are aware of much more</p> <p>13 and much of the art -- much of the</p> <p>14 conventional art explicitly discloses</p> <p>15 placing circuitry elsewhere.</p> <p>16 The Laser Focus World article</p> <p>17 didn't tell you what circuitry to put</p> <p>18 on that chip. In fact, as we have</p> <p>19 already discussed the only example</p> <p>20 given is placing analog to digital</p> <p>21 conversion and the sentence was that,</p> <p>22 "This approach is being pursued in</p> <p>23 conjunction with on chip analog to</p> <p>24 digital conversion to explore cameras</p> <p>25 on a chip for future microspace</p>

<p style="text-align: right;">Page 58</p> <p>1 Neikirk</p> <p>2 applications." Which I would think</p> <p>3 would teach one of ordinary skill that</p> <p>4 this is a future capability. It was</p> <p>5 identified as something desirable for</p> <p>6 satellites which doesn't sound much</p> <p>7 like Swift and doesn't even specify</p> <p>8 where to put timing and control</p> <p>9 electronics. It is still silent.</p> <p>10 BY MR. CAPLAN:</p> <p>11 Q. The Ricquier reference is not</p> <p>12 cited anywhere in the Swift reference, is</p> <p>13 it?</p> <p>14 MS. REDDING: Objection. Form.</p> <p>15 THE WITNESS: No. I don't</p> <p>16 believe it is but one of ordinary</p> <p>17 skill in the art is presumed to be</p> <p>18 aware of the art in the area. This is</p> <p>19 clearly in the same area as Swift.</p> <p>20 Excuse me. I was done.</p> <p>21 BY MR. CAPLAN:</p> <p>22 Q. The Fossum article, the June 9</p> <p>23 article that we were talking about is cited</p> <p>24 in the Swift reference, isn't it?</p> <p>25 MS. REDDING: Objection. Form.</p>	<p style="text-align: right;">Page 59</p> <p>1 Neikirk</p> <p>2 THE WITNESS: Yes. It is</p> <p>3 referenced and let's be clear, the</p> <p>4 statement in Swift said on page 10,</p> <p>5 starting at line 4, it states,</p> <p>6 "Further information on APS type</p> <p>7 sensors may be found in the</p> <p>8 publication Laser Focus World,</p> <p>9 June 1993, page 83," and that article</p> <p>10 spends first two-and-a-half pages</p> <p>11 discussing CCDs, not even APS.</p> <p>12 It has three-and-a-half columns</p> <p>13 about APS and the only mention of</p> <p>14 camera on a chip is for microspace</p> <p>15 applications and points out that</p> <p>16 analog to digital conversion could be</p> <p>17 possibly placed on a chip.</p> <p>18 Swift did not say that the APS</p> <p>19 type sensor of Swift was the APS type</p> <p>20 sensor of the Laser Focus World</p> <p>21 article. It said more information,</p> <p>22 further information. It didn't say</p> <p>23 all information. It didn't say that</p> <p>24 is how I want you to implement it.</p> <p>25 The teachings in Fossum still</p>
<p style="text-align: right;">Page 60</p> <p>1 Neikirk</p> <p>2 don't teach anything about where to</p> <p>3 locate timing and control as an</p> <p>4 example.</p> <p>5 The Laser Focus World article</p> <p>6 teaches a lot about the history of</p> <p>7 CCDs and a little bit about the future</p> <p>8 promise of APS sensors.</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. So it is your testimony then that</p> <p>11 the citation of Laser Focus World and the</p> <p>12 Swift reference does not motivate a person</p> <p>13 skilled in the art to look to that article</p> <p>14 and other work by Dr. Fossum to understand</p> <p>15 how to implement CMOS imager technology at</p> <p>16 that time and afterwards, is that your</p> <p>17 testimony?</p> <p>18 MS. REDDING: Object to form.</p> <p>19 THE WITNESS: I testified to no</p> <p>20 such thing.</p> <p>21 I pointed out this article</p> <p>22 exists. I never said that one of</p> <p>23 ordinary skill in the art wouldn't</p> <p>24 read it. So once they did read it</p> <p>25 they would find only a limited amount</p>	<p style="text-align: right;">Page 61</p> <p>1 Neikirk</p> <p>2 of information about the future</p> <p>3 promise of APS sensors.</p> <p>4 One of ordinary skill in the art</p> <p>5 is presumed to be available of any</p> <p>6 piece of art in the same field. They</p> <p>7 would be aware of this.</p> <p>8 They would also be aware of</p> <p>9 Ricquier. They would be aware of</p> <p>10 Larson. They would be aware of</p> <p>11 Suzuki. They would be aware of</p> <p>12 Wakabayshi. They would be aware of</p> <p>13 all of this art.</p> <p>14 BY MR. CAPLAN:</p> <p>15 Q. What would motivate a person</p> <p>16 skilled in the art to look to particular</p> <p>17 references to understand how to implement</p> <p>18 these features at that time, the time of the</p> <p>19 invention, October 1997?</p> <p>20 MS. REDDING: Objection. Form.</p> <p>21 THE WITNESS: As I have</p> <p>22 repeatedly referred to I have a</p> <p>23 discussion of that in my opening</p> <p>24 declaration. I identified numerous</p> <p>25 motivations there. Swift's explicit</p>

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1 **Neikirk**
2 **desire for a more compact camera.**
3 **Swift's referring -- not telling**
4 **you any particular details about the**
5 **circuitry, leaving that to one of**
6 **ordinary skill in the art. The**
7 **teachings of Ricquier fit that as an**
8 **example.**
9 **There may be other combinations**
10 **that would render other things**
11 **obvious. That doesn't mean that this**
12 **combination rendering something**
13 **obvious is incorrect. There are many**
14 **ways to implement things.**
15 BY MR. CAPLAN:
16 Q. So why did you look to the
17 Ricquier reference as opposed to the Ackland
18 article about camera on a chip to combine
19 with Swift?
20 MS. REDDING: Object to form.
21 **THE WITNESS: I did look at the**
22 **Ackland article as I discussed**
23 **extensively but ultimately the inquiry**
24 **on conducting is whether the specific**
25 **claims of the '052 patent are obvious.**

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1 **Neikirk**
2 **that the patent owner admitted something**
3 **about conventional CMOS technology, do you**
4 **recall that?**
5 **A. I do, it is in -- it is on my**
6 **page 5 of my dec -- of my second declaration**
7 **towards the top of page 5. It is in**
8 **paragraph 11.**
9 Q. So you are referring to the
10 sentence in paragraph 11. It says, "Patent
11 owner concedes that conventional CMOS image
12 sensors did not have camera timing, control
13 and sequence processing circuitry integrated
14 onto the same die. This is merely a
15 possibility for which CMOS allowed."
16 That is what you are referring to?
17 **A. Yes. That is the sentence I am**
18 **referring to.**
19 Q. So you cite to the patent owner
20 response at 10 in particular Exhibit 2069.
21 Do you see that?
22 **A. That is correct. I do.**
23 Q. What in Exhibit 2069 supports
24 that -- your assertion there about what the
25 patent owner allegedly admitted?

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1 **Neikirk**
2 **If the claim limitations of the**
3 **'052 patent are contained in the prior**
4 **art and the combination is obvious to**
5 **one of ordinary skill in the art then**
6 **the patent claim is invalid. That is**
7 **the inquiry I am conducting.**
8 I have to determine whether one
9 of ordinary skill in the art would be
10 motivated to combine certain
11 references and I have done so. I
12 pointed you to that section of my
13 declarations.
14 But I am not looking for other
15 combinations that might render
16 something else obvious. It might very
17 well be that there are many
18 combinations that render many things
19 obvious.
20 I am only looking to determine
21 whether the claimed limitation of the
22 '052 patent are obvious, not somebody
23 else's patent.
24 BY MR. CAPLAN:
25 Q. Dr. Neikirk, you testified earlier

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1 **Neikirk**
2 **A. Well, so I would like to start**
3 **with the patent owner response. And that**
4 **is -- let me see if I can find it. '512.**
5 Q. If you are going to start with the
6 patent owner response, let me ask you a few
7 questions about that. If you -- we can go
8 there.
9 **A. I am trying -- yes. I have -- I**
10 **want to make sure I have the right document.**
11 I have patent owner's response for
12 the 512 IPR and on page 10 there is a header
13 labeled "2" which says "CMOS Imagers:
14 On-chip Integration."
15 And one of the references there is
16 to reference 2050 which is the Ackland
17 article, I believe, where he identifies that
18 there is an ability to integrate.
19 Q. In fact let me ask you a question
20 about that. That is the Ackland article we
21 have been talking about, Exhibit 2050 where
22 Dr. Ackland is describing his work on camera
23 on a chip technology, isn't that what
24 Exhibit 2050 is about?
25 MS. REDDING: Objection. Form.

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1 Neikirk
2 **THE WITNESS: I don't think that**
3 **is an accurate summary of all what**
4 **that article was about.**
5 **This is 2050, correct?**
6 BY MR. CAPLAN:
7 Q. Right. We went over this but that
8 is the title of the article, "Camera On A
9 Chip," right?
10 MS. REDDING: Objection. Form.
11 **THE WITNESS: You characterized**
12 **it as only his work.**
13 **I don't think this article is**
14 **only about his work.**
15 **He has a whole section on CCDs,**
16 **for instance. His "references"**
17 **section refers to numerous other**
18 **authors so I don't think this was an**
19 **article summarizing only Dr. Ackland's**
20 **work.**
21 BY MR. CAPLAN:
22 Q. But you would agree that the '052
23 patent itself describes the work that
24 Dr. Fossum, in particular his camera on chip
25 technology, you would agree with that?

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1 Neikirk
2 improved upon in particular the work by
3 Dr. Fossum.
4 MS. REDDING: Objection. Form.
5 **THE WITNESS: It does -- well,**
6 **so in Column 3 what it says at line**
7 **31, "It is one general object of this**
8 **invention to provide a wireless**
9 **endoscope incorporating reducer**
10 **imaging devices which take advantage**
11 **of camera on a chip technology."**
12 **It would seem to suggest it is**
13 **using camera on a chip technology "but**
14 **rearrange the circuitry in stack**
15 **relationship so that there is a**
16 **minimum profile presented when used**
17 **within a surgical instrument or other**
18 **investigative device."**
19 **There it seems -- it does refer**
20 **to camera on a chip technology being**
21 **used in the '052.**
22 **It further talks about arranging**
23 **circuitry in various ways.**
24 **Its reference to Dr. Fossum's**
25 **work is I believe contained in one**

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1 Neikirk
2 MS. REDDING: Objection. Form.
3 **THE WITNESS: I don't know that**
4 **I would characterize it precisely that**
5 **way.**
6 **Let me look at the '052 patent**
7 **and in the background section.**
8 **It says -- up there at the top,**
9 **lines 2 through 4, "That active pixel**
10 **type imagers is one advantage of**
11 **active type imager -- pixel type**
12 **imagers is that the amplifier**
13 **placement results in lower noise**
14 **levels than CCDs or other solid state**
15 **imagers."**
16 **I think that is a generic**
17 **statement they are making about active**
18 **pixel type imagers, not about anything**
19 **else, circuitry located on the same**
20 **chip. It does -- it does -- you asked**
21 **me what the '052 patent talked about.**
22 BY MR. CAPLAN:
23 Q. I asked you if the '052 patent
24 talks about CMOS camera on a chip technology
25 being the technology that the patent

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1 Neikirk
2 **sentence, maybe more than one place**
3 **but it says "In short," this is in**
4 **column 2 at line, I believe that is**
5 **line 18, "In short the CMOS imager**
6 **disclosed in Fossum, et al., has**
7 **enabled development of a camera on a**
8 **chip." It certainly says that.**
9 BY MR. CAPLAN:
10 Q. Okay. Going back to your
11 paragraph 11 where you are taking issue with
12 something the patent owners conceded what is
13 your -- what is it in your view the patent
14 owner conceded that you are talking about in
15 paragraph 11?
16 MS. REDDING: Objection. Form.
17 **THE WITNESS: So let's look at**
18 **Ohta now. I am still looking at the**
19 **patent owner's response.**
20 **Let's go to Ohta, Exhibit 2069**
21 **which is a book with 267 pages.**
22 BY MR. CAPLAN:
23 Q. This is a book from 2007, correct?
24 A. That's correct. I believe it is
25 correct.

<p style="text-align: right;">Page 70</p> <p>1 Neikirk</p> <p>2 Q. On page 9 of it the copyright says</p> <p>3 2008.</p> <p>4 A. I am on the page. I am just --</p> <p>5 there it is. I finally see it. 2008.</p> <p>6 Q. Okay.</p> <p>7 A. I don't see a specific cite within</p> <p>8 this yet. I have reviewed it.</p> <p>9 I am just looking at the POR to</p> <p>10 see if I have a specific page cite in Ohta.</p> <p>11 I think the page -- this is Exhibit 2069,</p> <p>12 yes.</p> <p>13 On page 10 of the POR it refers to</p> <p>14 the Exhibit 2069 at 20. I think that is</p> <p>15 page 20, not page number 20.</p> <p>16 Let me -- I will go back to Bates</p> <p>17 page 20. I am assuming this actually refers</p> <p>18 to Bates page 20, not page 20.</p> <p>19 Q. I believe so. It is the Bates</p> <p>20 page, yes.</p> <p>21 A. Which is the first section in the</p> <p>22 introductory chapter and that page talks a</p> <p>23 little about CCDs versus CMOS.</p> <p>24 It talks about what they call</p> <p>25 smart CMOS image sensors. I don't think</p>	<p style="text-align: right;">Page 71</p> <p>1 Neikirk</p> <p>2 this uses the phrase "camera on a chip."</p> <p>3 It talks about "Smart CMOS image</p> <p>4 sensors that are CMOS image sensors with</p> <p>5 integrated smart functions on the chip may</p> <p>6 meet requirements of some applications."</p> <p>7 There it is. Okay.</p> <p>8 So in its discussion in the first</p> <p>9 paragraph it talks about, "Recently further</p> <p>10 applications of CMOS image sensors in</p> <p>11 biotechnology have emerged. Many of these</p> <p>12 applications require advanced performance</p> <p>13 such as wide dynamic range, high speed, high</p> <p>14 sensitivity while others need dedicated</p> <p>15 functions such as real time target tracking</p> <p>16 and three dimensional range finding. It is</p> <p>17 difficult to perform such tasks with</p> <p>18 conventional image sensors."</p> <p>19 So I believe what it is saying is</p> <p>20 at this time, this is 2007, ten years after</p> <p>21 the invention date, the conventional still</p> <p>22 didn't have all of those functions</p> <p>23 integrated to a chip.</p> <p>24 Q. Is that sentence that you just</p> <p>25 identified in the record, that is the basis</p>
<p style="text-align: right;">Page 72</p> <p>1 Neikirk</p> <p>2 for your position in paragraph 11 of the</p> <p>3 second declaration that "The patent owner</p> <p>4 has conceded something," that sentence?</p> <p>5 MS. REDDING: Objection. Form.</p> <p>6 THE WITNESS: Reference the POR,</p> <p>7 the sentence talks -- so the bottom of</p> <p>8 page 10 of the POR it says, "This</p> <p>9 allow a higher performance of CCDs and</p> <p>10 conventional CMOS sensors and</p> <p>11 versatile functions that cannot be</p> <p>12 achieved with conventional sensors."</p> <p>13 That is what is in the POR. It is</p> <p>14 referring back to Ackland, his</p> <p>15 article, talking about the, "Arguably,</p> <p>16 the most important advantage of the</p> <p>17 CMOS APS approach is the ability to</p> <p>18 integrate much of the camera timing</p> <p>19 control and signal processing</p> <p>20 circuitry onto the same silicon die."</p> <p>21 So in the POR Ackland quoted</p> <p>22 that from the article.</p> <p>23 Immediately after that quotation</p> <p>24 the patent owner wrote, "This allow</p> <p>25 both high performance than that of</p>	<p style="text-align: right;">Page 73</p> <p>1 Neikirk</p> <p>2 CCDs and conventional CMOS sensors,"</p> <p>3 so they compared Ackland's advantage</p> <p>4 being the ability of much of the</p> <p>5 camera timing, control and signal</p> <p>6 processing on the same silicon die,</p> <p>7 that is the quotation the patent</p> <p>8 owners selected from Ackland and</p> <p>9 saying this allows both a higher</p> <p>10 performance than that of CCDs and</p> <p>11 conventional CMOS image sensors.</p> <p>12 So the patent owner chose the</p> <p>13 word "convention at CMOS image</p> <p>14 sensors" and was stating that -- let</p> <p>15 me complete the sentence "and vertical</p> <p>16 functions that cannot be achieved with</p> <p>17 conventional image sensors."</p> <p>18 I read that and it seems to me</p> <p>19 it is a clear statement that they are</p> <p>20 saying conventional CMOS image sensors</p> <p>21 did not have the ability to integrate</p> <p>22 much of the camera timing control and</p> <p>23 signal processing circuitry on the</p> <p>24 same silicon die which is what the</p> <p>25 patent owner chose to cite to from</p>

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1 **Neikirk**
2 **Ackland.**
3 **That is the basis of my**
4 **statement on page 5 of my second**
5 **declaration. That the patent owner**
6 **conceded CMOS image sensors didn't**
7 **have those things on the same die.**
8 **That is what it says on page 10.**
9 BY MR. CAPLAN:
10 Q. What is your understanding of the
11 conventional CMOS imager which you quote in
12 your paragraph 11. It says "Conventional
13 CMOS image sensors." What is your
14 understanding of that term?
15 MS. REDDING: Objection. Form.
16 **THE WITNESS: This is a term the**
17 **patent owner selected to use in their**
18 **petition. It wasn't my term and here**
19 **they would certainly be indicating**
20 **what conventional CMOS image sensors**
21 **don't do which is have the ability to**
22 **integrate much of the timing control**
23 **and signal processing circuitry onto**
24 **the same silicon die.**
25 **One piece of art that teaches**

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1 **Neikirk**
2 **example where he states high speed, 10**
3 **megahertz, I think that is Ricquier,**
4 **along with my frame rates. Yes. That**
5 **is Ricquier as an example.**
6 **But Ricquier achieves that with**
7 **timing and control circuitry not on**
8 **chip. It does say, "While others need**
9 **dedicated functions such as real time**
10 **target tracking and three dimensional**
11 **range finding." I don't recall that**
12 **we discussed real time target tracking**
13 **and three dimensional range finding,**
14 **no.**
15 BY MR. CAPLAN:
16 Q. That was my question. We never
17 talked about that, have we?
18 MS. REDDING: Objection.
19 **THE WITNESS: I just wanted to**
20 **make it clear that the sentence**
21 **identified advanced performance**
22 **features prior to that including high**
23 **speed and that just happened to be one**
24 **of the things that Ricquier**
25 **accomplishes but Ricquier placed its**

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1 **Neikirk**
2 **placing timing and control not on the**
3 **same chip is Ricquier. By the patent**
4 **owner's words I would assume they**
5 **would include Ricquier in the**
6 **conventional image sensor description.**
7 BY MR. CAPLAN:
8 Q. In this Exhibit 2069, yes, in the
9 paragraph that you were just reading from it
10 talks about a number of features I guess
11 from the 2008 era but you see right in that
12 same area it talked about real time target
13 tracking in three dimensional range finding.
14 Do you see that?
15 **A. It does.**
16 Q. Those aren't features or
17 capabilities that we ever discussed in this
18 case, are they?
19 MS. REDDING: Objection. Form.
20 **THE WITNESS: Well, it says,**
21 **"Many of these applications require**
22 **advance performance such as wide**
23 **dynamic range, high speed and high**
24 **sensitivity."**
25 **Well, I think Ricquier is an**

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1 **Neikirk**
2 **timing and control circuitry off chip**
3 **so there is an example of achieving**
4 **one of these things without even**
5 **needing to put it on chip.**
6 BY MR. CAPLAN:
7 Q. You mentioned Ricquier a few
8 times. In the Ricquier reference it is the
9 control signal, the timing signal that is
10 off chip, isn't it, than just the control
11 signal?
12 MS. REDDING: Objection. Form.
13 **THE WITNESS: So that was my**
14 **original -- so for instance I**
15 **discuss -- one place I discussed it**
16 **was starting on page -- Bates page 108**
17 **of my Exhibit 1004, my original**
18 **report.**
19 **And in paragraph 163 I pointed**
20 **out that Ricquier uses the timing**
21 **controller implemented on an off chip**
22 **driver unit. That is a quotation from**
23 **my recollection. We can see that in**
24 **Ricquier itself.**
25 **I think one of the easiest**

<p style="text-align: right;">Page 78</p> <p>1 Neikirk</p> <p>2 places to see that is on page -- it is</p> <p>3 page 4 of the SPIE publication which</p> <p>4 is page Bates 10 of Exhibit 1038 which</p> <p>5 is Ricquier. Sorry.</p> <p>6 And towards the end of the</p> <p>7 second full paragraph on the page the</p> <p>8 last sentence of the paragraph, "In</p> <p>9 order to limit the complexity of the</p> <p>10 timing control realized in an off chip</p> <p>11 driving unit only timing</p> <p>12 configurations of some very common</p> <p>13 patterns are provided." And then it</p> <p>14 gives those patterns.</p> <p>15 It says right there the timing</p> <p>16 controller is realized in an off chip</p> <p>17 driving unit.</p> <p>18 MR. CAPLAN: It is 1:00 in the</p> <p>19 east coast. Is this a convenient time</p> <p>20 to take break for lunch. Is that all</p> <p>21 right?</p> <p>22 THE WITNESS: That is fine.</p> <p>23 MR. CAPLAN: 45 minutes.</p> <p>24 THE WITNESS: Let's make it an</p> <p>25 even hour if you don't mind.</p>	<p style="text-align: right;">Page 79</p> <p>1 Neikirk</p> <p>2 MR. CAPLAN: Great.</p> <p>3 (Luncheon recess: 1:01 p.m.)</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 80</p> <p>1 Neikirk</p> <p>2 AFTERNOON SESSION</p> <p>3 2:00 p.m.</p> <p>4 BY MR. CAPLAN:</p> <p>5 Q. Dr. Neikirk, I want to pick up</p> <p>6 with where we were. We were talking about</p> <p>7 the Ricquier reference before we broke.</p> <p>8 I believe you were looking at that</p> <p>9 before but it is Exhibit 1038.</p> <p>10 You would agree that the Ricquier</p> <p>11 reference is describing an application that</p> <p>12 was developed for industrial machine vision</p> <p>13 use, is that right?</p> <p>14 MS. REDDING: Objection. Form.</p> <p>15 THE WITNESS: So Ricquier says</p> <p>16 in their abstract that they were for a</p> <p>17 time critical industrial machine</p> <p>18 vision applications a dedicated imager</p> <p>19 has been developed so they certainly</p> <p>20 mention industrial applications there.</p> <p>21 There is a discussion</p> <p>22 "Introduction of Present Machine</p> <p>23 Vision," and they do make some more</p> <p>24 broader based statements.</p> <p>25 The first sentence in the third</p>	<p style="text-align: right;">Page 81</p> <p>1 Neikirk</p> <p>2 paragraph of introduction is, "The</p> <p>3 sensor described here makes it</p> <p>4 possible to acquire information of the</p> <p>5 scene in a flexible way and at a</p> <p>6 relatively high speed."</p> <p>7 I don't see that that sentence</p> <p>8 is necessarily restricted to only</p> <p>9 machine vision systems.</p> <p>10 And skipping to the "Conclusion"</p> <p>11 again they do mention that they</p> <p>12 have -- a dedicated image sensor for</p> <p>13 time critical industrial applications</p> <p>14 was presented. They do say that.</p> <p>15 They mention "frame rights" in</p> <p>16 the "Conclusion". Ranges from 125</p> <p>17 full frames per second to 540 full</p> <p>18 frames per second in the lowest</p> <p>19 transclusion mode.</p> <p>20 I don't see that that sentence</p> <p>21 is necessarily limited to industrial</p> <p>22 applications.</p> <p>23 But broadly they have said that</p> <p>24 that is an area of great interest to</p> <p>25 them.</p>

<p style="text-align: right;">Page 82</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. You would at least agree that the</p> <p>4 first sentence of the abstract says, "For</p> <p>5 time critical industrial machine vision</p> <p>6 applications a dedicated imager has been</p> <p>7 developed, right?</p> <p>8 A. And, yes, that is an accurate</p> <p>9 quotation of the first sentence in the</p> <p>10 abstract.</p> <p>11 Q. And the Ricquier reference uses</p> <p>12 passive pixels as opposed to active pixels,</p> <p>13 correct?</p> <p>14 A. The Ricquier reference, I am not</p> <p>15 sure whether they use the phrase "passive</p> <p>16 pixels" but their pixel does not have an</p> <p>17 amplifier in the pixel.</p> <p>18 Q. Passive pixels are smaller than</p> <p>19 active pixels because they lack an</p> <p>20 amplifier, is that right?</p> <p>21 MS. REDDING: Object. Form.</p> <p>22 THE WITNESS: Not necessarily.</p> <p>23 BY MR. CAPLAN:</p> <p>24 Q. How are active pixels and passive</p> <p>25 pixels different?</p>	<p style="text-align: right;">Page 83</p> <p>1 Neikirk</p> <p>2 MS. REDDING: Objection to form.</p> <p>3 THE WITNESS: The most</p> <p>4 conventional difference usually</p> <p>5 associated with the two is that an</p> <p>6 active pixel has an amplifier in each</p> <p>7 and every pixel and a passive pixel</p> <p>8 does not.</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. I assume the amplifier picks up</p> <p>11 some space, doesn't it?</p> <p>12 MS. REDDING: Objection. Form.</p> <p>13 THE WITNESS: It takes up some</p> <p>14 place. The passive pixels have at</p> <p>15 least one transistor.</p> <p>16 The amplifier typically is only</p> <p>17 a single transistor. It occupies some</p> <p>18 space but in terms of pixel size that</p> <p>19 is a design decision in terms of a lot</p> <p>20 of different things about photo diode</p> <p>21 area and other layout issues.</p> <p>22 BY MR. CAPLAN:</p> <p>23 Q. So let me ask you about these</p> <p>24 references but we will talk a little bit</p> <p>25 about claim 2 of the '052 patent so if you</p>
<p style="text-align: right;">Page 84</p> <p>1 Neikirk</p> <p>2 have that.</p> <p>3 A. I have my copy of the '052 patent</p> <p>4 handy.</p> <p>5 Q. In claim 2 what I really want to</p> <p>6 focus is the preamble of -- is the preamble.</p> <p>7 It says "An image device comprising," and</p> <p>8 the first element is "housing," the second</p> <p>9 element starts "An image sensor mounted in."</p> <p>10 Do you see that?</p> <p>11 A. I do.</p> <p>12 Q. Now, it is your opinion that this</p> <p>13 element in claim 2 starting, "The image</p> <p>14 sensor," which kind of -- which ends with</p> <p>15 the "prevideo signal" language over on the</p> <p>16 next column?</p> <p>17 A. Yes, I see that.</p> <p>18 Q. Right.</p> <p>19 It is your opinion that someone</p> <p>20 reading the '052 patent would find this</p> <p>21 element of claim 2 in the combination of</p> <p>22 Swift and Ricquier; is that correct?</p> <p>23 A. So, in reading this element</p> <p>24 exactly as it is written as a claim, so I</p> <p>25 have addressed claim 2, the grounds in my</p>	<p style="text-align: right;">Page 85</p> <p>1 Neikirk</p> <p>2 original report, Swift in view of Ricquier</p> <p>3 and Suzuki but let me go to that section.</p> <p>4 It is page 141. I am just looking at all</p> <p>5 the various pieces of that quotation which</p> <p>6 are addressed in my declaration.</p> <p>7 One of the requirements is,</p> <p>8 includes an amplifier but Swift already</p> <p>9 discloses CMOS APS sensor time which has an</p> <p>10 amplifier.</p> <p>11 So, yes, as I have discussed in my</p> <p>12 declaration I think that would be pages --</p> <p>13 Bates pages 159 through -- so it is Bates</p> <p>14 pages 159 through 169 of Exhibit 1004 and in</p> <p>15 that section I have discussed the</p> <p>16 combination of Swift and Ricquier.</p> <p>17 Q. But that combination of Swift and</p> <p>18 Ricquier do not explicitly show this</p> <p>19 element, the image sensor. It is just that</p> <p>20 someone would recognize that feature when</p> <p>21 reading that element of the claim; isn't</p> <p>22 that right, that is your testimony, correct?</p> <p>23 MS. REDDING: Objection. Form.</p> <p>24 THE WITNESS: No. I don't think</p> <p>25 that is my testimony as an initial</p>

<p style="text-align: right;">Page 86</p> <p>1 Neikirk</p> <p>2 matter.</p> <p>3 The image sensor described in</p> <p>4 the claim limitation is mounted and</p> <p>5 set out and I have identified how.</p> <p>6 The image sensor furthermore is</p> <p>7 described in the rest of that</p> <p>8 limitation in terms of what it</p> <p>9 includes. It includes the first</p> <p>10 silicon board.</p> <p>11 It includes an array of CMOS</p> <p>12 pixels thereon. It explains that each</p> <p>13 pixel of the CMOS array includes an</p> <p>14 amplifier.</p> <p>15 It states that the first circuit</p> <p>16 board including timing and control</p> <p>17 circuitry thereon. So -- and that the</p> <p>18 image sensor producing video signal.</p> <p>19 Each and every one of those</p> <p>20 elements of the image sensor I have</p> <p>21 discussed in my declaration, my</p> <p>22 original declaration, Exhibit 1004,</p> <p>23 and explained how each and every one</p> <p>24 of those elements is present in the</p> <p>25 combination in pages 158 through 169,</p>	<p style="text-align: right;">Page 87</p> <p>1 Neikirk</p> <p>2 I think is the right pages. Yes.</p> <p>3 So one of ordinary skill in the</p> <p>4 art would recognize that all of the</p> <p>5 elements are present.</p> <p>6 BY MR. CAPLAN:</p> <p>7 Q. But it has been your testimony</p> <p>8 that that element is present in Swift and</p> <p>9 Ricquier even though neither reference</p> <p>10 explicitly shows this element in total, it</p> <p>11 is based on recognizing it from the patent</p> <p>12 claim you were able to identify all the</p> <p>13 elements of Swift and Ricquier; isn't that</p> <p>14 right?</p> <p>15 MS. REDDING: Objection. Form.</p> <p>16 THE WITNESS: As I just</p> <p>17 testified every element of the</p> <p>18 required image sensor is present.</p> <p>19 Whether the references describe</p> <p>20 in their language, whether they use</p> <p>21 the word "image sensor" -- let's look</p> <p>22 at the two, Ricquier describes his</p> <p>23 device as an imager. It contains the</p> <p>24 word "image."</p> <p>25 And he describes -- let's see if</p>
<p style="text-align: right;">Page 88</p> <p>1 Neikirk</p> <p>2 he uses the word "sensor." I don't</p> <p>3 know whether he uses the word</p> <p>4 "sensor." He talks about the -- yes,</p> <p>5 he does. Figure 1. He talks about a</p> <p>6 sensor, he talks about an imager.</p> <p>7 Swift -- excuse me.</p> <p>8 BY MR. CAPLAN:</p> <p>9 Q. I am not sure if you are done with</p> <p>10 your answer. I don't want to interrupt you</p> <p>11 but I am not sure if you are done with your</p> <p>12 answer.</p> <p>13 A. No. I am not. I am sorry. I was</p> <p>14 trying to find Swift.</p> <p>15 I just explained explicitly what</p> <p>16 words Ricquier happened to use.</p> <p>17 Swift uses the phrase "miniature</p> <p>18 camera." But regardless of those words</p> <p>19 every element that the '052 patent requires</p> <p>20 as being included in the image sensor is</p> <p>21 present.</p> <p>22 Q. You just -- it has been your</p> <p>23 testimony that Ricquier is passive pixel</p> <p>24 device, correct?</p> <p>25 MS. REDDING: Objection.</p>	<p style="text-align: right;">Page 89</p> <p>1 Neikirk</p> <p>2 THE WITNESS: That is correct.</p> <p>3 Yes, I said that it does include an</p> <p>4 amplifier. That usually is referred</p> <p>5 to as a passive pixel.</p> <p>6 BY MR. CAPLAN:</p> <p>7 Q. It is your testimony that Swift</p> <p>8 doesn't provide details of a pixel array and</p> <p>9 how the image sensor is controlled with</p> <p>10 regard to timing; isn't that right?</p> <p>11 MS. REDDING: Objection. Form.</p> <p>12 THE WITNESS: That is an</p> <p>13 incomplete summary of my testimony.</p> <p>14 I have testified and I stated in</p> <p>15 my declarations that Swift expressly</p> <p>16 states to use an APS. Let's use</p> <p>17 Swift's phrasing.</p> <p>18 On page 10 of Swift the express</p> <p>19 statement is "The image sensor 51 is</p> <p>20 preferably of a CMOS APS active pixel</p> <p>21 sensor."</p> <p>22 BY MR. CAPLAN:</p> <p>23 Q. Okay. But your declaration --</p> <p>24 your most recent declaration in paragraph</p> <p>25 13, I think in a couple of places -- well,</p>

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1 Neikirk
2 let me go to paragraph 11 of your most
3 recent declaration, you said that, "Swift
4 does not expressly disclose its pixel
5 arrangement nor how timing of its image
6 sensor 51 is controlled." Correct?
7 **A. That is an accurate quotation but**
8 **you ignored the first sentence which says,**
9 **"Swift broadly teaches that image sensor 51**
10 **is preferably a CMOS active pixel sensor."**
11 Q. Okay. But claim 2 -- the image
12 sensor element of claim 2 we are talking
13 about actually has a number of features. It
14 is -- it talks about the image sensors and
15 it also talks about timing and control
16 circuitry, correct?
17 **A. It does.**
18 Q. So Swift does not provide, by your
19 own testimony Swift does not provide that
20 information, does it?
21 MS. REDDING: Objection. Form.
22 **THE WITNESS: As I have stated**
23 **in my declaration Swift does not**
24 **expressly disclose its pixel**
25 **arrangement nor how the timing is**

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1 Neikirk
2 **teaching. The question is are**
3 **individual teachings things that one**
4 **of ordinary skill in the art would**
5 **have been motivated to make use of and**
6 **I have discussed that in my**
7 **declaration.**
8 BY MR. CAPLAN:
9 Q. Your testimony is that neither
10 Swift nor Ricquier explicitly shows this
11 image sensor element of claim 2, it is that
12 when -- you would recognize it when you look
13 at the claim element itself you find it in
14 those references; isn't that right?
15 MS. REDDING: Objection. Form.
16 **THE WITNESS: I have testified**
17 **quite clearly I believe is that each**
18 **and every element that is required to**
19 **be part of the image sensor is present**
20 **in Swift in view of Ricquier. The**
21 **teachings -- the clear teachings of**
22 **those two references.**
23 **So those two references teach**
24 **everything required by this element of**
25 **the claim.**

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1 Neikirk
2 **controlled but leaves it to one of**
3 **ordinary skill.**
4 BY MR. CAPLAN:
5 Q. It is your testimony that Ricquier
6 doesn't teach an active pixel -- an active
7 pixel CMOS sensor, does it?
8 MS. REDDING: Objection. Form.
9 **THE WITNESS: Ricquier teaches a**
10 **variety of things including where the**
11 **timing controller is located.**
12 **Ricquier makes use of a passive**
13 **pixel but Swift has already identified**
14 **using an active pixel. The**
15 **teachings -- Ricquier has a number of**
16 **teachings.**
17 **And there is, I have never**
18 **suggested that one bodily is trying to**
19 **insert the entirety of Ricquier into**
20 **Swift. That is not how it works.**
21 **Swift has teachings, Ricquier**
22 **has teachings, I have discussed the**
23 **motivation to combine those teachings,**
24 **not all of them necessarily. You are**
25 **not required to combine every single**

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1 Neikirk
2 BY MR. CAPLAN:
3 Q. But those two according to your
4 testimony those two references show
5 everything that is required by this element
6 of the claim because a person skilled in the
7 art would recognize it when reading the
8 patent claim itself, not because the
9 references themselves explicitly describe
10 the particular combination in claim 2?
11 MS. REDDING: Objection. Form.
12 Asked and answered.
13 **THE WITNESS: I believe that is**
14 **an inaccurate characterization of my**
15 **testimony.**
16 **I have presented clear**
17 **discussions of the motivation to**
18 **combine the references. The teachings**
19 **are clear and one of ordinary skill**
20 **takes those teachings and they will**
21 **have something that has every element**
22 **of this claim.**
23 **The circuitry related to timing**
24 **and control and its location, the**
25 **amplifier used for CMOS pixels and**

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1 **Neikirk**
2 **every other element in that claim**
3 **limitation.**
4 **It is not an issue of using the**
5 **patent as a road map. These are all**
6 **present and I have discussed why one**
7 **of ordinary skill in the art would**
8 **combine them in that manner.**
9 BY MR. CAPLAN:
10 Q. I will ask you the same question
11 with regard to the next element in claim 2
12 and that is the one -- it starts, "A second
13 circuit board," and kind of ends with that
14 phrase, "said first circuit board" in that
15 paragraph.
16 Do you see that element?
17 **A. I do.**
18 Q. So is it your testimony that
19 someone reading this element, the second
20 circuit board element of the '052 patent,
21 claim 2, would find each element -- each
22 aspect of that element in Swift and
23 Ricquier?
24 MS. REDDING: Objection. Form.
25 **THE WITNESS: I have discussed**

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1 **Neikirk**
2 **of -- is taught and I also provided**
3 **not necessarily that section but for**
4 **instance in Section AD3 a discussion**
5 **of why a person of ordinary skill in**
6 **the art would have been motivated to**
7 **apply Suzuki's known teachings to**
8 **Swift's teaching.**
9 And, to be clear, Swift is
10 modified by Ricquier to satisfy the
11 first element in terms of the location
12 of timing control.
13 But this second element in
14 isolation says nothing about where
15 that timing and control information
16 is.
17 But I have clearly explained why
18 one of ordinary skill in the art would
19 have been motivated to combine these
20 three references in the manner in
21 which I have shown.
22 BY MR. CAPLAN:
23 Q. But neither Swift nor Suzuki
24 explicitly show this second circuit board
25 element. It is just that someone reading

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1 **Neikirk**
2 **that element in my declaration,**
3 **Exhibit 1004 and I believe it is**
4 **starts on page 169 -- Bates page 169,**
5 **paragraph 268. That discussion**
6 **extends through to Bates page 176 of**
7 **Exhibit 1004 and for that element, for**
8 **that long limitation and all its**
9 **requirements no, I did not opine in my**
10 **declaration that this is Swift in view**
11 **of Ricquier. I instead -- I discussed**
12 **it Swift in view of Suzuki.**
13 BY MR. CAPLAN:
14 Q. Well, I will rephrase the
15 question.
16 So is it your opinion that someone
17 reading this second element or this second
18 circuit board element of claim 2 of the '052
19 patent would find each aspect of this second
20 circuit board element in the combination of
21 Swift and Suzuki?
22 MS. REDDING: Objection. Form.
23 **THE WITNESS: In my declaration**
24 **I clearly laid out wherein that**
25 **combination each and every element**

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1 **Neikirk**
2 this second element would recognize it when
3 reading the patent claim could find it in
4 Swift and Suzuki, is that right?
5 MS. REDDING: Objection. Form.
6 **THE WITNESS: No. I wouldn't**
7 **agree with that phrasing at all.**
8 As an initial matter Swift in
9 Figure 2 shows two circuit boards.
10 Circuit board 52 and circuit board 53.
11 It is an explicit disclosure.
12 It is not a question of one of
13 ordinary skill in the art wondering if
14 there is a second circuit board.
15 There is. It is shown right there.
16 In Suzuki, Figure 2, there is
17 also a sequence of circuit boards. It
18 is again not a question of one of
19 ordinary skill in the art wondering if
20 there is a first and a second circuit
21 board, circuit boards are present,
22 they are. They are shown in the
23 figures and discussed in the text.
24 There are clear disclosures in
25 the two references. Clear teachings.

<p>Page 98</p> <p>1 Neikirk</p> <p>2 That's right, it is a teaching here.</p> <p>3 BY MR. CAPLAN:</p> <p>4 Q. But the Swift reference does not</p> <p>5 explicitly show a predisposed video</p> <p>6 conversion circuit, does it?</p> <p>7 MS. REDDING: Objection. Form.</p> <p>8 THE WITNESS: So the Swift</p> <p>9 reference and I discuss this for</p> <p>10 instance in paragraph 269 of my</p> <p>11 original declaration, Exhibit 1004, I</p> <p>12 believe I have also addressed it again</p> <p>13 in my second declaration. Let me flip</p> <p>14 through that.</p> <p>15 So in my second declaration in</p> <p>16 paragraph 21 I point out that Swift</p> <p>17 discloses organizing a CMOS imaging</p> <p>18 device for the image sensor including</p> <p>19 the first circuit board is located on</p> <p>20 the first plane and the circuitry for</p> <p>21 converting the prevideo signal to the</p> <p>22 post-video signal is located on a</p> <p>23 second circuit board defining a second</p> <p>24 plane.</p> <p>25 Then I have given you some</p>	<p>Page 99</p> <p>1 Neikirk</p> <p>2 specific citations to Swift.</p> <p>3 In my original declaration and I</p> <p>4 will look at paragraph 269, Bates page</p> <p>5 171, I discuss the same. Swift's</p> <p>6 wording continuing on, Swift, and this</p> <p>7 is quoting from my original</p> <p>8 declaration.</p> <p>9 Down at the bottom of page 171,</p> <p>10 Swift explains that -- on circuit</p> <p>11 board 53 are various circuitry</p> <p>12 components right out and these are all</p> <p>13 quotations, "provide power to, process</p> <p>14 image signals received from the image</p> <p>15 sensor."</p> <p>16 So Swift is clearly disclosing</p> <p>17 the processing of signals directly</p> <p>18 from the image sensor, prevideo, and</p> <p>19 explains that circuit board 53 which</p> <p>20 has the video processor distributes</p> <p>21 those signals to a TV monitor. In</p> <p>22 other words, converts them to video.</p> <p>23 All of that is explicitly</p> <p>24 discussed in Swift.</p> <p>25</p>
<p>Page 100</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. Swift does not use the term</p> <p>4 "prevideo signal" or "unconverted signal"</p> <p>5 that is processed by the video processing</p> <p>6 board, does it?</p> <p>7 MS. REDDING: Objection. Form.</p> <p>8 THE WITNESS: I believe Swift</p> <p>9 uses the word "image signals received</p> <p>10 from the image sensor."</p> <p>11 I don't believe they use the</p> <p>12 phrase "prevideo" but it clear --</p> <p>13 Swift clearly discloses signals</p> <p>14 converted from light to electrical</p> <p>15 signals by the image sensor and</p> <p>16 converting that using the video</p> <p>17 processor to a signal capable of being</p> <p>18 displayed directly on a video TV or</p> <p>19 video monitor, in other words</p> <p>20 converting it to video -- converting</p> <p>21 it from prevideo to post-video.</p> <p>22 BY MR. CAPLAN:</p> <p>23 Q. A signal can be converted from</p> <p>24 prevideo to post-video and a post-video</p> <p>25 signal can be further processed, can't it?</p>	<p>Page 101</p> <p>1 Neikirk</p> <p>2 MS. REDDING: Objection. Form.</p> <p>3 THE WITNESS: Again, I am</p> <p>4 applying the plain and ordinary</p> <p>5 meaning to the claim language and I</p> <p>6 believe one of ordinary skill in the</p> <p>7 art reading the claim and seeing the</p> <p>8 prevideo signal and post-video signal</p> <p>9 described would recognize that that is</p> <p>10 exactly what Swift is showing because</p> <p>11 Swift discloses that they take a</p> <p>12 signal from the image sensor, received</p> <p>13 from, and using the video processor</p> <p>14 produces signal capable of being</p> <p>15 displayed on a TV monitor.</p> <p>16 BY MR. CAPLAN:</p> <p>17 Q. But you said you would recognize</p> <p>18 that. You recognize that because in claim 2</p> <p>19 of the '052 it actually says that language,</p> <p>20 it uses that prevideo to post video?</p> <p>21 MS. REDDING: Objection.</p> <p>22 THE WITNESS: Yes, it does use</p> <p>23 those phrases. This is not a road</p> <p>24 mapping exercise. That is claim</p> <p>25 language. I applied plain and</p>

<p style="text-align: right;">Page 102</p> <p>1 Neikirk</p> <p>2 ordinary meaning to that, to one of</p> <p>3 ordinary skill in the art they would</p> <p>4 recognize what Swift does is precisely</p> <p>5 what this calls for under plain and</p> <p>6 ordinary meaning.</p> <p>7 BY MR. CAPLAN:</p> <p>8 Q. You previously testified related</p> <p>9 to this answer that even though for the</p> <p>10 second circuit board element of claim 2 that</p> <p>11 we are talking about that the use of the</p> <p>12 Suzuki reference is now the third reference</p> <p>13 in the combination because it was Swift with</p> <p>14 Ricquier and now with Suzuki. Correct?</p> <p>15 A. Yes. There are three references</p> <p>16 involved and I have discussed the motivation</p> <p>17 to combine all three.</p> <p>18 Q. Right. So it is your testimony</p> <p>19 that a person skilled in the art would look</p> <p>20 to Swift and modify that with Ricquier and</p> <p>21 would then further modify the combination of</p> <p>22 Swift and Ricquier with Suzuki; is that</p> <p>23 correct?</p> <p>24 MS. REDDING: Objection. Form.</p> <p>25 THE WITNESS: As I have</p>	<p style="text-align: right;">Page 103</p> <p>1 Neikirk</p> <p>2 discussed in my declarations</p> <p>3 ostensibly one of ordinary skill in</p> <p>4 the art would be motivated to look to</p> <p>5 these teachings and combine them in</p> <p>6 that way.</p> <p>7 One of ordinary skill in the art</p> <p>8 is assumed to be aware of all the --</p> <p>9 they would be aware of these three</p> <p>10 pieces of art and potentially many</p> <p>11 others.</p> <p>12 They should be aware of many</p> <p>13 others but I have explicitly discussed</p> <p>14 the motivation for using the teachings</p> <p>15 from these three references in this</p> <p>16 particular way to, for instance,</p> <p>17 accomplish the explicitly stated goals</p> <p>18 of Swift to make a miniature camera.</p> <p>19 That is just one of the things</p> <p>20 that I have discussed.</p> <p>21 And I pointed you to discussions</p> <p>22 of motivation to combine in my</p> <p>23 original declaration, Exhibit 1004,</p> <p>24 for instance, on page 151, 152, 153</p> <p>25 all the way through page 157. I have</p>
<p style="text-align: right;">Page 104</p> <p>1 Neikirk</p> <p>2 gone over a large number of</p> <p>3 motivations to combine.</p> <p>4 BY MR. CAPLAN:</p> <p>5 Q. You previously testified though</p> <p>6 that one of the reasons you articulated that</p> <p>7 is a motivation to combine Swift and</p> <p>8 Ricquier is that in your view Ricquier has</p> <p>9 some small dimension feature to it.</p> <p>10 Do you recall that?</p> <p>11 MS. REDDING: Objection to form.</p> <p>12 THE WITNESS: No. I don't</p> <p>13 recall that.</p> <p>14 BY MR. CAPLAN:</p> <p>15 Q. Take a look at your declaration.</p> <p>16 I don't want to misquote you.</p> <p>17 So in your second declaration I</p> <p>18 believe in paragraph 22 you are talking</p> <p>19 about Ricquier.</p> <p>20 A. I am.</p> <p>21 Q. You make a statement I believe it</p> <p>22 is the second sentence in paragraph 22,</p> <p>23 "Ricquier thus confirms the timing</p> <p>24 controller is a component that can be placed</p> <p>25 on various layers including stack-wise to</p>	<p style="text-align: right;">Page 105</p> <p>1 Neikirk</p> <p>2 allow for more compact camera head."</p> <p>3 Do you see that?</p> <p>4 A. Yes, I do.</p> <p>5 Q. So you use the Ricquier reference</p> <p>6 in combination with Swift in part to deal</p> <p>7 with the smaller size feature which you</p> <p>8 mentioned; is that correct?</p> <p>9 MS. REDDING: Objection. Form.</p> <p>10 THE WITNESS: You keep saying</p> <p>11 "smaller feature." I explicitly --</p> <p>12 Ricquier -- I am sorry -- Swift's --</p> <p>13 one of Swift's explicit goals is to</p> <p>14 make a miniature camera.</p> <p>15 I was simply pointing out that</p> <p>16 Ricquier is confirming to read the</p> <p>17 sentence, "The timing controller is a</p> <p>18 component that can be placed on</p> <p>19 various layers."</p> <p>20 So that is what Ricquier is</p> <p>21 showing is that the timing controllers</p> <p>22 is a component that can be placed on</p> <p>23 various layers.</p> <p>24 Then the rest of the sentence</p> <p>25 concludes, "including stack-wise to</p>

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1 **Neikirk**
2 **allow for a more compact camera head."**
3 **Claim 2 of the '052 patent**
4 **requires a stack arrangement which for**
5 **instance Suzuki clearly shows a stack**
6 **arrangement.**
7 **But you characterized my**
8 **testimony as Ricquier taught this**
9 **thing to make the camera head smaller.**
10 **That is not what this sentence says.**
11 **The -- that you can place the**
12 **timing controller on the various sites**
13 **that are external from the chip --**
14 **which would also allow you to assemble**
15 **boards not from Ricquier but from**
16 **Suzuki in a stack-wise fashion.**
17 BY MR. CAPLAN:
18 Q. So it is your testimony that
19 Ricquier fulfills part of the feature of the
20 desire for a miniature camera or smaller
21 size camera and it helps facilitate that.
22 That is your testimony, isn't it?
23 MS. REDDING: Objection. Form.
24 **THE WITNESS: Those are not the**
25 **words I use. Those are your words,**

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1 **Neikirk**
2 **Ricquier but it allows this, and**
3 **overall it helps further the goal of a**
4 **more compact camera head which is an**
5 **express desire of Swift.**
6 **I continue to point out -- let's**
7 **see. That one possibility is even to**
8 **place that timing control circuit on**
9 **the opposite side of Swift's boards**
10 **52. That would further the goal of**
11 **reducing camera's overall size and I**
12 **gave you an example of Tanuma which**
13 **does components on both sides of**
14 **boards. That is actually quite**
15 **commonly known.**
16 **All of those things are relevant**
17 **to Ricquier's teachings in combination**
18 **with Swift.**
19 BY MR. CAPLAN:
20 Q. You just testified that Ricquier
21 allows -- it furthers the goal of a more
22 compact camera head, correct?
23 MS. REDDING: Objection to form.
24 **THE WITNESS: I testified**
25 **that -- let's go back to that.**

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1 **Neikirk**
2 **not mine. So that is not my**
3 **testimony.**
4 **Go back to my original**
5 **declaration, and starting in paragraph**
6 **237 I have "Discussion of Motivation**
7 **to Combine Swift and Ricquier."**
8 **We have already discussed**
9 **paragraph 238, "Ricquier provides**
10 **additional details about CMOS pixels."**
11 **Paragraph 239 discusses that**
12 **they are in the same field of art.**
13 **And pertinent to the same problems as**
14 **the '052 patent.**
15 **I have discussed on page 152 of**
16 **my declaration that Ricquier's**
17 **teachings provide -- the teachings are**
18 **advantages of using a timing**
19 **controller that is located off chip**
20 **which offers flexibility in selecting**
21 **from several design choices or fitting**
22 **the components into the available**
23 **space, placing circuitry on various**
24 **layers, can be arranged stack-wise.**
25 **Stack-wise is not a term used by**

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1 **Neikirk**
2 **Ricquier's teaching of an option**
3 **timing and control circuitry,**
4 **implementing system and sensor by**
5 **locating the timing control simple --**
6 **circuitry on, for example, the**
7 **opposite side of Swift's board 52 to**
8 **the image sensor 51 in order to**
9 **minimize camera's overall size."**
10 **Ricquier is not teaching that.**
11 **That is putting components on**
12 **both sides of the board is well known**
13 **and the rest of that paragraph points**
14 **that out.**
15 **But by Ricquier's teaching that**
16 **you can place timing and control**
17 **circuitry external to the array allows**
18 **you then flexibility to put it**
19 **wherever you want including on the**
20 **boards and in the manner that is**
21 **discussed.**
22 BY MR. CAPLAN:
23 Q. So in your view Ricquier has been
24 off chip circuitry feature, right?
25 MS. REDDING: Objection. Form.

<p style="text-align: right;">Page 110</p> <p>1 Neikirk</p> <p>2 THE WITNESS: It is not in my</p> <p>3 view. Ricquier explicitly states on</p> <p>4 page 10 of Exhibit 1038 that the</p> <p>5 timing controller is realized in an</p> <p>6 off chip driver. Not an opinion.</p> <p>7 That is an expressed disclosure.</p> <p>8 BY MR. CAPLAN:</p> <p>9 Q. Would you agree that Suzuki also</p> <p>10 teaches off chip circuitry?</p> <p>11 MS. REDDING: Objection. Form.</p> <p>12 THE WITNESS: So Suzuki's</p> <p>13 teachings discuss circuitry beyond</p> <p>14 multiple boards and by placing</p> <p>15 circuitry on other boards. Obviously</p> <p>16 not all circuitry is on chip.</p> <p>17 BY MR. CAPLAN:</p> <p>18 Q. So you would agree, Suzuki also</p> <p>19 has off chip circuitry?</p> <p>20 MS. REDDING: Objection. Form.</p> <p>21 THE WITNESS: So this question</p> <p>22 is outside the bounds of the claim</p> <p>23 because the claim talks about specific</p> <p>24 circuitry.</p> <p>25 If you are asking me in general</p>	<p style="text-align: right;">Page 111</p> <p>1 Neikirk</p> <p>2 certainly Suzuki shows circuitry on</p> <p>3 boards and that circuitry is not on</p> <p>4 the chip.</p> <p>5 BY MR. CAPLAN:</p> <p>6 Q. So if you have already combined</p> <p>7 Swift with Ricquier because Ricquier helps</p> <p>8 address size issues and has some off chip</p> <p>9 circuitry why would you then further add</p> <p>10 Suzuki to that combination which just adds</p> <p>11 more of the same features?</p> <p>12 MS. REDDING: Objection. Form.</p> <p>13 THE WITNESS: As I discussed in</p> <p>14 the motivation to combine, it does</p> <p>15 produce additional information about</p> <p>16 arrangements that lead to a smaller</p> <p>17 camera head. Swift's express -- well,</p> <p>18 Swift's express goal is miniature</p> <p>19 camera.</p> <p>20 Suzuki's discusses a compact</p> <p>21 camera head to use Suzuki's words from</p> <p>22 the abstract.</p> <p>23 Again, I have discussed</p> <p>24 motivation -- the motivations to</p> <p>25 combine in my original declaration at,</p>
<p style="text-align: right;">Page 112</p> <p>1 Neikirk</p> <p>2 for instance, starting at paragraph</p> <p>3 241 through 246.</p> <p>4 They clearly -- those teach --</p> <p>5 teach clearly further the goal of</p> <p>6 making miniature camera head or a, to</p> <p>7 use Swift's term, miniature cameras or</p> <p>8 Suzuki's compact camera head.</p> <p>9 BY MR. CAPLAN:</p> <p>10 Q. Your testimony is that Swift in</p> <p>11 combination with Ricquier and Suzuki even</p> <p>12 though that combination does not explicitly</p> <p>13 show the second circuit board element of</p> <p>14 claim 2, a person would recognize the</p> <p>15 elements of the second circuit board feature</p> <p>16 of claim 2 of the '052 patent when you</p> <p>17 actually read the claim language, you would</p> <p>18 then find it in that combination of</p> <p>19 references, is that your testimony?</p> <p>20 MS. REDDING: Objection. Form.</p> <p>21 THE WITNESS: No. That is most</p> <p>22 assuredly not my testimony.</p> <p>23 I believe I have been clear</p> <p>24 repeatedly. Look at the '052 patent</p> <p>25 and you in your question referred</p>	<p style="text-align: right;">Page 113</p> <p>1 Neikirk</p> <p>2 specifically to the second circuit</p> <p>3 board. That analysis is in my</p> <p>4 original declaration, Exhibit 1004,</p> <p>5 starting on page 169, paragraph 268,</p> <p>6 and I have gone through the</p> <p>7 disclosures.</p> <p>8 Swift disclosed a second circuit</p> <p>9 board which is printed circuit board</p> <p>10 53 mounted in said housing.</p> <p>11 Second circuit board is</p> <p>12 electrically coupled to the first</p> <p>13 circuit board.</p> <p>14 It stated that circuit board 53</p> <p>15 processes image signals. Stated</p> <p>16 elsewhere that it converts those</p> <p>17 signals from the image sensor to a</p> <p>18 video signal.</p> <p>19 I am reading from page 170 now.</p> <p>20 In looking at Suzuki, Suzuki shows</p> <p>21 stacked arrangements of printed</p> <p>22 circuit boards and image sensor.</p> <p>23 In light of Suzuki rotating</p> <p>24 Swift's circuit board 53 from its</p> <p>25 orientation shown in Figure 2 to one</p>

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1 **Neikirk**
2 **stacked with respect to the first**
3 **circuit board 52, is an obvious thing**
4 **using the teachings from Suzuki and**
5 **what is well known about conserving**
6 **space by stacking boards, that seems**
7 **to be a well known characteristic. I**
8 **discuss that in the motivation to**
9 **combine.**
10 **So all of those things are**
11 **disclosed and that is what is -- the**
12 **claim language says has to be present.**
13 BY MR. CAPLAN:
14 Q. You just testified that it is your
15 view that Swift already has stacked circuit
16 boards, correct?
17 MS. REDDING: Objection. Form.
18 **THE WITNESS: No. I did not**
19 **testify to that.**
20 BY MR. CAPLAN:
21 Q. The Swift reference itself is a
22 security camera, isn't that right?
23 **A. Well, I think Swift describes**
24 **Swift -- describes it as a miniature camera**
25 **first and foremost. It states on, I will**

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1 **Neikirk**
2 **states that he wishes that to be --**
3 **let's see, I will find a good spot to**
4 **read from.**
5 **I don't know that he ever states**
6 **a bound on miniature camera and I did**
7 **not try to read anything like that**
8 **into this. His goal is to make it**
9 **smaller.**
10 BY MR. CAPLAN:
11 Q. But he provides -- I don't know
12 who it is. The reference itself provides
13 exemplary dimensions, correct?
14 **A. So Swift does give some**
15 **dimensions, I believe, Swift.**
16 **Let me look to see if I got a**
17 **reference mixed up.**
18 **So on page 11 of Swift but it is**
19 **page 13 of Exhibit 1005 at line 23, I**
20 **believe it is, it specifies, explaining that**
21 **the entire simply assembly needs to fit into**
22 **a hole of diameter 25 millimeters so that**
23 **would put an outside dimension of the**
24 **housing or part of the housing at least as**
25 **being 25 millimeters there. And let me see.**

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1 **Neikirk**
2 **use the Bates page 3 of Exhibit 1005, "This**
3 **invention relates to cameras and it is**
4 **concerned particularly although not**
5 **exclusively with miniature cameras."**
6 **It then does go on to point out**
7 **that "The miniature cameras are finding**
8 **increasing application in the surveillance**
9 **and security systems."**
10 **It also says, "And also an**
11 **automated inspection apparatus and for**
12 **incorporation in other devices."**
13 **So I would not agree that somehow**
14 **Swift is limited only to security**
15 **surveillance and security systems given its**
16 **explicit statements on page 3.**
17 Q. You just mentioned it says
18 "miniature." That is the title, "Miniature
19 Cameras." What is your understanding of
20 "miniature" in the context of the Swift
21 reference?
22 MS. REDDING: Objection. Form.
23 **THE WITNESS: Swift is generally**
24 **discussing the assembly of various**
25 **pieces and components. He simply**

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1 **Neikirk**
2 **I think it gives some other exemplary**
3 **possible dimensions.**
4 Q. If you are done with your answer,
5 I usually like to do an hour but I need to
6 take a short break now if you don't mind?
7 **A. So we can be complete, give me**
8 **just one more moment.**
9 Q. Sure.
10 **A. To see if I see the other**
11 **exemplary dimensions since that was the**
12 **question.**
13 **I gave you one where it is**
14 **25 millimeters in diameter. I believe there**
15 **is another set of dimensions. I can't seem**
16 **to find them now.**
17 MR. CAPLAN: I apologize for
18 breaking a few minutes early but if we
19 could take a break here? 15 minutes.
20 **THE WITNESS: 15 minutes is**
21 **fine.**
22 MR. CAPLAN: Thanks.
23 (Recess)
24 BY MR. CAPLAN:
25 Q. Dr. Neikirk, I want to talk to you

<p style="text-align: right;">Page 118</p> <p>1 Neikirk</p> <p>2 about Larson, you also have a ground that</p> <p>3 relies on the Larson reference; correct?</p> <p>4 A. That is correct.</p> <p>5 Q. Larson is a CCD reference,</p> <p>6 correct?</p> <p>7 MS. REDDING: Object to form.</p> <p>8 THE WITNESS: I would not</p> <p>9 characterize Larson as a CCD</p> <p>10 reference. I wouldn't choose those</p> <p>11 words.</p> <p>12 I will find my discussions of</p> <p>13 Larson. That is claim 2, ground 5. I</p> <p>14 was trying to remind myself of which</p> <p>15 ground it was.</p> <p>16 In my original declaration my</p> <p>17 discussion of ground 5 I believe</p> <p>18 starts on Bates page 186 of Exhibit</p> <p>19 1004.</p> <p>20 And in my second declaration I</p> <p>21 think I have some discussion of</p> <p>22 Larson. I think that starts on page</p> <p>23 30.</p> <p>24 I am sorry, Mr. Caplan. If you</p> <p>25 can repeat your question --</p>	<p style="text-align: right;">Page 119</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. Sure.</p> <p>4 A. -- I will endeavor to answer it</p> <p>5 directly.</p> <p>6 Q. The Larson reference which I</p> <p>7 believe is Exhibit 1029, that discloses a</p> <p>8 CCD image sensor, correct?</p> <p>9 A. So the Larson -- Larson reference</p> <p>10 which is entitled "Video Phone for</p> <p>11 Simultaneous Audio and Video Communication</p> <p>12 via Standard Telephone Line."</p> <p>13 Lines -- in column 3, for</p> <p>14 instance, combines line 55 does identify</p> <p>15 that "Preferably a video camera means is a</p> <p>16 color charge coupled device camera which is</p> <p>17 selectively activated for operation by a</p> <p>18 person."</p> <p>19 So that particular point, it does</p> <p>20 mention CCDs, yes.</p> <p>21 Q. Is it your understanding that the</p> <p>22 Larson patent describes the CCD image sensor</p> <p>23 with a camera function?</p> <p>24 A. I believe --</p> <p>25 MS. REDDING: Object to form.</p>
<p style="text-align: right;">Page 120</p> <p>1 Neikirk</p> <p>2 THE WITNESS: As I just read</p> <p>3 certainly Larson identifies that that</p> <p>4 is a preferable choice to use a CCD.</p> <p>5 I believe in discussing -- I</p> <p>6 don't know whether there are</p> <p>7 multiple -- at least one embodiment he</p> <p>8 further identifies transducing and</p> <p>9 digitizing images by a charge coupled</p> <p>10 device, chip video camera having a</p> <p>11 plastic lens. That happens to be in</p> <p>12 column 7, lines 16 through 18 I think</p> <p>13 it is.</p> <p>14 BY MR. CAPLAN:</p> <p>15 Q. Your grounds combines the Larson</p> <p>16 patent with three other references, correct,</p> <p>17 that would be Swift, Ricquier and Suzuki; is</p> <p>18 that right?</p> <p>19 A. So ground 5 is obvious over Larson</p> <p>20 in view of Swift, Ricquier and Suzuki. That</p> <p>21 is correct.</p> <p>22 Larson in particular identifying</p> <p>23 for its teachings concerning video phones</p> <p>24 and flat panel look of displays for</p> <p>25 displaying images.</p>	<p style="text-align: right;">Page 121</p> <p>1 Neikirk</p> <p>2 Q. It is your position and your</p> <p>3 testimony that a person skilled in the art</p> <p>4 would combine or modify the Larson reference</p> <p>5 with Swift, is that right?</p> <p>6 MS. REDDING: Objection. Form.</p> <p>7 THE WITNESS: So, as I discuss</p> <p>8 in my original declaration, Exhibit</p> <p>9 1004, I have in paragraph 291 pointed</p> <p>10 out that to the extent further</p> <p>11 disclosure of a physical camera within</p> <p>12 the same physical housing as the video</p> <p>13 monitor to form the claim meaning</p> <p>14 imaging device is required and Larson</p> <p>15 discloses implementation details for</p> <p>16 an imaging device with a physical</p> <p>17 camera and display screen contained in</p> <p>18 a single housing.</p> <p>19 And the grounds teaching from</p> <p>20 Larson is essentially that.</p> <p>21 The imaging device comes from</p> <p>22 Swift, Ricquier and Suzuki as we</p> <p>23 already discussed.</p> <p>24 BY MR. CAPLAN:</p> <p>25 Q. So it is your testimony that</p>

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1 Neikirk
2 Larson describes a CCD camera, correct?
3 MS. REDDING: Object to form.
4 **THE WITNESS: My testimony was**
5 **that Larson identifies that a choice**
6 **for the video camera is a CCD sensor.**
7 BY MR. CAPLAN:
8 Q. Where does Larson describe it as a
9 choice? Let's say the choice that they are
10 making here is the CCD camera as opposed to
11 something else.
12 Where does it say that,
13 Dr. Neikirk?
14 MS. REDDING: Object. Form.
15 **THE WITNESS: Claim 4 and claim**
16 **10. Of Larson.**
17 **Claim 4 identifies a video**
18 **camera means with no further**
19 **restrictions.**
20 **Claim 10 says -- which is**
21 **dependent from claim 4 says that the**
22 **video camera means is a color-charge**
23 **coupled device.**
24 **My understanding of claim**
25 **differentiation, my understanding is**

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1 Neikirk
2 **understand reading the entirety of**
3 **Larson.**
4 BY MR. CAPLAN:
5 Q. Even a reference like Larson that
6 describes a CCD camera in the device you
7 would not -- you would not understand that
8 to be describing a CCD device, it could be
9 that or something else; is that correct?
10 MS. REDDING: Objection. Form.
11 **THE WITNESS: I don't believe**
12 **that is what I said.**
13 **I said that Larson certainly**
14 **identifies that a color CCD is a**
15 **preferable choice for his video camera**
16 **mean. There is no question Larson**
17 **does that.**
18 **All I pointed out was that if**
19 **you read the entirety of Larson based**
20 **on claims, my understanding of claim**
21 **differentiation would say that he**
22 **didn't intend in his claims for video**
23 **camera means, those words, to be**
24 **limited to only CCD.**
25

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1 Neikirk
2 **that means claim 4 covers more than**
3 **just CCDs. So that is my choice of**
4 **the word "choice."**
5 BY MR. CAPLAN:
6 Q. Is it your testimony that a person
7 skilled in the art reading the Larson patent
8 would read the disclosure of Larson which
9 describes a CCD camera and understand that
10 to be a choice was made between a CCD camera
11 and a different type of camera?
12 **A. I think one --**
13 MS. REDDING: Objection.
14 **THE WITNESS: I think one of**
15 **ordinary skill in the art reading the**
16 **entire reference would certainly**
17 **understand that Larson identified a**
18 **CCD -- color CCD to be a preferable**
19 **choice but that in their claims they**
20 **elected to not restrict it to only**
21 **that, that they wrote a dependent**
22 **claim to identify that the video**
23 **camera means was a color -- charge**
24 **coupled device. That is what one of**
25 **ordinary skill in the art would**

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1 Neikirk
2 BY MR. CAPLAN:
3 Q. Just want to take a quick look at
4 your testimony to make sure I understood
5 your answers before I ask you anything.
6 You were just testifying about
7 Larson and you talked about claim 4 of
8 Larson. You pointed out that element and I
9 think you made reference to video processing
10 means.
11 You also referred to claim 10
12 which further described the means is a
13 color-charge couple device camera. Those
14 are the two claims you were referring to?
15 **A. Yes. Just as an example of,**
16 **again, it is clear that in the written**
17 **description Larson identifies a preferable**
18 **choice as being a color CCD. There is no**
19 **question about that but I was just pointing**
20 **out that in the claim language the video**
21 **camera itself, it would seem, is not**
22 **necessarily required to be a CCD color**
23 **device in claim 4. It is in -- by claim 10**
24 **it is certainly.**
25 Q. I don't want to get too far off

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1 Neikirk
2 track but claim 4 uses the word "means."
3 You have seen that before in other cases,
4 claims that use the term "means"?
5 **A. I have.**
6 MS. REDDING: Object.
7 BY MR. CAPLAN:
8 Q. Is it your understanding that when
9 you see a claim that talks about "means" it
10 is talking about the particular structure
11 that is described in that specification for
12 that function, is that your understanding?
13 **A. I am not a lawyer. My**
14 **understanding is that there is -- that there**
15 **is an issue about what is described in the**
16 **claim itself. If it fails to describe a**
17 **structure then you go to the specification**
18 **to identify the structure but it may in the**
19 **claim itself. I certainly haven't done an**
20 **analysis that well of Larson.**
21 Q. Just assume for purposes of this
22 question that the means term in claim 4 of
23 Larson which you identified is normally
24 interpreted to mean what is described in the
25 specification of the Larson patent.

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1 Neikirk
2 describing the CCD camera it is your
3 testimony that a person skilled in the art
4 would combine the teachings of Larson with
5 the teachings of Swift?
6 MS. REDDING: Object to form.
7 **THE WITNESS: That**
8 **mischaracterizes my testimony.**
9 **As I stated very clearly in my**
10 **original declaration, Exhibit 1004 in**
11 **paragraph 291, Larson discloses an**
12 **implementation details a video phone,**
13 **includes a video camera that is**
14 **mounted in a tilt and swivel housing**
15 **with a flat panel liquid crystal**
16 **display for displaying images.**
17 **There is a clear teaching of a**
18 **video camera in a housing with an LCD**
19 **display.**
20 **Larson also teaches that**
21 **preferable choice from the camera head**
22 **mic is a CCD. That is fine but that**
23 **is not the teaching I am looking to.**
24 **That mischaracterizes the grounds.**
25 **Larson teaches putting a video**

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1 Neikirk
2 On that basis would you agree that
3 what is described in the Larson patent is in
4 fact a CCD camera?
5 MS. REDDING: Objection. Form.
6 **THE WITNESS: So in this**
7 **hypothetical you are wanting me to**
8 **assume the means must be only things**
9 **described in the specification if I**
10 **understood the question correctly, and**
11 **I would agree that specifically for**
12 **the video camera it clearly states**
13 **that the preferable choice is a**
14 **color-charge coupled device.**
15 **I have not gone through every**
16 **line of the specification to try to**
17 **determine if there is ever anything**
18 **else but I certainly would agree that**
19 **in column 3 it states there at line 34**
20 **and 35 preferably the video camera**
21 **means is a color charge coupled**
22 **device.**
23 BY MR. CAPLAN:
24 Q. Sticking with that assumption for
25 the purposes of this question that Larson is

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1 Neikirk
2 **display an LCD in the same housing**
3 **with the rest of the camera. I have**
4 **already identified the rest of the**
5 **camera as being Swift, Ricquier,**
6 **Suzuki if you will.**
7 **What Larson is adding is a video**
8 **display, an LCD in the same housing.**
9 **And I would point out that in that**
10 **paragraph I said "To the extent**
11 **further disclosure of a physical**
12 **camera within same physical housing is**
13 **required," the 502 claim language,**
14 **look at it -- not the 502, "the '052**
15 **claim language doesn't actually**
16 **require the video screen to be in the**
17 **housing."**
18 **I was simply pointing out that**
19 **if it were to be required Larson**
20 **provides such a teaching.**
21 BY MR. CAPLAN:
22 Q. So it is your testimony there are
23 aspects of what is in Larson that you like
24 and you want to use so that is what you are
25 using but you are not using other parts of

<p>Page 130</p> <p>1 Neikirk 2 Larson for purposes of your analysis and 3 testimony? 4 MS. REDDING: Objection. Form. 5 THE WITNESS: That is certainly 6 not what I just testified. Those are 7 your words, not mine. 8 I have repeatedly pointed out 9 that one of ordinary skill in the art 10 would be aware of all these 11 references. 12 There are a variety of teachings 13 and that you don't have to take every 14 single teaching altogether. That is 15 not my understanding of how an 16 obviousness argument -- what becomes 17 obvious to one of ordinary skill. 18 One of ordinary skill sees a 19 clear teaching in Larson of a video 20 camera combined with an LCD in the 21 same housing. That teaching is 22 independent of what kind of video 23 camera it is. 24 There is another teaching that 25 Larson prefers CCD. It is not the</p>	<p>Page 131</p> <p>1 Neikirk 2 same teaching. It is a different one. 3 One of ordinary skill doesn't 4 take everything as presented in the 5 reference and lift it bodily and try 6 to plug it in some other reference. 7 That is not the way it works. These 8 are teachings. 9 BY MR. CAPLAN: 10 Q. So Larson, even though you are not 11 relying off it for that aspect, it discloses 12 a CCD camera in it, correct? 13 A. Larson identifies -- 14 MS. REDDING: Object. 15 THE WITNESS: Larson in column 3 16 identifies -- just a moment. I want 17 to quote Larson accurately. 18 "Preferably the video camera 19 means is a color charge coupled 20 device. Kim. 21 Certainly Larson does say that. 22 BY MR. CAPLAN: 23 Q. Swift we talked about is a CMOS 24 imager, a CMOS active pixel sensor imager; 25 correct?</p>
<p>Page 132</p> <p>1 Neikirk 2 A. Yes. 3 Q. And Ricquier we talked about is a 4 CMOS pixel array but passive, correct, 5 passive pixels? 6 MS. REDDING: Objection. Form. 7 THE WITNESS: Ricquier is a CMOS 8 sensor, right, and it uses pixels that 9 do not have amplifiers in each pixel. 10 Inasmuch as that is usually referred 11 to as a passive CMOS pixel, yes, it is 12 passive. 13 BY MR. CAPLAN: 14 Q. So it is your testimony that a 15 person skilled in the art would be motivated 16 to combine the CCD device of Larson with the 17 CMOS active pixel sensor of Swift with the 18 CMOS passive pixel device of Ricquier plus 19 and I don't think we have characterized 20 Suzuki today but the off chip circuitry of 21 Suzuki as well; is that correct? 22 MS. REDDING: Objection. Form. 23 THE WITNESS: No. That is not 24 correct. That is not what I testified 25 to at all.</p>	<p>Page 133</p> <p>1 Neikirk 2 BY MR. CAPLAN: 3 Q. Those are the references that you 4 relying on for this ground with Larson, 5 right? 6 A. You characterize Larson for 7 instance as a CCD reference. I do not 8 agree. Larson has many teachings and in 9 particular teaches putting an LCD display in 10 the same housing as a camera. 11 Characterizing Larson as a CCD 12 reference I think is a mischaracterization. 13 That is a teaching but Larson entitles -- 14 the title of his invention, "Video Phone for 15 Simultaneous Audio and Vide Communication 16 Via Standard Telephone." 17 Characterizing such a reference as 18 a CCD reference I think is not appropriate. 19 Each one of the four references, 20 Larson, Swift, Suzuki and Ricquier have 21 teachings and I have discussed why one of 22 ordinary skill in the art would be motivated 23 to combine them in a way that renders, for 24 instance here we are talking about claim 2, 25 claim 2 of the '052 patent obvious.</p>

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1 **Neikirk**
2 Q. So it is your testimony that
3 Larson, Swift, Ricquier and Suzuki done
4 individually explicitly show the elements of
5 claim 2 but someone would recognize the
6 elements of claim 2 when they actually read
7 the claim and then they would find it in
8 those references, is that right?
9 MS. REDDING: Objection. Form.
10 **THE WITNESS: No. I provided no**
11 **such testimony.**
12 BY MR. CAPLAN:
13 Q. You also in your second
14 declaration in -- in the '512 proceeding in
15 paragraph 47 you talk about towards the end
16 of -- at the end of paragraph 47 that a
17 person skilled in the art would have been
18 motivated to apply Swift's teaching in
19 implementing Larson's video phone.
20 Do you see that?
21 **A. You are quoting from paragraph 47?**
22 Q. Yes, the last sentence.
23 **A. The last sentence says, "This**
24 **confirms that a person of ordinary skill in**
25 **the art would have been motivated to apply**

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1 Neikirk
2 **THE WITNESS: That certainly**
3 **does not characterize my testimony. I**
4 **have never said that what is being**
5 **used is the teaching of Swift of a**
6 **miniature camera found in a door. It**
7 **has nothing to do with it.**
8 It is a miniature camera. He
9 gives other examples, Swift, that
10 aren't mounted in a door and he states
11 on page 3 of Exhibit 1003 that it
12 relates to cameras and is concerned
13 particularly although not exclusively
14 with miniature cameras. Plain words
15 right there. Larson --
16 BY MR. CAPLAN:
17 Q. I am sorry.
18 **A. "Larson," as I discussed in**
19 **paragraph 91 of my original declaration, "is**
20 **a video phone includes video camera mounted**
21 **in a tilt and swivel housing with a flat**
22 **panel liquid crystal display."**
23 Well, Larson -- sorry, Swift is
24 interested in cameras and in particular
25 miniature cameras but -- and he gives

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1 **Neikirk**
2 **Swift's teaching in implementing Larson's**
3 **video phone."**
4 **And then above in that paragraph I**
5 **identify a number of such motivations.**
6 Q. But the first page of Swift it
7 shows, we looked at this before, the title
8 is "Miniature Cameras" and there is an
9 abstract and it shows an illustration of a,
10 I guess, a Swift miniature camera in a door.
11 Do you see that on the first page?
12 **A. I see that. I don't know for sure**
13 **that is in a door but that seems like a**
14 **reasonable guess.**
15 Let me correct. Actually the text
16 says 100 is a door. So it is not just
17 looking at the paper. The text right there
18 next to it says 100 is a door. It is a
19 miniature camera fitted to a door.
20 Q. It is your testimony that a person
21 skilled in the art would look at Swift's
22 teaching of the miniature camera in a door
23 to modify a video telephone with a CCD
24 camera of Larson?
25 MS. REDDING: Objection. Form.

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1 **Neikirk**
2 **examples but they are merely examples.**
3 Q. You mentioned "miniature cameras"
4 a few times in connection with Swift.
5 On page 5 of the Swift application
6 I believe it is Bates number 7 of 32 in
7 Swift?
8 **A. I am there.**
9 Q. Okay. It looks like lines 3 and
10 4, it says, "Preferably the maximum
11 dimension of the camera is not greater than
12 180 or 50 millimeters."
13 Do you see that?
14 **A. I do.**
15 Q. Is that your understanding of a
16 miniature camera at least in the context of
17 Swift?
18 MS. REDDING: Objection. Form.
19 **THE WITNESS: Swift provides**
20 **another example on Bates page 13.**
21 **Swift's page 11 where it has to**
22 **be smaller than 25 millimeters. Swift**
23 **provides a range of dimensions. I**
24 **don't think he ever defines that in**
25 **any particular -- he says "maximum."**

<p style="text-align: right;">Page 138</p> <p>1 Neikirk</p> <p>2 He doesn't give a minimum.</p> <p>3 So I don't think he -- he didn't</p> <p>4 particularly say, well, this is</p> <p>5 precisely what I mean by miniature</p> <p>6 camera. He didn't give exact</p> <p>7 dimensions ranging from a maximum</p> <p>8 dimension of 100 millimeters to a</p> <p>9 maximum dimension of 25 millimeters.</p> <p>10 BY MR. CAPLAN:</p> <p>11 Q. Does that range of size -- does</p> <p>12 that range of sizes inform your</p> <p>13 understanding of what is miniature at least</p> <p>14 in the context of Swift?</p> <p>15 MS. REDDING: Objection. Form.</p> <p>16 THE WITNESS: The only place</p> <p>17 that this would have any application</p> <p>18 in the '052 patent would be with</p> <p>19 respect to certain limitations</p> <p>20 concerning size.</p> <p>21 But in terms of what Swift is</p> <p>22 defining to be miniature, I haven't</p> <p>23 conducted a separate analysis to try</p> <p>24 to do a claim construction of those</p> <p>25 words. Take them at face value.</p>	<p style="text-align: right;">Page 139</p> <p>1 Neikirk</p> <p>2 BY MR. CAPLAN:</p> <p>3 Q. For purposes of combining Swift</p> <p>4 with other references because you do that,</p> <p>5 you combine Swift with other references,</p> <p>6 what does a person skilled in the art</p> <p>7 understand the meaning of miniature cameras</p> <p>8 in Swift to mean for size in connection with</p> <p>9 combining it with other references such as</p> <p>10 Ricquier?</p> <p>11 MS. REDDING: Objection. Form.</p> <p>12 THE WITNESS: Ricquier provides</p> <p>13 teachings related to arrangements of</p> <p>14 circuitry.</p> <p>15 Ricquier doesn't actually</p> <p>16 require small but it provides</p> <p>17 teachings that help further the goals</p> <p>18 by putting circuitry on boards and</p> <p>19 Suzuki, for instance, teaches</p> <p>20 arrangements of those boards to</p> <p>21 further the goal of making it small</p> <p>22 but that is as far as I have taken.</p> <p>23 There is no -- no claim construction</p> <p>24 analysis to try to set a bound on the</p> <p>25 definition of miniature.</p>
<p style="text-align: right;">Page 140</p> <p>1 Neikirk</p> <p>2 Swift says that it relates to</p> <p>3 miniature cameras. Swift -- I can't</p> <p>4 remember whether Swift uses the word</p> <p>5 "small" or not.</p> <p>6 But I think one of ordinary</p> <p>7 skill in the art reading Swift and</p> <p>8 Suzuki, for instance, would see clear</p> <p>9 interrelationships in trying to</p> <p>10 further a goal of making the camera</p> <p>11 sensor -- the camera small or compact.</p> <p>12 Let's look at what -- the</p> <p>13 wording Suzuki chooses is "compact."</p> <p>14 So I certainly haven't done any</p> <p>15 analysis, I think the plain reading of</p> <p>16 this "compact" and "small" are clearly</p> <p>17 related and would provide motivation</p> <p>18 to one of ordinary skill in the art to</p> <p>19 view those the same -- not only in the</p> <p>20 same field of electronic cameras but</p> <p>21 even further small or compact</p> <p>22 electronic cameras.</p> <p>23 MR. CAPLAN: I don't want to</p> <p>24 take a big break but I want to have</p> <p>25 some questions on the 475 IPR. So I</p>	<p style="text-align: right;">Page 141</p> <p>1 Neikirk</p> <p>2 just want to get my papers together.</p> <p>3 We can take a short break or</p> <p>4 even a long break but I just don't</p> <p>5 want to kind of ruffle around.</p> <p>6 Take a few minutes here?</p> <p>7 THE WITNESS: Yes. It can be</p> <p>8 less than five minutes.</p> <p>9 MR. CAPLAN: 10 minutes is fine.</p> <p>10 THE WITNESS: 10 minutes.</p> <p>11 (Recess)</p> <p>12 BY MR. CAPLAN:</p> <p>13 Q. Dr. Neikirk, I have a couple</p> <p>14 questions on the 475 IPR. As you I am sure</p> <p>15 recall about Wakabayshi and Ackland we</p> <p>16 discussed extensively. But to pick it up,</p> <p>17 in your Section 7, page 31 of your -- this</p> <p>18 is your declaration -- your second</p> <p>19 declaration, this is in connection with the</p> <p>20 dimension limitation.</p> <p>21 A. Yes. That suggestion there on</p> <p>22 page 31 is reference to dimension</p> <p>23 limitation.</p> <p>24 Q. Now, first I want to talk about is</p> <p>25 that in paragraph 42 which is the</p>

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1 Neikirk
2 dimension -- you are talking about the
3 dimension limitation in ground 1. You are
4 combining Wakabayshi and Ackland to this
5 feature, correct?
6 **A. No. That is not correct.**
7 Q. You are adding -- you are doing
8 Wakabayshi, Ackland and Suzuki?
9 **A. No. For ground 1 if we look in**
10 **for instance my original report which has**
11 **much greater detail, ground 1 starts -- the**
12 **page numbers are a little unclear. So**
13 **detailed element-by-element discussion**
14 **starts on Bates page 67 of Exhibit 1004 and**
15 **in particular we are discussing the size**
16 **limitation which I labeled in my report as**
17 **Element 1.K and that discussion starts in**
18 **paragraph 146, on page -- Bates page 96 of**
19 **Exhibit 1004.**
20 **As I stated there in paragraph**
21 **148 -- well, let's start with 146.**
22 **"It is my opinion that Wakabayshi**
23 **renders this element obvious," and I further**
24 **discuss that in paragraph 148 and I do state**
25 **in the first sentence, "While Wakabayshi**

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1 Neikirk
2 **board of largest dimension between 2**
3 **and 12 millimeters."**
4 **Now the circuit board in**
5 **Wakabayshi for this element, for this**
6 **claim, is circuit board 29. So my**
7 **testimony is -- my opinion is that it**
8 **would be obvious to make Wakabayshi's**
9 **circuit board 29 be of a dimension**
10 **between 2 and 12 millimeters because**
11 **that is an implementation choice that**
12 **is well known to one of ordinary**
13 **skill.**
14 BY MR. CAPLAN:
15 Q. What in Wakabayshi would motivate
16 a person skilled in the art to modify 429 to
17 be in that range?
18 MS. REDDING: Objection to form.
19 **THE WITNESS: There is no**
20 **modification to do. Wakabayshi**
21 **doesn't specify how big that board is.**
22 **You are suggesting Wakabayshi**
23 **gave some dimension and you have to**
24 **modify that. There is no such**
25 **teaching in Wakabayshi about a size**

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1 Neikirk
2 **does not expressly disclose the dimensions**
3 **of circuit board 29 as discussed in Section**
4 **8A1 it would have been an obvious**
5 **implementation choice to use a circuit board**
6 **having the largest dimension between 2 and**
7 **12 millimeters because boards of such size**
8 **were well known at the time for mounting to**
9 **an image sensor."**
10 **So the ground is Wakabayshi in**
11 **light of what one of ordinary skill in the**
12 **art would know what is obvious, one of**
13 **ordinary skill in the art.**
14 **I did point to Suzuki as an**
15 **example of such knowledge but ground 1 is**
16 **not a combination of Suzuki.**
17 Q. Is it your testimony that the
18 dimension issue based on Wakabayshi is a
19 design choice or it is obvious in light of
20 Wakabayshi?
21 MS. REDDING: Objection. Form.
22 **THE WITNESS: As I stated in**
23 **that sentence beginning of paragraph**
24 **148 "It is my opinion it is an obvious**
25 **implementation choice to use a circuit**

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1 Neikirk
2 **for board 29.**
3 **As I pointed out here it is an**
4 **implementation choice for one of**
5 **ordinary skill.**
6 BY MR. CAPLAN:
7 Q. What would motivate -- okay. What
8 would motivate -- let me restate that.
9 What in Wakabayshi would motivate
10 a person skilled in the art to implement
11 board 29 in that size range 2 to 12?
12 **A. So I pointed out --**
13 **MS. REDDING: Object to form.**
14 **Sorry.**
15 **THE WITNESS: To be complete I**
16 **think Wakabayshi calls it circuit**
17 **board 29 but I think we have been**
18 **shortening it to board 29.**
19 **I am sorry. Mr. Caplan, would**
20 **you repeat your question? Sorry.**
21 BY MR. CAPLAN:
22 Q. Let me just make sure here.
23 So my question is what in
24 Wakabayshi would motivate a person skilled
25 in the art to implement board 29 in that 2

<p style="text-align: right;">Page 146</p> <p>1 Neikirk 2 to 29-millimeter range? 3 MS. REDDING: Objection. Form. 4 THE WITNESS: So I have 5 discussed in paragraph 148 of my 6 original declaration, Exhibit 1004. 7 So let me just get -- you are asking 8 about what Wakabayshi itself -- on 9 Bates page 98 of 1004 I pointed out 10 Wakabayshi and according to Wakabayshi 11 video camera unit is made small, 12 "Wakabayshi also indicates that it is 13 manipulated with a thumb or index 14 finger." 15 That "Wakabayshi specifically 16 stated the video camera unit is made 17 small and pivoted on the edge of 18 housing." 19 Continuing on in that paragraph, 20 "Made small so that less strength 21 required for joining members and 22 accordingly the joining members can be 23 reduced in size and weight. Structure 24 also allows the user to manipulate the 25 video camera with a thumb or index</p>	<p style="text-align: right;">Page 147</p> <p>1 Neikirk 2 finger." 3 I believe all of those 4 statements. There is more discussion 5 in that paragraph. It continues on to 6 Bates page 99. 7 I think all of those things are 8 things in Wakabayshi itself which 9 would encourage one of ordinary skill 10 in the art to make the circuit board 11 small and that making it in a range of 12 2 to 12 millimeters would accomplish 13 those goals. 14 BY MR. CAPLAN: 15 Q. Wakabayshi does not expressly 16 recite 2 to 12 millimeters as the dimension 17 for that board 29, does it? 18 MS. REDDING: Objection. Form. 19 THE WITNESS: No. As I stated 20 or as I stated in the beginning of 21 paragraph 148 "Wakabayshi does not 22 expressly disclose the dimension 23 limitations." No, he does not. 24 BY MR. CAPLAN: 25 Q. It is your testimony that someone</p>
<p style="text-align: right;">Page 148</p> <p>1 Neikirk 2 reading in this case claim 1 of the '052 3 patent would recognize that feature in 4 Wakabayshi if they read the patent claim? 5 MS. REDDING: Objection. Form. 6 THE WITNESS: As I pointed out 7 in paragraph 145 it is well known to 8 make circuit boards of a size on the 9 order of 10 millimeters. And I gave 10 some examples of references. Suzuki 11 has to be an example. It is not a 12 combination but it is an example. 13 What I am stating here in 14 paragraph 148 is that given 15 Wakabayshi's express desire for a 16 video camera unit is made small along 17 with why they wanted it to be small, 18 that it would be an obvious choice to 19 select a board in that range 2 to 20 12 millimeters. I will pick an 21 example. 10 millimeters, one 22 centimeter. 23 BY MR. CAPLAN: 24 Q. But again you haven't identified 25 anything in Wakabayshi that suggests that</p>	<p style="text-align: right;">Page 149</p> <p>1 Neikirk 2 particular size, correct? 3 MS. REDDING: Objection. Form. 4 THE WITNESS: Wakabayshi does 5 not provide any express disclosure of 6 dimensions of circuit board 29. 7 BY MR. CAPLAN: 8 Q. Let's talk about your ground 2 in 9 the 475. That is Wakabayshi in view of 10 Ackland and Suzuki, correct? 11 A. Yes. That is discussed starting 12 on page 32 of my second declaration and I 13 believe starts on page -- Bates page 99 of 14 my original declaration, Exhibit 1004. 15 Q. Now, for your ground 2 you have 16 three references that it is your position a 17 person skilled in the art would combine, 18 Wakabayshi with Ackland and Suzuki, correct? 19 MS. REDDING: Objection. Form. 20 THE WITNESS: So, teachings -- I 21 would discuss the teachings in each of 22 those references. 23 We at some great length talked 24 about the teachings of Wakabayshi and 25 Ackland and in ground 2 I also am</p>

<p style="text-align: right;">Page 150</p> <p>1 Neikirk</p> <p>2 opining on teachings from Suzuki that</p> <p>3 one of ordinary skill in the art would</p> <p>4 be motivated to apply in with</p> <p>5 Wakabayshi and Ackland.</p> <p>6 BY MR. CAPLAN:</p> <p>7 Q. Now, once Wakabayshi and Ackland</p> <p>8 are combined in your view what is the</p> <p>9 shortcoming of that combination that would</p> <p>10 cause a person skilled in the art to look to</p> <p>11 Suzuki to further add to that combination?</p> <p>12 MS. REDDING: Objection. Form.</p> <p>13 THE WITNESS: Once again</p> <p>14 Wakabayshi's explicit desire is to</p> <p>15 make the video camera small and Suzuki</p> <p>16 provides teachings related to</p> <p>17 arrangements of circuit boards in a</p> <p>18 housing with the desire of making that</p> <p>19 housing small.</p> <p>20 In fact, the title of Suzuki is</p> <p>21 "Reduced diameter camera head for</p> <p>22 solid state image pick-up device and</p> <p>23 method of producing same."</p> <p>24 So, again, Wakabayshi has an</p> <p>25 express desire for making the video</p>	<p style="text-align: right;">Page 151</p> <p>1 Neikirk</p> <p>2 camera unit small and Suzuki certainly</p> <p>3 provides additional teachings that</p> <p>4 would help one of ordinary skill in</p> <p>5 the art accomplish that.</p> <p>6 Now, this goes to motivation to</p> <p>7 combine which I discuss in my original</p> <p>8 declaration, Exhibit 1004, in a couple</p> <p>9 different places but in particular</p> <p>10 starting -- sorry. I want to get the</p> <p>11 right grounds here.</p> <p>12 So this is ground 2. Sorry. I</p> <p>13 got off the correct pages.</p> <p>14 So again, if you look at my</p> <p>15 original declaration, Exhibit 1004,</p> <p>16 starting at Bates page 99, but on page</p> <p>17 100, for instance, I discuss Suzuki in</p> <p>18 terms of what it discloses.</p> <p>19 If you look to paragraph 154</p> <p>20 which is on Bates page 103 of Exhibit</p> <p>21 1004 there is a discussion there of a</p> <p>22 person of ordinary skill and why they</p> <p>23 would be motivated to apply Suzuki's</p> <p>24 teachings.</p> <p>25 I pointed out that Suzuki</p>
<p style="text-align: right;">Page 152</p> <p>1 Neikirk</p> <p>2 expressly discloses the camera head</p> <p>3 have an outer diameter closer to</p> <p>4 the -- link to the solid state which</p> <p>5 pick up chip which thus realizing</p> <p>6 Wakabayshi's objective of making the</p> <p>7 camera unit compact. And to improve</p> <p>8 the camera's stability and</p> <p>9 reliability.</p> <p>10 I go on to the next page, page</p> <p>11 1004, again, quoting Wakabayshi that</p> <p>12 from the abstract, "The video camera</p> <p>13 unit made compact to realize reduction</p> <p>14 in weight."</p> <p>15 Another quotation from</p> <p>16 Wakabayshi, "Making video camera unit</p> <p>17 small."</p> <p>18 Again, Suzuki is in the same</p> <p>19 field of art, analogous art to the</p> <p>20 '052, solid state image sensors for</p> <p>21 cameras.</p> <p>22 Suzuki is clearly aimed at</p> <p>23 making such a camera compact or small.</p> <p>24 I think those are the</p> <p>25 motivations to one of ordinary skill</p>	<p style="text-align: right;">Page 153</p> <p>1 Neikirk</p> <p>2 in the art to consider these</p> <p>3 references together.</p> <p>4 BY MR. CAPLAN:</p> <p>5 Q. You mentioned in Suzuki improving</p> <p>6 the camera's stability and reliability. Do</p> <p>7 you recall that?</p> <p>8 A. Yes. That is on page 103 -- Bates</p> <p>9 page 103 of Exhibit 1004 and that is</p> <p>10 language from Wakabayshi.</p> <p>11 "Wakabayshi has objectives of</p> <p>12 making the camera compact," and then I go on</p> <p>13 to discuss -- mention stability and</p> <p>14 reliability as discussed further below.</p> <p>15 Q. Okay.</p> <p>16 A. Go ahead.</p> <p>17 Q. Suzuki was filed in 1990, December</p> <p>18 of 1990 in Japan. Correct?</p> <p>19 A. That sounds right. Let me get my</p> <p>20 copy of Suzuki out.</p> <p>21 Yes. It lists a foreign</p> <p>22 application priority date of December 28th,</p> <p>23 1990.</p> <p>24 Q. It was then filed in the U.S. in</p> <p>25 December of 1991, right?</p>

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1 Neikirk
2 **A. That is what it says on the page,**
3 **yes.**
4 Q. You made reference to this column
5 3 in Wakabayshi -- I am sorry, in Suzuki but
6 you were just talking about the stability
7 and reliability.
8 MS. REDDING: Objection. Form.
9 Sorry.
10 BY MR. CAPLAN:
11 Q. Also in column 3 of Suzuki this is
12 starting on line 61 it talks about, "It can
13 be possible to reduce number of associated
14 parts which are required and which also goes
15 to stability and reliability."
16 Do you see that starting in column
17 3?
18 **A. I do see that in column 3.**
19 **I am looking for the reference to**
20 **"stability and reliability."**
21 Q. Right. I just want to make sure I
22 have that too.
23 My question is if stability and
24 reliability are issues that you identified
25 were important from Suzuki wouldn't that

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1 Neikirk
2 **THE WITNESS: Not necessarily.**
3 **You describe that as Fossum's chip.**
4 **The references that we looked at**
5 **from Fossum all identify capabilities,**
6 **not actual construction and function.**
7 **So I don't know that 19 -- in**
8 **1997 Fossum had such a chip that**
9 **worked reliably.**
10 BY MR. CAPLAN:
11 Q. Do you know if Suzuki worked
12 reliably in 1991 or 1997?
13 MS. REDDING: Objection. Form.
14 **THE WITNESS: I am still**
15 **actually trying to understand.**
16 **Suzuki is discussing means of**
17 **assembling the various components. I**
18 **think that these are ones that one of**
19 **ordinary skill in the art would**
20 **recognize as assembly processes that**
21 **are actually well known and we are**
22 **talking about Suzuki.**
23 **Suzuki is pointing out ways of**
24 **trying to arrange various boards in as**
25 **compact a housing -- well, so reduced**

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1 Neikirk
2 suggest to a person skilled in the art in
3 1997 to use a camera on a chip which has
4 less parts, more compact than the structure
5 of Suzuki?
6 MS. REDDING: Object. Form.
7 **THE WITNESS: You say "a camera**
8 **on a chip" and I don't know what you**
9 **mean by that.**
10 **Did you mean a single chip that**
11 **contains all circuitry, some subset of**
12 **circuitry. I don't know what you mean**
13 **so I couldn't answer that question as**
14 **you have asked it.**
15 BY MR. CAPLAN:
16 Q. Well, for purposes of this
17 question I would say it would be a Fossum
18 camera on a chip which has the pixel array
19 timing and control and image signal
20 processing all on the same chip.
21 Wouldn't that be smaller, more
22 stable, more reliable than a multicomponent
23 structure such as Suzuki by 1997?
24 **A. Not necessarily.**
25 MS. REDDING: Object to form.

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1 Neikirk
2 **diameter camera. That is what Suzuki**
3 **is talking about.**
4 **I have no reason to question**
5 **whether one of ordinary skill in the**
6 **art selecting known and available**
7 **components, I would expect that they**
8 **could assemble a system.**
9 **Your original question was about**
10 **hypothetical "camera on a chip" that I**
11 **don't know existed or if it did**
12 **whether because of the large scale**
13 **denigration it was still reliable. I**
14 **don't know that. None of the**
15 **references -- none of the references**
16 **that Dr. Lebby cited provide any such**
17 **information.**
18 BY MR. CAPLAN:
19 Q. When we talked about the exhibits
20 Dr. Lebby cited you did not take an issue
21 with the veracity or accuracy of any of
22 those articles, correct?
23 MS. REDDING: Object to form.
24 **THE WITNESS: I took them at**
25 **face value and none of them say that**

<p style="text-align: right;">Page 158</p> <p>1 Neikirk</p> <p>2 any such chip existed or what the</p> <p>3 yield for manufacturing was or</p> <p>4 anything else. They all identified</p> <p>5 the ability of combining certain</p> <p>6 circuitry onto one chip.</p> <p>7 BY MR. CAPLAN:</p> <p>8 Q. We did talk about Exhibit 1060 if</p> <p>9 you recall. That is a 1995 Business Week</p> <p>10 article.</p> <p>11 A. Yes.</p> <p>12 Q. And that actually features a</p> <p>13 picture of Dr. Fossum with his camera and a</p> <p>14 chip in his hand in 1995.</p> <p>15 A. Sorry. This is --</p> <p>16 Q. Exhibit 1060.</p> <p>17 A. Let me get it. Sorry. My tabs</p> <p>18 are not necessarily in numerical order. I</p> <p>19 missed that one.</p> <p>20 So the picture, I can't tell what</p> <p>21 he is holding and if you read the text it</p> <p>22 says "The one chip dream appears on the</p> <p>23 verge of being fulfilled." I don't read</p> <p>24 that as saying the one chip dream has in</p> <p>25 fact been manufactured and is available for</p>	<p style="text-align: right;">Page 159</p> <p>1 Neikirk</p> <p>2 use by others. He calls it a "dream" and it</p> <p>3 says "It is on the verge of."</p> <p>4 Further, I am not sure -- it says,</p> <p>5 "Since the 1970s camera makers have dreamed</p> <p>6 of making a one chip camera containing all</p> <p>7 the components necessary to take a snapshot</p> <p>8 or make a movie." So I assume that is the</p> <p>9 dream that is being referred to. And it</p> <p>10 simply is indicating that that may be</p> <p>11 possible but it doesn't show that it has</p> <p>12 been done.</p> <p>13 If you look at the second page</p> <p>14 that doesn't show -- it mentions timing and</p> <p>15 control circuitry but that is all and analog</p> <p>16 to digital converter but it doesn't mention</p> <p>17 any others.</p> <p>18 So I don't know what Dr. Fossum's</p> <p>19 camera on a chip was required to contain.</p> <p>20 Q. We talked about this earlier but</p> <p>21 Dr. Fossum's camera on a chip analogy is</p> <p>22 also described in a spec of the '052 patent,</p> <p>23 right?</p> <p>24 MS. REDDING: Object to form.</p> <p>25 THE WITNESS: I am not sure of</p>
<p style="text-align: right;">Page 160</p> <p>1 Neikirk</p> <p>2 what level of detail it is described.</p> <p>3 Let's go with that.</p> <p>4 The '052 patent refers to U.S.</p> <p>5 Patent 5471515 to Fossum.</p> <p>6 It says -- the '052 says, "This</p> <p>7 CMOS imager can incorporate a number</p> <p>8 of other different electronic controls</p> <p>9 that are usually found on multiple</p> <p>10 circuit boards of much larger size."</p> <p>11 Then it gives examples but it</p> <p>12 doesn't say that they are all required</p> <p>13 to be there or simply that it provides</p> <p>14 the ability. In fact, the language</p> <p>15 there would suggest it is saying that</p> <p>16 this provides an ability, not</p> <p>17 characterizing the other prior art</p> <p>18 that exists where this circuitry is</p> <p>19 separate, for instance, Ricquier.</p> <p>20 BY MR. CAPLAN:</p> <p>21 Q. Sticking with Suzuki though, we</p> <p>22 are talking about your ground 2 on this</p> <p>23 dimension limitation, it is a combination of</p> <p>24 Wakabayshi, Ackland and Suzuki, I want to go</p> <p>25 back to the first part of this which is,</p>	<p style="text-align: right;">Page 161</p> <p>1 Neikirk</p> <p>2 Wakabayshi and Ackland which you testified</p> <p>3 previously and it is in your declaration</p> <p>4 that it is your opinion that a person</p> <p>5 skilled in the art would implement the</p> <p>6 Ackland image sensor when designing a</p> <p>7 Wakabayshi device; is that correct?</p> <p>8 A. That is your characterization.</p> <p>9 I certainly have provided my</p> <p>10 declaration explanations of why one of</p> <p>11 ordinary skill in the art would look to</p> <p>12 teachings of Ackland in selecting a, I will</p> <p>13 use Wakabayshi's exact words, I want to</p> <p>14 use -- the only thing Wakabayshi ever</p> <p>15 referred to which was a, I believe, solid</p> <p>16 state image sensor but I wanted to get the</p> <p>17 exact words he uses.</p> <p>18 Sorry. Element 27 which he</p> <p>19 calls -- 27 he calls an imager device. And</p> <p>20 I believe he calls it a solid state device.</p> <p>21 But beyond that Wakabayshi is silent.</p> <p>22 Ackland provides teachings about</p> <p>23 active pixel sensors and reasons why they</p> <p>24 have advantages. I believe I have discussed</p> <p>25 it in my reports. There is ample motivation</p>

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1 **Neikirk**
2 **to combine.**
3 Q. Wakabayshi is not silent on its
4 structure, right. Wakabayshi actually
5 illustrates in its figures an implementation
6 of a camera device, doesn't it?
7 MS. REDDING: Object to form.
8 **THE WITNESS: It illustrates**
9 **camera head. It doesn't illustrate**
10 **what kind of solid state sensor was**
11 **used.**
12 BY MR. CAPLAN:
13 Q. Okay. You have already testified
14 that in your opinion a person skilled in the
15 art would look to Ackland for the image
16 sensor component to work in Wakabayshi,
17 right, that is what you were just testifying
18 about?
19 MS. REDDING: Objection. Form.
20 **THE WITNESS: You characterize**
21 **it as "work in."**
22 **Wakabayshi provides teachings**
23 **and one of the things Wakabayshi calls**
24 **for is an imaging sensor.**
25 **Ackland provides discussions of**

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1 **Neikirk**
2 BY MR. CAPLAN:
3 Q. But Ackland nowhere says -- I am
4 sorry.
5 Wakabayshi nowhere says look to
6 the Ackland type of image sensor to use
7 instead of what I have shown in element 27?
8 **A. There is --**
9 MS. REDDING: Object to form.
10 **THE WITNESS: There is no**
11 **"instead of."**
12 **Wakabayshi says use a solid**
13 **state image sensor. All Wakabayshi**
14 **says. So it is not an "instead of" as**
15 **you phrased it. It is not that**
16 **Wakabayshi says use a CCD because**
17 **Wakabayshi does not. There is no**
18 **instead here. Ackland is a solid**
19 **state image sensor.**
20 BY MR. CAPLAN:
21 Q. So once a person skilled in the
22 art has combined Wakabayshi and Ackland as
23 you have proposed assuming that that were to
24 happen, what would motivate a person skilled
25 in the art from that resulting combination

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1 **Neikirk**
2 **particular type of imaging sensor.**
3 **Ackland in -- to be very specific, the**
4 **title is "Single Polysilicon CMOS**
5 **Active Pixel Image Sensor," and in the**
6 **body discusses various advantages**
7 **including lower cost because of the**
8 **single level polysilicon so I think**
9 **that one of ordinary skill would be**
10 **aware of all these references and**
11 **there is motivation to combine**
12 **teachings of Ackland with the**
13 **teachings of Wakabayshi.**
14 **It is not an exercise of**
15 **unplugging one component and plugging**
16 **in another. This is not a redesign.**
17 **These are teachings.**
18 **Wakabayshi doesn't provide all**
19 **the circuit level explanations so**
20 **there is no redesign.**
21 **Combinations of teachings and**
22 **one of ordinary skill in the art has**
23 **the knowledge to implement it from**
24 **there.**
25

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1 **Neikirk**
2 of Wakabayshi and Ackland to further modify
3 it with Suzuki?
4 MS. REDDING: Objection. Form.
5 **THE WITNESS: So I am not**
6 **exactly sure I would agree with your**
7 **characterization as "to further**
8 **modify."**
9 **Wakabayshi itself explicitly**
10 **states in a number of locations a**
11 **desire to make it small.**
12 **And Suzuki provides to one of**
13 **ordinary skill in the art arrangements**
14 **of circuit boards that help accomplish**
15 **that goal.**
16 **Those are the teachings one of**
17 **ordinary skill in the art seeing**
18 **Wakabayshi would be led to look for**
19 **other ways or things to make it small**
20 **which is exactly what Suzuki is**
21 **teaching by arranging circuit boards**
22 **in a well-known configuration which I**
23 **have also discussed.**
24 **Suzuki actually gives the**
25 **specific range of dimensions in which**

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1 **Neikirk**
2 **they are able to assemble all these**
3 **components and in particular Suzuki**
4 **points to an outer diameter of the**
5 **camera head of about 10 millimeters.**
6 BY MR. CAPLAN:
7 Q. So if it is your testimony that a
8 desired goal of Wakabayshi is reduced size
9 and Suzuki helps meet that goal why didn't
10 you just combine Wakabayshi and Suzuki right
11 at the start?
12 MS. REDDING: Objection. Form.
13 **THE WITNESS: I think that**
14 **mischaracterizes the combination.**
15 **Suzuki itself, again, only calls**
16 **for a solid state image pickup device**
17 **in a similar manner that Wakabayshi**
18 **called for solid state sensor.**
19 Both references are silent as to
20 the types that in fact suggest you
21 could use many different types.
22 Ackland gives one of ordinary
23 skill in the art a type of solid state
24 image sensor and Ackland provides
25 numerous advantages to it including

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1 **Neikirk**
2 **which one of ordinary skill in the art**
3 **would be motivated to make. That is**
4 **the analysis I have done.**
5 There might well be other
6 combinations that would result from
7 these references that would be
8 different. That doesn't matter.
9 You could -- a set of references
10 might make many things obvious. If it
11 makes every limitation of a claim in
12 the '052 obvious then that claim is
13 invalid.
14 BY MR. CAPLAN:
15 Q. You testified just a few minutes
16 ago that the Suzuki reference like
17 Wakabayshi just recites solid state imager,
18 it doesn't provide details on that, correct?
19 **A. Suzuki states that it uses a solid**
20 **state image pickup device and that is all**
21 **that Suzuki states about the solid state**
22 **image pickup device.**
23 Q. So if --
24 **A. Let me be more careful. I**
25 **misspoke.**

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1 **Neikirk**
2 **costs because of the single**
3 **polysilicon. That was one example.**
4 I have that again in my original
5 report where I discussed the
6 motivation to combine. There is a
7 list of items.
8 BY MR. CAPLAN:
9 Q. So Wakabayshi, Ackland and Suzuki
10 as you are applying them in ground 2 don't
11 each individually, explicitly show the
12 elements of claim 1 of the '052 patent, it
13 is just when you read the claim 1 of the
14 '052 patent a person of skilled in the art
15 would recognize that they could find it in
16 those references based on the claim, is that
17 accurate?
18 MS. REDDING: Objection. Form.
19 **THE WITNESS: The analysis to be**
20 **done in an obviousness determination**
21 **is to determine if all of the claim**
22 **limitations are disclosed elsewhere in**
23 **the prior art and whether those**
24 **elements would result if it is a**
25 **combination from -- a combination**

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1 **Neikirk**
2 **If you look to column 2 of Suzuki,**
3 **solid state image pickup device actually has**
4 **multiple pieces in it, okay, including a**
5 **lens. The reference to -- let's find it.**
6 Element 221 is referred to as the
7 solid state image pickup chip so I want to
8 be careful about the distinction between the
9 words that Suzuki uses to describe
10 essentially an assembly of many things
11 including a lens, camera head portion,
12 camera control unit. That is all in column
13 2 at lines 21 to 24.
14 What we were discussing is element
15 221 in Suzuki which is described as a solid
16 state image pickup chip and that is the only
17 discussion he provides of that.
18 Q. Why would a person skilled in the
19 art be motivated to combine Wakabayshi and
20 Suzuki if they each -- both generally
21 describe a solid state imager?
22 MS. REDDING: Objection. Form.
23 **THE WITNESS: Because they both**
24 **call for the same imaging device.**
25 **That part of it is clearly the same.**

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1 Neikirk
2 The point of using Suzuki is
3 that Wakabayshi has an express desire
4 to make it smaller, to make it smaller
5 and compact.
6 Suzuki provides information and
7 in fact is about a reduced diameter
8 camera.
9 You go to Ackland where one of
10 ordinary skill in the art recognizing
11 that neither reference is discussing
12 anything about what type of solid
13 state image pickup chip as Suzuki
14 calls it or in Wakabayshi element 27
15 which Wakabayshi calls an imager
16 device.
17 Ackland provides teachings about
18 an advantageous choice of what type of
19 imager device in the words of
20 Wakabayshi or solid state pickup chip
21 in the words of Suzuki.
22 BY MR. CAPLAN:
23 Q. When Suzuki was filed in 1990 in
24 Japan, in 1991 in the U.S. were CMOS active
25 pixel sensor image sensors available at that

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1 Neikirk
2 **THE WITNESS:** If we look at
3 Renshaw we can get the references out.
4 I am not sure that I address that
5 because Dr. Lebby's assertion was that
6 it had to be CCD because CMOS didn't
7 exist which is clearly not true.
8 I am going to find Renshaw.
9 Exhibit 10. Exhibit 1090.
10 So in Renshaw in the
11 paragraph -- so it is Bates page 6 of
12 Exhibit 1090, it says, "Our first CMOS
13 sensor chip comprises 128 by 128 pixel
14 photodiode array which includes all
15 the address sentes and amplification
16 circuitry necessary to provide a
17 self-scan one volt peak to peak --
18 output signal."
19 It says how it was made using a
20 standard CMOS facing process.
21 Look at the Figure 1 of a pixel,
22 it shows a sense amplifier. It
23 characterizes that as the sensor
24 pixel. I don't believe it says there
25 that there is an amplifier in each and

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1 Neikirk
2 time?
3 MS. REDDING: Objection. Form.
4 **THE WITNESS:** So I have
5 discussed in my second declaration and
6 paragraph 44 on page 32 of my 475
7 second declaration, in reading
8 Dr. Lebby's declaration he seems to
9 insist that Suzuki must be a CCD
10 device and that that is because of
11 1991 nothing else was available. That
12 is simply not true.
13 CMOS image sensors were in the
14 art and I pointed to two references
15 one from 1990, that is Renshaw,
16 Exhibit 1090 and another to Shizukushi
17 it is U.S. Patent 4,841,348. I don't
18 know that -- oh, I am sorry, it is
19 Exhibit 1089. Both of those were
20 to -- were image sensors available at
21 the time.
22 BY MR. CAPLAN:
23 Q. Do you know if those were CMOS
24 active pixel sensors?
25 MS. REDDING: Objection. Form.

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1 Neikirk
2 every pixel. If there is then it
3 happens to be active. If there is not
4 it is not.
5 BY MR. CAPLAN:
6 Q. I just don't want to reask a
7 question. I just want to see if we get an
8 answer to the question.
9 So according to your testimony
10 once you combined Wakabayshi and Ackland and
11 then at that point to further add Suzuki
12 into the mix -- let me rephrase that.
13 I don't want to go around in
14 circles here on this one.
15 I don't think we actually got an
16 answer to the question is that why would a
17 person skilled in the art be motivated to
18 add Suzuki to the existing combination of
19 Wakabayshi and Ackland?
20 MS. REDDING: Object. Form.
21 **THE WITNESS:** I actually think I
22 pointed out numerous occasions,
23 motivations to combine.
24 Let me find the section in my
25 original report Exhibit 1004. It is

<p>Page 174</p> <p>1 Neikirk 2 on Bates page 99. 3 And I started in paragraph 115 4 stating "To the extent it is argued 5 that further disclosure is required 6 for limitation 1.K reciting the 7 largest dimension of -- sensor onset 8 first place between 2 and 12 9 millimeters. This limitation would 10 have been obvious on view of Suzuki's. 11 In paragraph 151 I gave the 12 title which is "Reduced Diameter 13 Camera Head for Suzuki." 14 Then in paragraph 152 I pointed 15 out various teachings of Suzuki 16 considering the sizes. That continues 17 over to page 101. 18 On page 103 of Exhibit 1004, 19 paragraph 154, I state, "Person of 20 ordinary skill in the art would have 21 been motivated to apply Suzuki's known 22 teaching of an image sensor comprising 23 a chip connecting board 226 between 24 8-1/2 and 10 millimeters to 25 implementing Wakabayshi's imager</p>	<p>Page 175</p> <p>1 Neikirk 2 apparatus as modified by Ackland's 3 teaching because as Suzuki expressly 4 discloses this arrangement of its 5 image sensor and circuit board allows 6 for the camera head to have an outer 7 diameter closer to a diagonal link of 8 a solid state imaging pickup thus 9 realizing Wakabayshi's objective of 10 making the camera unit compact and to 11 improve the camera's stability and 12 reliability." 13 I go on further to discuss 14 teachings from Suzuki and in paragraph 15 155 point out that Wakabayshi, Ackland 16 and Suzuki are in the same field of 17 art and they are analogous art to the 18 '052 patent. They are all solid state 19 image sensors. 20 Those are all reasons why it 21 would have been obvious to combine and 22 why one of ordinary skill in the art 23 would look to all these references. 24 They are aware of them. They are 25 clearly interrelated and Suzuki helps</p>
<p>Page 176</p> <p>1 Neikirk 2 further Wakabayshi's explicit stated 3 goals. 4 BY MR. CAPLAN: 5 Q. Are there any other teachings of 6 Suzuki that you would implement when you 7 have combined Suzuki with the existing 8 combination of Wakabayshi and Ackland where 9 you would only pick this dimension feature 10 that you identified? 11 MS. REDDING: Objection. Form. 12 THE WITNESS: Well, we have 13 discussed using Suzuki in the context 14 of claim -- sorry. 15 So, for instance, in the 512 IPR 16 discuss the combination including 17 Swift, Ricquier and Suzuki, which 18 illustrates the use of Suzuki for 19 and -- its teachings of claim 20 limitations referring to stacking 21 which is relevant to claim 2 of the 22 '052 patent. 23 MR. CAPLAN: A short break here 24 to see if I have anything else. 25 Five minutes.</p>	<p>Page 177</p> <p>1 Neikirk 2 (Recess) 3 BY MR. CAPLAN: 4 Q. Dr. Neikirk, I don't have any 5 further questions. I appreciate it. 6 A. You are welcome. 7 MS. REDDING: No questions from 8 petitioners. 9 (Time noted: 4:49 p.m.) 10 11 12 DEAN PAUL NEIKIRK, Ph.D. 13 14 Subscribed and sworn to 15 before me this day 16 of 2021. 17 18 19 20 21 22 23 24 25</p>

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<p>1 Neikirk</p> <p>2 CERTIFICATE</p> <p>3 STATE OF NEW YORK)</p> <p>4 : ss</p> <p>5 COUNTY OF NEW YORK)</p> <p>6 I, Steven Neil Cohen, a Registered</p> <p>7 Professional Reporter and Notary Public</p> <p>8 within and for the State of New York, do</p> <p>9 hereby certify: That DEAN PAUL NEIKIRK,</p> <p>10 Ph.D., the witness whose deposition is</p> <p>11 herein before set forth, was duly sworn by</p> <p>12 me and that such deposition is a true record</p> <p>13 of the testimony given by such witness.</p> <p>14 I further certify that I am not</p> <p>15 related to any of the parties to this action</p> <p>16 by blood or marriage and that I am in no way</p> <p>17 interested in the outcome of this matter.</p> <p>18 I further certify that neither the</p> <p>19 deponent nor a party requested a review of</p> <p>20 the transcript pursuant to Federal Rule of</p> <p>21 Civil Procedure 30(e) before the deposition</p> <p>22 was completed.</p> <p>23 In witness whereof, I have</p> <p>24 hereunto set my hand this 6th day of March</p> <p>25 2021.</p> <p><i>Steve Cohen</i></p> <p>STEVEN NEIL COHEN, RPR</p>	<p>1 Neikirk</p> <p>2</p> <p>3 INDEX OF EXAMINATION</p> <p>4 WITNESS PAGE</p> <p>5 DEAN PAUL NEIKIRK, Ph.D. 5</p> <p>6 By Mr. Caplan 6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p>1 Neikirk</p> <p>2 DEPOSITION ERRATA SHEET</p> <p>3 Assignment No. 1064</p> <p>4 Case Caption: Samsung Electronics, Co.</p> <p>5 Ltd. vs. Collect, LLC</p> <p>6 DECLARATION UNDER PENALTY OF PERJURY</p> <p>7 I declare under PENALTY OF PERJURY</p> <p>8 that I have read the entire transcript of</p> <p>9 my Deposition taken in the captioned</p> <p>10 matter or the same has been read to me,</p> <p>11 and the same is true and accurate, save if</p> <p>12 any, as indicated by me on the DEPOSITION</p> <p>13 ERRATA SHEET hereof, with the</p> <p>14 understanding that I offer these changes</p> <p>15 as if still under oath.</p> <p>16</p> <p>17 DEAN PAUL NEIKIRK, Ph.D.</p> <p>18 Subscribed and sworn to on the _____ day</p> <p>19 of _____, 2021 before me,</p> <p>20</p> <p>21 Notary Public,</p> <p>22 in and for the State of _____.</p> <p>23</p> <p>24</p> <p>25</p>	<p>1 Neikirk</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 SIGNATURE:_____DATE:_____</p> <p>25 DEAN PAUL NEIKIRK, Ph.D</p>

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