

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MIANYANG BOE OPTOELECTRONICS TECHNOLOGY CO., LTD.,
WUHAN CHINA STAR OPTOELECTRONICS SEMICONDUCTOR
DISPLAY TECHNOLOGY CO., LTD., TIANMA ELECTRONICS CO.
LTD., and VISIONOX TECHNOLOGY, INC.,
Petitioner,

v.

SAMSUNG DISPLAY CO., LTD.,
Patent Owner.

IPR2023-00987 (Patent 9,818,803 B2)
IPR2023-00988 (Patent 10,854,683 B2)
IPR2023-01075 (Patent 11,594,578 B2)

Record Of Oral Hearing
Held: October 9, 2024

Before JAMESON LEE, TERRENCE MCMILLIN, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

IPR2023-00987 (Patent 9,818,803 B2)
IPR2023-00988 (Patent 10,854,683 B2)
IPR2023-01075 (Patent 11,594,578 B2)

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The above-entitled matter came on for hearing on Wednesday, October 9, 2024, commencing at 10:00 a.m., via video teleconference.

P R O C E E D I N G S

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JUDGE LEE: Good morning, it's Judge Jameson Lee. Welcome to the Board. My colleagues on the panel are Judge Terrence McMillin and Judge John Hudalla. This is a consolidated oral hearing for three inter party reviews, IPR2023-00987, -00988 and -01075. Would counsel for each side please introduce themselves and let us know who will be presenting arguments today, starting with Petitioner.

MR. HERMAN: Good morning, Your Honors. This is Patrick Herman from Orrick, Herrington, and Sutcliffe here on behalf of Petitioners, and I will be the sole presenter for Petitioners today.

JUDGE LEE: Thank you. Patent Owner's side, please.

MR. WEIDENFELLER: Good morning, Your Honor. This is Scott Weidenfeller on behalf of Patent Owner, Samsung Display. I will be presenting this morning on the issue of objective indicia and my colleague Jeff Lerner will be presenting on other issues.

JUDGE LEE: Thank you. Can you confirm that there's been no motion to seal in these proceedings and that nothing in the record need to be kept confidential in this hearing? Both sides.

MR. HERMAN: Petitioner confirmed, Your Honor.

MR. WEIDENFELLER: Yes, Your Honor, that was correct.

JUDGE LEE: Wonderful. So, each side has been authorized 120 minutes of oral argument time, but you need not use all of that time. We will insert two mini breaks of five minutes each. One immediately after Petitioner's first time up and another one immediately after Patent Owner's

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1 first time up. The Petitioner will go first and may reserve time for rebuttal.
2 When the Petitioner is finished, the Patent Owner will start to present and
3 also may reserve time for rebuttal. When the Patent Owner is finished in its
4 first time up, then the Petitioner returns to present its rebuttal and when that
5 is done, the Patent Owner will finish with its sur rebuttal. If at any time
6 during this hearing you encounter technical difficulties that fundamentally
7 undermine your ability to adequately represent your client, please let us
8 know. For example, by contacting the team member who provided you with
9 connection information.

10 And please identify yourself when you begin your argument. And
11 please speak clearly into the microphone. And please do not speak when
12 others, such as the judges, are speaking. We have the entire record,
13 including demonstratives. When referring to demonstratives, papers or
14 exhibits, please do so clearly and explicitly by slide or paper number. And
15 also, please pause a few seconds after identifying it to provide us time to
16 find it. And please activate mute when you're not speaking. And please
17 bear in mind the purpose of the hearing is to present your case based on the
18 arguments and evidence of record. You may not introduce new evidence or
19 arguments for the first time at this hearing. And Petitioner, whenever you're
20 ready, you may begin. It's 10:04 right now.

21 MR. HERMAN: Thank you, Your Honor. I'm going to try to reserve
22 20 minutes of my time for rebuttal.

23 JUDGE LEE: Thank you.

24 MR. HERMAN: And again, this is Patrick Herman from Orrick,
25 Herrington and Sutcliffe on behalf of Petitioner. So good morning, Your

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1 Honors. We're here today to talk about the '803, the '683, and the '578
2 Patents. And if you could turn to slide two of Petitioner's demonstratives.
3 I'll begin by providing a brief introduction to the patents, the prior art, and
4 the grounds that are at issue here, which I believe is important to provide
5 some context for the party's dispute. And after that introduction, I'll move
6 on to address the party's various disputes. So, turning to slide three now, all
7 three of the patents that are at issue here claim priority back to the same
8 March 2012 filing, and all three also share a specification. And what do the
9 patents relate to? A pixel arrangement, structure for an OLED display.
10 Now, as we talk through the various issues in this proceeding here today,
11 there are a couple of important things to keep in mind about this. The first is
12 that these patents are only about a pixel arrangement. They add nothing new
13 about the way an OLED display is driven. In fact, the patents do not even
14 care if their pixel arrangement is used with what is known as an active
15 matrix or a passive matrix display. You won't even find those words in the
16 specification.

17 Next, the patents are open to a range of different pixel sizes and
18 shapes. For instance, the blue pixel can be biggest, the red pixel can be
19 biggest, or some other color can be biggest. The patents are indifferent. The
20 same applies to pixel shapes. Per the patents, any shape that does not
21 interfere with intervening signal lines can be used, and the patents say
22 nothing at all about specific pixel spacing. The pixels can be closely packed
23 together or spaced very, very far apart. The patents can contemplate both.
24 Lastly, no new manufacturing techniques are disclosed. The patents
25 reference prior art fine metal mask techniques, but do not require the use of

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1 that or any other manufacturing technique. So that is the context provided
2 by the '803, the '683, and the '578 Patents, a general pixel layout that is
3 admittedly usable in a large range of different circumstances and with a
4 variety of different displays.

5 So, moving on to slide four. Slide four reproduces Figure 2 and claim
6 1 from the '803 Patents, and the claim serves to emphasize the patents as
7 you can see, the claim references an OLED display, but it says nothing about
8 the type of display beyond that. So, the claim is open to both active matrix
9 and passive matrix displays and embraces both of those things.

10 JUDGE HUDALLA: Mr. Herman?

11 MR. HERMAN: Yes?

12 JUDGE HUDALLA: This is Judge Hudalla. I just had a question for
13 you about since we're just starting to talk about the claims, Patent Owner, I
14 think, argues, at least in two of these cases, that the preamble is limiting. I
15 didn't see that you had responded to that in any way. Do you agree that the
16 preamble is limiting?

17 MR. HERMAN: That's not an issue that Petitioner has taken a
18 position on, because it is, in fact, disclosed by the prior art, regardless of
19 whether it's limiting or not the prior art. In all cases, Matthies, Phan, and
20 Murai teach pixel arrangements that are intended for use of OLED displays.
21 So, the petition does not take a position on whether the preamble is limiting,
22 because whether or not it is, it's taught by the prior art.

23 JUDGE HUDALLA: Okay, thank you.

24 MR. HERMAN: So, moving back to slide four, the claim serves to
25 emphasize the patent's breadth. And as you can see, the claim references an

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1 OLED display, but it says nothing about the type of display beyond that. So
2 the claim is open to both active and passive matrix displays. Next, the claim
3 references the first, second, and third pixel. Those need to be arranged in
4 what the claim calls a virtual square. While the claim does say that the first
5 pixel needs to be green, it doesn't say anything at all about the other two
6 pixels. They can be any color. It also says nothing about required shape.
7 And while the claim says that the second pixel needs to be larger than the
8 third pixel, that does not necessarily require a larger blue pixel. The red
9 pixel or some other color pixel can still be largest. And the claim doesn't say
10 anything at all about how far apart or close together the pixels are, whether
11 the display is high definition or how it's manufactured.

12 So, the next two slides, slide five and slide six reproduce the first
13 claims from the '683 and the '578 Patents. And while those claims use more
14 words than claim one of the '803 Patents, they are just as broad. They
15 reference only OLED displays are open to different pixel colors and do not
16 require pixel shapes or spacing. In fact, neither even references the virtual
17 square concept. Instead, they use more generic geometric terms. Moving on
18 to slide seven. Slide seven provides an overview of the grounds across these
19 three proceedings that we're discussing today. Now, there are three primary
20 references at issue of Matthies, Phan, and Murai. And the first thing I would
21 like to note is that there's no dispute that any of those are prior art to the
22 three patents at issue here.

23 I recognize that in Your Honor's institution decision, there was a
24 question about Murai's date of publication, whether it's the registration date
25 listed on the base of Murai or the issue date. But for our purposes here, it

1 does not matter which date is the correct date as it would be prior, regardless
2 of which of those dates apply. But I believe it is an issue date that applies to
3 now, all three of those references are applicable to the '803 and the '683
4 proceedings, and only Matthies that issue in the '578 proceeding. Now,
5 Yamada is identified as a secondary reference in all three proceedings for
6 the same purpose, which I'll get to in a minute. And a reference to Hong is
7 identified in connection with certain dependent claims in the '578
8 proceeding. So now I'd like to spend a couple of minutes just walking
9 through each of those references again to provide a little bit of context for
10 the disputes that I'm going to go through next. So if you could turn to slide
11 eight.

12 This slide, along with the next few, includes an overview of the
13 Matthies prior art reference and what does Matthies teach. As shown in the
14 passage, it's reproduced on the upper left of the slide. It teaches an electric
15 electronic display device. The passage immediately below that explains this
16 device is formed from an array of pixels on tiles, and the next passage
17 explains that each of these pixels is an OLED element. So, it means
18 Matthies is teaching a display that's an OLED display. Now, while Matthies
19 teaches many other things, as shown by the passages on the right of slide
20 eight, one of the things it discusses is the pixel layout used by its display,
21 and when doing so, it explains that each pixel can be "centered in their
22 respective pixel regions." End quote. Now, Matthies also provides example
23 pixel structures, and as shown in the lower right of the slide, one of those
24 structures is what Matthies calls a quad sub pixel structure with two green
25 subpixels, a red subpixel, and a blue subpixel arranged in a square.

1 So slide nine includes Figures 1, 7 and 8B from Matthies. Figure 1
2 shows the overall display formed from individual tiles like 122 and 124.
3 Figure 7 shows an example tile structure with four pixels and 16 subpixels.
4 And as you can see, each sub pixel is centered in this respective area, as
5 Matthies says it should be in its specifications. And Figure 8B shows
6 Matthies quad subpixel structure where each pixel has two green subpixels,
7 a red subpixel, and a blue subpixel arranged in a square. So, slide ten
8 summarizes what Yamada adds to the combinations that include Matthies.
9 And as shown by the excerpt on this slide, Yamada also relates to an OLED
10 display with red, green and blue pixels. And Yamada begins by highlighting
11 a problem with known prior OLED displays. In particular, as shown on this
12 slide, Yamada notes that these existing displays have identically sized red,
13 green and blue pixels we just saw on the prior slide. This is exactly what
14 Matthies shows in his figures. A display with identically sized pixels.
15 What's the problem with this? According to Yamada, it leads to display
16 lights and color balance issues.

17 So slide eleven, Yamada goes on to propose a solution for these
18 displays with same size pixels. And what's Yamada's solution? Simply
19 resize the red, green and blue emissive elements. In other words, make them
20 different sizes according to their emission efficiency. So according to
21 Yamada, this both improves display light and makes white balance easier to
22 control. And you see an example of that in figure four from Yamada. On
23 the right of the slide, the blue pixels are made relatively largest, the red have
24 an intermediate size, and the more efficient green pixels are made relatively
25 small or relatively smaller. So moving on to slide twelve. Slide twelve

1 summarizes how a POSITA would apply Yamada's teaching to Matthies. As
2 explained in the petition, as shown on the left, Matthies tile display would
3 continue to be used. The display would also continue to use --

4 JUDGE LEE: Mr. Herman, it's Judge Lee. Can I ask you a question
5 before you get onto a virtual square? I am wondering. Patent Owner says
6 that what you try to do with the Matthies/Yamada combination is to take the
7 structure shown in Matthies and then reduce the size of the red and the green
8 pixels. Is that what you have proposed?

9 MR. HERMAN: That's an example, Your Honor, of what the petition
10 is proposing, what the petition is actually proposing and what the prior art
11 actually teaches is that the blue, the red and the green pixels be relatively
12 resized, that the blue may be made relatively largest, the red be made
13 relatively of an intermediate size and the green be made relatively smallest.

14 JUDGE LEE: No, I understand there's a difference there it seems.
15 But I'm just trying to figure out which route you actually took. They say
16 that's not what you did. They say that's too broad. Petitioner actually
17 proposed to take the device shown in Matthies and modify it. And to do the
18 modification, you reduce the size of the red and the green. So, I just want to
19 ask you, what exactly did your petition propose? If you can show us. If you
20 say no, that's not what we did. We propose to have a relative difference. It
21 doesn't matter whether I'm increasing the blue or decreasing the red. And
22 that's one scenario. The other scenario is that you indeed did what they say,
23 which is, I'm going to take Matthies device, and this is what it looks like.
24 They all have the same size, and I'm going to reduce the size of the red and
25 the green.

1 MR. HERMAN: So, Your Honor, the demonstratives in the petition
2 did the latter. They kept the blue pixel as their original size, and they
3 relatively reduced the sizes of the red and the green pixels. But the reason
4 they were doing that was to achieve a relative difference in size between the
5 blue, the red, and the green pixel. And I would like to note for the record,
6 Your Honor, that that is exactly what the '803 Patent does when it comes to
7 the lifetime of its display. And I'll point Your Honors to Figures 1, 2, and 3.
8 If you read through the '803 Patent specifications, the '803 Patent
9 specification does not say that Figure 1 has improved lifetime, but it does
10 say that Figures 2 and 3 have improved lifetime. Now, what is the only
11 difference between Figures 1, 2, and 3? In Figures 2 and 3, the size of the
12 blue pixel has not increased, but the size of the red and the green pixel have
13 relatively decreased. So, they are saying that lifetime of a display can be
14 improved if you leave the blue pixel the same size and you reduce the sizes
15 of the red and the green pixel. That is the only example in the '803 Patents.
16 And that's the same example that the petition pointed out is disclosed in the
17 prior art. And that's what Yamada teaches, and that's the example that the
18 petition walked through.

19 JUDGE LEE: Okay, I understand what you're saying, but the way the
20 reply is written is not consistent with what you're saying, because if it were
21 true, what you said was true right now, then the reply would sound
22 something like this, oh, Patent Owner, you got me all wrong, because all that
23 matters is relative. You know, blue has to be biggest, red, medium, and then
24 the green is the smallest. That's all it takes. And therefore, I haven't
25 proposed anything different. That's what you would say. But your reply

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1 doesn't say that. Your reply goes into a big scenario where you say, oh,
2 yeah, I've reduced the green and the red, but that actually makes them all
3 kind of have a similar lifetime. It's a more balanced lifetime among all
4 three, which is a good thing. So that's more consistent with the scenario
5 they're talking about, which is you actually do take all three big ones and
6 then reduce the size of the red and the green.

7 And it seems to me the way you approach this in the reply is going on
8 a new angle that you never talked about in your petition. It sounds like a
9 brand new argument to me to change the thrust to say, oh, we need a more
10 balanced lifetime among all three. I don't think I get that idea at all from
11 your petition. The petition is just make the blue bigger, then the red, then
12 the green, and now suddenly in the reply, it's all about a more evened out
13 and more balanced lifetime for all three. Can you address that?

14 MR. HERMAN: Your Honor, I disagree with that characterization of
15 both the petition and the reply. And here's the reason for that. The petition
16 pointed out that resizing the pixels, and in the example, the pixels were
17 relatively resized, right? The blue is relatively largest, the red is of
18 intermediate size, and the green is of smallest size. So the pixels do have
19 relatively different size. And the petition pointed out that doing that
20 improves the lifetime of the display. And we pointed to multiple prior art
21 references, including Yamada and a reference to Smith, that support that
22 notion. And when there's expert testimonies that support the notion that
23 when you relatively resize pixels, including by reducing the size of the red
24 and reducing the size of the green, you get a display whose lifetime is
25 improved, then that's the position that's articulated in the petition.

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1 JUDGE LEE: Okay, I understand, but why do I always, I read the
2 reply, read the petition. They just don't seem to match to me. In the
3 petition, it's all about if I reduce the size of the blue, the blue is going to live
4 longer. There's no mention about this balancing. And, you know, all the
5 other stuff you insert in your reply, and if I go through your reply, it's all this
6 other stuff about color balancing. You know, it's not simply about I'm going
7 to make the blue live longer, which I think is all your petition said. And
8 suddenly in the reply, there's a whole lot more.

9 MR. HERMAN: So, Your Honor, I do not agree that that's all the
10 petition said. The petition said that the display would be made longer, and
11 those are the words that the petition used.

12 JUDGE LEE: I know, I know. But the reason is the blue will live
13 longer, so the display will live longer. Usually the blue dies first, right? So,
14 if you make the blue live longer, the display will live longer. That's not
15 what I get from it.

16 MR. HERMAN: So that's Patent Owner's response. Patent Owner's
17 response to the petition was that the only way that the display could ever be
18 made to live longer is if the blue pixel standing alone lives longer. And our
19 reply was that, no, that's in fact, a mischaracterization of the prior art. That
20 is a prototypical reply, and it's completely appropriate. When the Patent
21 Owner mischaracterizes the teaching of the prior art, a Petitioner is
22 permitted to respond and explain why the mischaracterize --

23 JUDGE LEE: Wait, but you're the person with the burden of proof.
24 Don't you have to explain all of that to us? You know, when I read the
25 reply, indeed, all I get is the display lives longer because the shortest living

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1 pixel is now going to live longer. If you want more than that, don't you need
2 to tell us that instead of reserving it until the reply, until the Patent Owner
3 points it out to you? So you're going to have to do a little more explanation
4 to me.

5 MR. HERMAN: So, Your Honor, first of all, this is only one of the
6 seven reasons.

7 JUDGE LEE: I know, but please don't move to another area. I really
8 want to get to the bottom of this one before you get to another one.

9 MR. HERMAN: So, Your Honor, I believe that the petition was not
10 as limited as Your Honor is implying. So, for instance, when it comes to
11 motivation to combine, the petition explains that by resizing the pixels, the
12 life of the display would be extended. And it does not say that you're not
13 going to find a sentence saying that the sole reason for that is because the
14 blue pixels live longer.

15 JUDGE LEE: Yes, but the sole reason you provided is that the blues
16 will live longer. So, we can't be speculating what other reasons there are
17 until you tell us in the reply, right?

18 MR. HERMAN: We summarize the Yamada reference, and the
19 Yamada reference says unambiguously that relatively resizing your pixels
20 allows the display to live longer. And that's its teaching. And the petition
21 summarizes Yamada and explains why Yamada's teaching would lead one of
22 ordinary skill in the art to resize the pixels of Matthies. Its teaching is that
23 you resize in relatively resized pixels to improve the life of the display. And
24 those teachings are cited in the petition. And not only are those teachings
25 cited in the petition, but Yamada's other teachings are cited in the petition,

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1 including the fact that resizing the pixels makes it easier and more efficient
2 to balance the color of your display that's cited in the petition. It's listed as
3 one of the motivations to combine. It's not a new argument. It's an
4 argument that's always been there. All that the Petitioner has done here is
5 explain why Patent Owner's attempts to cabin the teachings of the prior art
6 and limit what the prior art teaches are mischaracterizing the prior art's
7 teachings. Does that answer your question, Your Honor?

8 JUDGE LEE: Well, it does, but it doesn't resolve my uncertainty.

9 MR. HERMAN: Okay, so, moving back to slide twelve. Slide twelve
10 —

11 JUDGE MCMILLIN: I'm sorry to interrupt you again. You referred
12 to the '803 specification. It seems to me that these arguments are more
13 general to all three petitions. Is it also true that what you said about the '803
14 Patent specification is true about the '683 Patent specification and the '578
15 Patent specification?

16 MR. HERMAN: Yes, Your Honor. Since all three patents include
17 exactly the same specification, the point is the same. The line sight that we
18 give you would be one or two off, but the points are the same, Your Honor.

19 JUDGE MCMILLIN: Thank you.

20 MR. HERMAN: So, moving back to slide twelve. Slide twelve
21 provides an overview of how Yamada is applied to Matthies in the petition.
22 So you can see that the pixels are still arranged in the claim virtual square
23 because they're centered in their respective areas, as Matthies teaches. But
24 as shown following Yamada's teachings, the red, the green and the blue
25 subpixels have been resized in accordance with their emission efficiency.

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1 The blue pixels have been made relatively largest, the red intermediate size
2 and the most efficient green pixels have been made smallest. So, the prior
3 art teaches exactly what the claims here require. Pixels arrange the square
4 with red pixels with the red green, and the blue pixels made different sizes.
5 In fact, the prior art teaches this with even more specificity than the '803,
6 '683 and the '578 Patents themselves do. Matthies includes a numerical
7 example of its pixel spacing, and it does more than just show this in its
8 figures. So it includes a numerical example of pixel spacing, and Yamada
9 also includes a numerical example of relative pixel sizes. In contrast, the
10 three patents that we're talking about here include no numerical examples.
11 Instead, they include only figures that the patents say their figures are
12 arbitrarily given.

13 So, moving on to slide 13. Slide 13 provides an overview of the Phan
14 reference. So Phan also relates to a display formed from pixels. According
15 to Phan, that display can be an OLED display, and Phan also discusses its
16 pixel layout. As shown on the right, the pixels could be square and arranged
17 regularly. Well known grid pattern. Further, Phan explains that the sub
18 elements making up the pixels can be regrouped into what it calls dynamic
19 pixels. So, rather than using only fixed sets of subpixels to display an
20 image, Phan can use subpixels from one pixels and subpixels from an
21 adjacent pixel to form a new dynamic pixel. And according to Phan, this
22 allows for display resolution to be increased. So, slide 14 reproduces
23 Figures 2a, 11a, and 11b from Phan to provide examples of Phan's teachings.
24 Figure 2a shows an array of regularly arranged red, green and blue
25 subpixels, or dots, as Phan calls them, and shows how they can be grouped

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1 into static pixels. That's the box labeled 17, or dynamic pixels that's circled
2 and labeled 18. Now Figures 11a and 11b provide examples of dot
3 structures. The red, green and blue dots can be equally sized as shown in
4 Figure 11a, or the blue dot can be biggest, as shown in Figure 11b. Now
5 moving on to slide 15.

6 Now, as I noted earlier, the petitions in the '803 and the '683 Patent
7 IPRs include grounds asserting Phan by itself, and slide 15 shows how Phan
8 renders many of the patent's claims obvious. As shown, the pixel from
9 Figure 11a is used to generate Phan's display when these pixels are arranged
10 in the well-known grid pattern that Phan teaches, which, as I'll explain later,
11 is necessary for its dynamic pixels to work the way they are supposed to and
12 increase resolution. The colored dots form the virtual square the claims
13 require, and you see that in the demonstrative on the right side of the slide.

14 Now slide 16. The petitions in the '803 and the '683 Patent IPRs also
15 include ground where Phan is modified in view of Yamada's teachings, and
16 the slide provides an example. And as shown, Phan's dots continue to be
17 arranged in the same well known grid such that dynamic pixels can be
18 formed. But the dots have now been resized in accordance with their
19 emission deficiency following Yamada's teachings.

20 JUDGE LEE: Mr. Herman, it's Judge Lee. I'd like to ask you. The
21 petition says Phan explains that its teachings can be employed with various
22 display technologies, including OLED. And you cite column one, lines 18
23 to 29. So, when I look at column one, lines 18 to 29, that doesn't seem to be
24 what it says. All it says is this invention relates to a number of displays, and
25 one of the listed ones is OLED. Isn't there quite a difference between what

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1 Phan actually says, which is very broad, the invention relates to, and what
2 you claimed it says, which is Phan explains that its teachings can be
3 employed with various display technologies, including OLED.

4 MR. HERMAN: So, Your Honor, Phan's invention is a particular
5 pixel arrangement. So its invention is a pixel arrangement that not only
6 allows for the display of image using fixed static pixels, but also changing
7 dynamic pixels. That's its invention. And what it's saying in the lines that
8 Your Honor quoted is that that invention relates to a variety of different
9 fields of technology. It is not related to just LCD displays. It's also related
10 and usable with a variety of other displays.

11 JUDGE LEE: That's where I have an issue. Relates to, is a very
12 broad term, and to an extreme, it covers a scenario where it could be that, oh,
13 this invention is a severe, great improvement from all of those. All of those
14 don't work. And I have a brand new method and layout that works in my
15 invention that still relates to. And you're taking, that relates to, which is at a
16 very, extremely high level, and take it way down to, oh, that means it says,
17 whatever I invent here can be applied equally as is in each of those displays.
18 I don't, I wouldn't do that. And can you explain why you're able to make
19 that assertion?

20 MR. HERMAN: Well, for two reasons. Number one is that the law
21 requires that the law, including the Supreme Court's *KSR* decision, says that
22 one of ordinary skill in the art is not an automaton. They are able to make
23 real, reasonable inferences from the prior art. And when a prior art reference
24 says, my invention relates to OLED displays, they don't come up with the
25 narrowest possible interpretation of that and then run with it. They consider

1 everything that's obvious in view of that particular teaching. And one of the
2 things that's obvious in view of that particular teaching is that Phan is saying
3 that this pixel arrangement can be used with an OLED display. And if Your
4 Honor needs an example of why one of ordinary skill in the art would have
5 thought that there are other --

6 JUDGE LEE: I have to interrupt you here because you're not really
7 answering my question. I agree with all of that. Then it would be an
8 obvious argument. You would have to say, this is what Phan says, but I'm
9 going to interpret it. A POSITA is going to read that and understand that it
10 means you can use my invention without change, as is in each one of those
11 devices. In fact, nothing needed to be changed. But you didn't do that here.
12 You just say, oh, Phan explains. Well, where's the explanation? There's no
13 explanation in Phan, and there's no explanation in the petition. You just
14 point to this paragraph and say Phan explains that its teachings can be
15 employed with various display technologies. So, I don't think you've given
16 me an answer there. I agree with what you say, but it doesn't fit the facts
17 here.

18 MR. HERMAN: So, respectfully, Your Honor, it does in fact fit the
19 facts. But Phan says and the petition says, not that Phan anticipates the
20 claims, but that it renders the claims obvious. And the portion of the petition
21 that addresses this particular limitation, uses the word teach. I'll read it back
22 to you, Your Honor. It's on page 46. To the extent the preamble is limited,
23 Phan teaches. And then it goes on to explain what it teaches, and one of the
24 things that it teaches --

1 JUDGE LEE: You're going to a different part. I'm focused on this
2 sentence. Phan explains that its teachings can be employed with various
3 display technologies, including OLED. And, you know, can you focus on
4 this? Is that statement correct?

5 MR. HERMAN: Yes. Yes, that statement is correct. Right. That's
6 where Phan leads one of ordinary skill in the art. We quote the passage of
7 Phan that does that. We have paragraphs of expert testimony explaining
8 why one of ordinary skill in the art would arrive at that conclusion. And in
9 response to Patent Owners arguments, we pointed to other prior art
10 references that use the exact same type of pixel that's shown in Figure 11a in
11 Phan in an OLED display. So, if Your Honor needs an example of one of
12 ordinary skill in the art's understanding of the applicability of Phan's
13 teachings, there is an example in the prior art of the use of the very same
14 pixel that Phan teaches in an OLED display.

15 So, not only does Phan itself, say, my teachings, including the pixel
16 arrangements I teach, are usable in OLED displays, but others in the art
17 agree. Dr. Pattison is not standing alone. He's not saying something. He's
18 not pulling something out of thin air. His opinions are supported by
19 preexisting disclosure in the prior art.

20 JUDGE LEE: Okay, thank you.

21 MR. HERMAN: So, moving on to slide 17. Slide 17 provides an
22 overview of the Murai reference. So, Murai, like both Matthies and Phan,
23 teaches a display device. And as shown in the second excerpt from the top
24 of the slide, this display can be an OLED display. So next, Murai also
25 discusses how its pixel can be shaped and laid out. And as shown in the

1 third passage, the pixels can be rectangles arranged in a rectangular pattern.
2 The rectangles can be one specific type of rectangle, a square, as shown in
3 the bottom passage. Murai also teaches that the red, green and blue dots,
4 making up as pixels, can have different sizes with the corners cut off. So,
5 slide 18 provides examples. And as shown in Figure 3, to the left, the red,
6 green and blue dots are arranged in groups of four in a repeating pattern.
7 And while shown as rectangular, as I just noted, Murai also teaches that the
8 dots and the pixels can be square. Figures 6a and 6b provide various
9 examples of how the pixels can be resized by removing their corners.

10 Now, if you turn to slide 19, slide 19 shows how Murai, when
11 modified in view of Yamada applies to the claims as shown to the left,
12 Murai's pixels are arranged in a regular repeating grid, and this results in the
13 claim virtual square and as shown to the right, following Yamada's teachings
14 and Murai's own instruction that his pixels can be resized by removing
15 corners, the blue pixels been made relatively largest and the red of
16 intermediate size and the green smallest.

17 So, with that introduction aside, turning to slide 20 that introduction
18 out of the way, I'm going to move on to walk through the party's key
19 disputes. So I'll start with Patent Owner's argument that Matthies is
20 somehow limited to just passive matrix displays such that it is not
21 combinable with Yamada. It makes the same argument in all three
22 proceedings. The short answer here is that Matthies is not so limited. It is
23 equally applicable to all OLED displays. But even if it were somehow
24 limited to just passive matrix displays, it wouldn't matter if the art repeatedly
25 recognizes that resize pixels are useful in both active and passive matrix

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1 displays. Now, when reviewing Petitioner's and Patent Owner's respective
2 arguments in this briefing and here today on this issue, I think you'll see a
3 stark contrast. Well, I'll walk through the collective teachings of the prior
4 art and explain why those teachings would have led a POSITA to conclude
5 that Matthies both teaches what the claims require and as combinable with
6 Yamada, a Patent Owner will never address the art's collective teachings.
7 Instead, it will fixate on individual parts of single references in isolation.

8 You'll hear it announced time and time again that this expert has made
9 some supposedly un rebutted points, but everything that Patent Owner is
10 going to point Your Honors to is essentially a non sequitur. There is no
11 dispute that there are differences between active and passive matrix displays.
12 There is also no dispute that Matthies includes an example in the context of
13 a passive matrix display, but that standing by itself does not show
14 nonobviousness. Whether the claims are obvious can only be answered by
15 looking at the totality of what the art teaches, and that is something that
16 Patent Owner and his expert have not grappled with.

17 Turning to slide 21, before discussing Matthies, I'll highlight the
18 background knowledge that would have been possessed by a POSITA.
19 None of this is disputed. Indeed, this and the next few slides include
20 testimony from Patent Owner's experts, and as shown in this slide, when the
21 '803, '683 and '578 Patents were filed, it was known that OLED displays
22 could use either active matrix or passive matrix driving. Turning on to Slide
23 22, it was also known that a given OLED display could, according to Patent
24 Owner's experts, be architected for either passive matrix drive or for active
25 matrix drive. Next, as shown on Slide 23, it was known in the art that there

1 were issues with passive matrix displays leading towards a shift to active
2 matrix displays. So that is the context that a POSITA would be considering
3 Matthies. They would have known both active matrix and passive matrix
4 OLED. They would have known that a given OLED display could be
5 architected as either a passive matrix or an active matrix OLED and they
6 would have been aware of a shift towards active matrix displays.

7 So moving on to slide 24 now what does Matthies itself actually say?

8 Yes, it does state before walking through certain figures that an exemplary
9 embodiment employs passive matrix addressing. But importantly, this is
10 just an embodiment. It is not the extent of Matthies teachings. Now, before
11 discussing this passive addressing embodiment, Matthies repeatedly states
12 that it is not to be limited to just passive addressing. And if you turn to slide
13 25, it says in the passage to the top left of the slide, Matthies there explains
14 that its displays electronics can be active and passive. And what are these
15 active and passive electronics? They are the electronics that the display uses
16 for drive. You see a similar statement in the passage immediately below.
17 Both active and passive electrical devices and circuits can be used with
18 Matthies. Next, the passage on the right rejects the very narrow
19 interpretation that Patent Owner is proposing in this proceeding. According
20 to Matthies, it intends to refer to the electronics which form the image
21 processing and pixel driving circuitry in the broadest sense. So according to
22 Matthies, you are not to interpret Matthies teachings narrowly and you are
23 certainly not supposed to limit it to just specific types of drive electronics.

24 Then Matthies goes on to once again explain that his pixel driving
25 circuitry can include both active and passive, and it also specifically

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1 references active matrix circuits. Now, Patent Owner discounts all this in its
2 sur replies because in Patent Owners view, massive could just be referring to
3 individual active and passive components and not active and passive matrix
4 driving circuitry. Put another way, Patent Owner seems to be reading every
5 passage on this slide as just saying that there may be energy storing
6 components like transistors and capacitors in Matthies display, but nothing
7 more. But first, this was a new argument. It's nowhere to be found in Patent
8 Owner's response. It's also wrong. Matthies itself says that it's drive
9 electronics are what can be active and passive, and it also includes a specific
10 reference to active matrix circuits. That's why, as you'll see on Slide 26,
11 Petitioner's expert, Dr. Pattison, testified that a POSITA would not consider
12 Matthies to be talking only about individual disembodied active and passive
13 components. Instead, a POSITA would understand Matthies to refer to
14 active and passive matrix addressing.

15 The argument also entirely ignores that the primary distinction
16 between an active matrix circuit and a passive matrix circuit is the presence
17 of active components. The active matrix circuit includes active components
18 like transistors and capacitors in association with each pixel, while the
19 passive matrix circuit does not. And you can see that at Patent Owner's own
20 exhibits. For example, Exhibit 2073, which Patent Owner will point to you
21 to multiple times today, as page eleven shows a basic graphical overview
22 distinction between a passive matrix OLED and an active matrix OLED.
23 And what's the main difference? There are active components, including a
24 transistor and a capacitor in each pixel in the active matrix display, and there
25 are not such components in the passive matrix display. So, by saying that its

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1 pixel driving circuitry can include active components, Matthies is of course
2 pointing a POSITA to circuits that use such components. This is what
3 would lead a POSITA to conclude that it is not limited. Matthies is not
4 limited to just passive matrix, but also contemplates the use of active matrix
5 circuits.

6 JUDGE LEE: Mr. Herman, it's Judge Lee. In column 17 of Matthies,
7 there's this sentence about larger and smaller sized pixels, and when I ask
8 you about that, let me read you what it says first. 17 where'd it go? Well,
9 anyway, it says the invention contemplates both larger and smaller pixel
10 apertures. Why does that mean you can have different size pixels on the
11 same matrix? Or why doesn't that mean you can pick larger or smaller
12 pixels, but once you pick them, they got to stay the same size?

13 MR. HERMAN: Because there's no requirement in Matthies
14 anywhere that every single pixel be the same size. And there's a couple of
15 reasons for that. So, for instance, another thing that Matthies teaches is that
16 the pixels can vary in size across its display. They do not need to be the
17 same size everywhere. So, Matthies is already open to the use of different
18 sized pixels in one place of its display and different size pixels in another
19 place of its display. So, it's already at a place where there is no requirement
20 that pixels be exactly the same size everywhere. So once one of ordinary
21 skill in the art sees that, sees the fact that Matthies allows for pixels to
22 change size across its display, then when reading the passage in figures in
23 column 17 that Your Honor pointed me to, one of the obvious places that
24 that would leave one of ordinary skill in the art is to conclude that Matthies

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1 does not close the door on the application of Yamada because it says that the
2 aperture ratio of its pixels can change.

3 So, yes, it could be saying that one of the ways that you could
4 implement it is by making all of the pixels larger or all of the pixels smaller.
5 But at the same time, given the full scope of its disclosure and everything
6 that Matthies discloses, including its specification, that pixel size can vary
7 across its display, one of the places that an ordinary skilled artisan would be
8 led would be to conclude that Matthies is amenable to and does not close the
9 door on applications of Yamada.

10 JUDGE LEE: So again, you know what is the argument? You seem
11 to blur the difference between teaching and what's obvious. Well, now
12 you're taking a step backwards to say, well, it would have been obvious. So,
13 this sentence doesn't really say what you wanted to say, right? You're
14 saying, looking at this, one would have been. It would have been suggested
15 to a POSITA to have different size pixels on the same display, then why
16 doesn't this sentence say so?

17 MR. HERMAN: So if it said that, this would be an anticipation case,
18 right? If it said that Matthies would anticipate the '803 Patents, right? But it
19 does not say that explicitly. So this is an obviousness case. So the question
20 is not whether it's that Your Honor, statement is in Matthies in black and
21 white. It does not need to be there in black and white for the concept to be
22 obvious. But --

23 JUDGE LEE: I agree with you, it doesn't need to be there. But for
24 you to have the burden of proof, don't you have to say, this is what it
25 actually says? But it would have been obvious to have this understanding

1 from it on the basis of obvious. But I keep reading the petition. It keeps
2 coming, hitting me like you're saying, this is what it says and that's it. You
3 know, what does it say? Based on the sentence you say? Oh, based on this
4 sentence. What about the fact that each pixel in a passive matrix is the
5 intersection of horizontal row electrode and a vertical column of electrode?
6 Doesn't that put a limit? Doesn't that preclude you from having different
7 sized pixels on the same display? Because it's the same row, right. And it's
8 the same column, so they've got to stay the same on the same display.

9 MR. HERMAN: Your Honor, first, I respectfully disagree with the
10 premise of the question. Whether or not a passive matrix pixel can be
11 resized is not relevant to the obviousness question here. And why is that?
12 Because Matthies does not limit itself to that. Matthies does not limit itself
13 to passive matrix displays. It says that its pixel arrangements can also be
14 used in active matrix displays. But if Your Honor wants to address that
15 issue for purposes of completeness. Yes. Patent Owner's expert Dr.
16 Kymissis says that there's some sort of limitations in the size and shape of
17 pixels in a passive matrix. But like what most of what he says that not only
18 lacks evidentiary support, but it is also at odds with what the evidence of
19 record actually shows. There is no evidence of record that says there is any
20 such limitation on passive matrix pixels. Patent Owner is not going to be
21 able to point you to anything in the record that says passive matrix pixel can
22 only be exactly the size and shape of the overlap of electrodes. In fact, the
23 prior art of record teaches the opposite. And the prior art of record would
24 not exist if that was the limitation.

1 JUDGE LEE: I forgot whose paper it is, but there was like a tutorial
2 about on passive matrix. And in that section it says, this is what passive
3 matrix means. The pixel is the intersection of the horizontal and vertical
4 columns of electrodes. I don't think you disputed that, you know, so right
5 now, I'm taking that as fact. Are you saying that's not true? That's not the
6 definition of a passive matrix.

7 MR. HERMAN: So I agree, Your Honor, that the pixels in the
8 passive matrix display are located at the intersection of an anode and a
9 cathode. But that does not then necessarily mean that they must be shaped
10 exactly like the anode and the anode. In fact, the prior art repeatedly
11 discloses that that is not a limitation that should be imposed on passive
12 matrix displays.

13 JUDGE LEE: Help me understand that. What does that mean? If
14 you have an intersection of a horizontal electrode row in a vertical column,
15 isn't the intersection where they overlap, and that's where the pixel is? It
16 cannot be any size other than the overlap.

17 MR. HERMAN: So it's the organic material that is located between
18 those two. To add the anode responsible for emitting light, the anode and
19 the cathode are just providing the electrical signals that are needed to
20 stimulate that organic material.

21 JUDGE LEE: I understand. So that material has to be exactly the
22 same size as the overlap.

23 MR. HERMAN: So if that were the case, Your Honor, references like
24 Exhibit 1011 would not exist. Because Exhibit 1011, which is a patent
25 publication to Smith, includes a whole lot of pixel sizes and shapes. And it

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1 says in paragraph 25 that those pixel sizes and shapes can be applied to both
2 active and passive matrix displays. And what types of pixel layouts does
3 Smith contemplate? It does not limit itself to just arrays of squares. There
4 are examples that are pentagon.

5 JUDGE LEE: But tell me, can you explain why? I mean, logically, if
6 you have an intersection. That's the intersection. How do you get a
7 different, you know, a neighboring pixel having a different size if it's the
8 same size horizontal electrode and the same size vertical electrode?

9 MR. HERMAN: Well, because one of the basic fundamental
10 electrical principles, electrical fields between two opposing plates are not
11 limited to the space between two plates. Then there is an edge effect. Right.
12 So pixels can be larger and smaller than the electrodes that surround them.
13 Yes, they can be exactly the same, but it's the size and the shape of the
14 sandwich organic material that's in between that's going to control the light
15 emitting area, not the electricity.

16 JUDGE LEE: I see. So if you make the material smaller than the
17 intersect area, then it will be smaller. If you make the material larger than
18 the intersect area, then it will be larger.

19 MR. HERMAN: That's right, Your Honor. But again, this does not
20 matter for purposes of addressing the ground here. Right? Because,
21 Matthies, the reference that says issue is not limited to passive matrix
22 display. So while academically interesting, it's not fundamental to the
23 party's dispute.

24 JUDGE LEE: Well, I understand, but we may not agree with you on
25 that. Right. So I have to explore all different outcomes. We haven't

1 decided. But I mean, hypothetically, if we didn't agree with you that
2 Matthies can be applied to an active matrix. Then we've got to look at the
3 passive matrix and see if it is receptive to different sized pixels. That's why
4 I'm asking.

5 MR. HERMAN: Yes, Your Honor. So if you did not agree that
6 Matthies's various different references to active matrix displays are outcome
7 determinative, then yes, you would then move on to the passive matrix
8 questions. And if Your Honor needs examples in the prior art of varieties of
9 differently sized and shaped active matrix or passive matrix pixels, then
10 there are legions of examples.

11 JUDGE LEE: Yeah. Can you name a few that's in the record that are
12 passive matrix but different size pixels on the same display?

13 MR. HERMAN: Sure. So Exhibit 1011 with this reference to Smith,
14 but cited in the petition, paragraph 25, contemplates that Smith can be either
15 an active or passive OLED display. And what kind of pixel layouts does
16 Smith reference? Not just squares that are all the same size, it references
17 various different size pixels and also various different shape pixels. So the
18 pixels can be pentagons, hexagons, squares and circles, and they can vary in
19 size across one display. So Exhibit 1015 to Cok is another example. And
20 you can see in Cok at lines column two, lines 61 to 67, Cok says it applies to
21 both active and passive matrix OLED displays. And again, it does not limit
22 itself to pixels that are just perfect squares. So for instance, Figures 3 and 4
23 teach a display that includes three differently sized pixels that are
24 intermingled with each other. Figure 5 includes differently sized pixels,
25 including L shaped pixels, and Figure 6 includes triangular pixels.

1 Now, if the world were as Patent Owner argues, it is.,and pixel size in
2 the passive matrix display is exactly limited to the overlap of the cathode
3 and the electrode, none of those references and none of the examples that
4 they contain would exist. So the art does not appear to recognize the same
5 limit on passive matrix pixels that Patent Owner does. So those are just two
6 examples that a passive matrix display, like an active matrix display, can
7 include various differently sized and shaped pixels.

8 JUDGE LEE: Thank you. You know, there's another issue on
9 Matthies is Patent Owner says active matrix requires a lot more spacing to
10 avoid color mixing. More spacing than you need for passive matrix. That's
11 not disputed by Petitioner, right?

12 MR. HERMAN: So I don't believe that really applies to any of the
13 grounds that are at issue here. But we have pointed to examples. I believe it
14 does not come up in the Matthies ground. That's not a dispute when it
15 comes to Matthies. There's no argument from Patent Owner that Matthies'
16 pixels are too close together or too far apart for purposes of --

17 JUDGE LEE: Well, it matters because if you have to go to an active
18 matrix, then we may not just look at whatever the figure is. You're going to
19 have to adapt it to make it an active matrix display. And if it requires more
20 spacing, then I don't know how the layout is going to look like. If you have
21 to change whatever you see in Figure 8a to make it into an active matrix to
22 provide extra spacing wherever you need it. I don't know if you're still
23 going to have a virtual square because the virtual square is based on this
24 Figure 8a, which apparently seems like passive. And if we agree with you,

1 we can go to active. You have to change something. And after the change, I
2 don't know if you're still going to end up with virtual square.

3 MR. HERMAN: But Your Honor, I do not believe that that is an
4 argument that Patent Owner has made. Patent Owner has not disputed that
5 the pixel arrangement shown in Figure 8a of Matthies standing by itself with
6 square pixels that are all the same size cannot be implemented as an active
7 matrix display. His expert doesn't say that. It does not say that in his brief.

8 JUDGE LEE: He didn't say that. But I'm trying to put the burden of
9 proof wherever it should be, which is with the Petitioner. So, if I follow
10 your logic and if I think what's expressly disclosed is passive. And if I want
11 to go with you to say, yeah, it would have been obvious to turn that into
12 active, right? And no one has disputed that active matrix will require
13 different type and kinds and size of spacing. Then how do I know after you
14 make the adaptation? I don't know what the end result looks like, and
15 therefore I can't base a conclusion on whatever is shown in Figure 8a as a
16 virtual square. As a virtual square, that still would be there after you make
17 the change.

18 MR. HERMAN: So, Your Honor, I'll point you to, for instance,
19 Figure 3 of Yamada, right? Figure 3, everyone agrees, teaches an active
20 matrix OLED display. No dispute, right? Everybody agrees with that. And
21 that's why we're having this whole discussion about what Matthies teaches,
22 because Patent Owner has pointed again and again to the fact that Yamada
23 teaches an OLED display. And if you look at Figure 3 of Yamada, what
24 does Figure 3 show? It shows square pixels arranged in a square matrix,
25 forming virtual squares. And that's what the figure shows. The virtual

1 square structure is the space between the pixels in that figure are exactly
2 equal. There's the same amount of space between the 1b, the 1r, and the 1g
3 in the horizontal direction and the vertical direction. Pixels are equally
4 spaced in Figure 3 of Yamada. So, there is no reason in the record and no
5 party has pointed to any reason in the record as to why Figure 8 of Matthies
6 cannot be implemented as an active matrix display.

7 JUDGE LEE: I see. Thank you. And also, there's something about
8 your expert flip flopping on the distance between the outermost pixel on a
9 display to the edge of the display. Can you address that? The broader
10 question is, has your expert flip flop or changed his mind on any testimony
11 between the time of his initial declaration and the time of his reply
12 declaration?

13 MR. HERMAN: Your Honor, I do not believe that's the case. First,
14 there's a fundamental issue that's at play here. So everything that Patent
15 Owner says about this derives from Dr. Pattison's ITC testimony. So they're
16 attempting to use Dr. Pattison's ITC testimony in their sur-reply as a
17 completely new standalone exhibit. Your Honors told Patent Owner that it
18 could employ that exhibit if it asked Dr. Pattison questions about that
19 testimony at his deposition, but they did not. So, we have no testimony from
20 Dr. Pattison in this proceeding explaining any further about what he meant
21 in the ITC, and he did not contradict any of his opinions in this particular
22 proceeding.

23 And there's like, a couple of categories that Patent Owner is going to
24 point you to one relates to a dependent claim in the '803 Patent. I think it's
25 claim five. And it has a limitation about the virtual square enclosing other

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1 pixels. Dr. Pattison makes the same invalidity argument, the same invalidity
2 argument of applying the same claim interpretation in both this proceeding
3 and in the ITC. When addressing non infringing alternatives in the ITC, he
4 adopted at counsel's instruction a narrower claim construction. So, in the
5 testimony that Patent Owner is pointing you to essentially does not reflect a
6 change of opinion on the part of Dr. Pattison. At the very most, what it does
7 is it reflects a lack of understanding by Dr. Pattison on the interplay between
8 the procedures in an IPR and the procedures in the ITC. But Dr. Pattison is
9 not a procedural expert. He's a technical expert. And his opinions have not
10 changed when it comes to why the prior art invalidates the claims. He's
11 offering the same opinion.

12 JUDGE LEE: Thank you. Thank you for the explanation. But I'm
13 mostly interested in any discrepancy between Dr. Pattison's initial
14 declaration in our proceedings and his reply declaration in our proceedings.
15 But I understand you to be saying there's none.

16 MR. HERMAN: I don't believe that there are any discrepancies
17 between his initial declaration and his reply declaration. I believe his reply
18 declaration just provides further elaboration of what he said in his original
19 declaration.

20 JUDGE LEE: Thank you.

21 JUDGE MCMILLIN: Mr. Herman, this is Judge McMillan. Do the
22 different standards, the different definitions of the level of ordinary skill in
23 the art, proposed by the parties impact the determination with regard to the
24 motivation to combine passive matrix OLEDs and active matrix OLEDs?
25 And I'll give you a little background in the petition at 13 at least in the 1075

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1 case, the Petitioner proposes that one of ordinary skill in the art would have
2 two years of professional experience working with display design, including
3 OLED displays. And the Patent Owner in their response in the 1075 case
4 says that a POSITA would have experience in electroluminescence and the
5 design of active matrix displays or pixel arrangements of such displays.

6 So if I can summarize, and I hope I'm doing it fairly, you propose the
7 Petitioner proposes, that the experience is in OLED displays and the Patent
8 Owner proposes that the experience is in active matrix displays. How do we
9 resolve that issue? And again, does it impact motivation to combine?

10 MR. HERMAN: So, Your Honor, I believe that Patent Owner's
11 definition, the one that you read, is affording one of ordinary skill in the art
12 with more skills, a greater battery of information and experience than
13 Petitioner's level of ordinary skill in the art. And I believe that the claims
14 would have been obvious and one of ordinary skill in the art would have
15 known more than enough to arrive at the claimed subject matter with the
16 lower amount of information possessed under Petitioner's standard. But if
17 Patent Owner's larger amount of information and greater amount of
18 experience is applied to one of ordinary skill in the art, that just serves to
19 further confirm that the claims are obvious. Because not only do they know
20 about OLED in general, and of course would know that there are such things
21 as active and passive matrix displays, but they would have specific
22 experience implementing active matrix displays which only enhances their
23 ability to take and adapt prior art to arrive at the claim subject matter.

24 JUDGE MCMILLIN: I'm not sure I agree with you that Patent Owner
25 proposes a broader amount of experience. It seems to me that they limit the

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1 proposed experience to active matrix displays and Petitioner says more
2 broadly, OLED displays.

3 MR. HERMAN: So I think that the fundamental difference is that
4 Patent Owner is saying that one of ordinary skill in the art has some specific
5 knowledge that is not necessarily required by Petitioner's definition of one
6 ordinary skill in the art. So Petitioner's definition requires more general
7 knowledge where Patent Owner's definition of one of ordinary skill in the art
8 requires more specific knowledge and experience. You would not be an
9 expert or one of ordinary skill in the art when it comes to active matrix
10 OLED displays unless you already knew about OLED displays in the first
11 place, but that means prerequisite knowledge. It's like class 100 or the 201
12 of active matrix displays.

13 JUDGE MCMILLIN: Thank you.

14 MR. HERMAN: So, moving back to this active/passive issue, I'd like
15 to briefly address point out that this is not a new argument that Petitioner is
16 making. So turning to Slide 29, the Petitioner relies on Matthies' pixel
17 arrangement, not the type of drive circuitry it uses. And it's only Patent
18 Owner who tries to limit Matthies' disclosure to one type of display and not
19 the other. And as I've shown, Matthies imposes no limitation on the type of
20 drive circuitry used. So all that Petitioner did is rely, point out why Patent
21 Owner's reading of the art is too narrow, as shown in Slide 29. The petition
22 did in fact point to Matthies' teaching that this drive circuitry includes active
23 matrix circuits.

24 And turning to Slide 30. Patent Owner, at least in its preliminary
25 responses, also appears to have recognized that Matthies references active

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1 matrix displays, as shown. Patent Owner noted that while Matthies'
2 examples are all passive matrix OLEDs, it does include general statements
3 indicating that it uses the term electronics more broadly to include both
4 active and passive matrix displays. So, moving on to slide 31, the parties
5 also dispute whether a POSITA would be motivated to apply Yamada's
6 teachings. This is another argument made across all three proceedings.
7 Now, while most of my discussion today will focus here on Matthies, Patent
8 Owner will say the same thing when it comes to Phan and Murai.

9 So, turning to slide 32, the petition identified numerous reasons why a
10 POSITA would have applied Yamada to Matthies in particular. Doing so
11 would have improved display life, allowed for easier white balance control,
12 and simplified the display.

13 JUDGE HUDALLA: Can I stop you there on the simplified display
14 issue? I was looking at your petition, and I think I read it to say that you do
15 not include certain circuitry that's used for balanced pixel luminance and
16 reduced aging effects. And then in the reply, I think you said it was less
17 necessary. Which is it? Are you trying to get rid of that circuitry, or are you
18 just saying it's less necessary?

19 MR. HERMAN: So either is right, Your Honor. You can either
20 completely get rid of the circuitry, or it's a balancing act, Your Honor.
21 Right, like one of ordinary skill in the art would, of course determine
22 whether to keep it or get rid of it. But applying Yamada's teachings allows
23 you to completely get rid of it, if you're so inclined.

1 JUDGE HUDALLA: I'm not sure you can have it both ways, though.
2 Because if you say that it's less necessary, then that seems to undercut one of
3 your motivations for the combination, doesn't it?

4 MR. HERMAN: I don't believe so, Your Honor. Right? So it
5 certainly allows you to create a display, if you're so inclined, that does not
6 include the circuitry. That's the petition. That's the position that the petition
7 tried to make. That there are special elements in Matthies, like light sensors,
8 that measure how the pixels are decaying over time, or special compensation
9 circuitry. But if you apply Matthies, you don't need to include that. Right?
10 You could simplify your display by eliminating those specific pieces of
11 hardware that are there for purposes of avoiding aging of the display. So,
12 yes, you could eliminate them by applying Matthies' teachings, and that's
13 how you simplify your display.

14 JUDGE HUDALLA: Again, I don't know that I read your petition to
15 say that. I mean, I think your petition says that you're getting rid of the
16 circuitry, and that's your reason that this circuit is simplified. Is there any
17 way you could keep the circuitry you're speaking of and it would be
18 simplified? Because it doesn't seem as such.

19 MR. HERMAN: So, I think maybe we're missing each other. I think
20 the petition was proposing, yes, that you eliminate the special circuitry that
21 is there for purposes of addressing aging. So that's Petitioner's position.
22 That you can simplify the display by eliminating that circuitry that would
23 otherwise be necessary for addressing aging. So, the light sensors or the
24 special compensation circuitry that could go away because you resized the
25 pixels. And you've adopted another, different approach to address aging. So

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1 I think we agree that what the petition was saying is that you would
2 eliminate circuitry that would otherwise be there if you apply Yamada's
3 teachings.

4 JUDGE HUDALLA: Okay, I guess I'm still kind of confused. I'll
5 keep listening, but I think if you were to eliminate it, that might help you.
6 But if we're going to believe the reply brief and say it's less necessary, I
7 think that undermines one of your motivations.

8 MR. HERMAN: So, again, moving back to the motivations, applying
9 Yamada produces a simplified display. Again, Matthies is also open to the
10 use of other methods to address aging. Pixel resizing was routine in the art,
11 and then making the green pixels and the red pixels smaller could increase
12 layout flexibility. Now, moving on to slide 34. Patent Owner is wrong
13 when it argues that display life would not be improved in the display, even
14 in circumstances where the blue pixel size remains the same, while the red
15 and the green pixels are made relatively smaller. Again, as I noted earlier
16 today, that's exactly what the '803 Patent teaches. It keeps the blue pixel the
17 same size and reduces the size of the red and the green. And that's exactly
18 what the prior art does as well.

19 This slide 34 includes passages from Yamada. And here Yamada
20 explains that when the red, green and blue pixels are of equal size, a greater
21 load relative to the other pixels is selectively placed on the less sufficient
22 blue pixels. And this in turn causes deterioration of the blue pixels to
23 accelerate relative to the other pixels. Yes, this does cause the blue pixels to
24 fail earlier than the other pixels, but it also has another effect. According to
25 Yamada, it impacts the service life of the overall display apparatus. And

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1 that is the teaching of Yamada that is cited in the petition. And I pointed
2 Your Honors to the portion of the petition that cites these teachings from
3 Yamada.

4 Moving on to slide 35 in testimony reproduced on slide 35, Dr.
5 Pattison explained why this is the case. In particular, when the pixels
6 deteriorate at different rates, display usability is impacted over time as the
7 pixels come out of balance. And when the pixels come out of balance, the
8 display may become unusable before any of the pixels, including the less
9 efficient blue, actually fail. So this is one of the ways that Yamada improves
10 Matthies, Phan and Murai. By making the more efficient red and green
11 pixels smaller, the relative deterioration of the pixels will be more closely
12 matched, leading to maintenance of balance over time and the longer useful
13 display life. So, moving on to slide 36, Yamada is not alone in teaching that
14 relative resizing of pixels increases OLED display life. A passage from
15 another reference patent to Arnold is reproduced on the left, and Arnold, like
16 Yamada, teaches that pixels should be relatively resized, and it also does so
17 for purposes of avoiding divergences in the relative luminous or pixel
18 brightness over time. And yet another reference to Cok is shown on the
19 right. Cok also explains that by relatively resizing the pixels, the pixels will
20 age at the same rate for purposes of avoiding color shifts. So both of these
21 references, just like Yamada, recognize that resizing pixels not only can
22 avoid individual pixel failure, but also help maintain the balance of the
23 display over time by allowing the pixels to age at approximately the same
24 rate.

1 So Slide 37, extending the display life is not the only benefit deriving
2 from relatively resizing pixels. In particular, as shown here, Yamada also
3 teaches that it makes white balance extremely easy to control. Turning to
4 slide 38. The petition pointed to this as a separate motivation for applying
5 Yamada's teaching. Why does resizing pixels make it easier to control white
6 balance? Because balance is determined in advance by selecting the right
7 pixel size, not by tailoring the power signals applied to the pixels. So, Slide
8 39, there are still further benefits to applying Yamada. As shown on this
9 slide, Matthies teaches that its display includes a collection of extra
10 dedicated components that are specifically designed to combat aging. So,
11 for instance, there could be a small length sensor to make adjustments over
12 time. There can also be an all-electronic compensation system to similarly
13 make adjustments. And the petition noted that by applying Yamada, these
14 special dedicated components would no longer be necessary, thus
15 simplifying Matthies. And I believe the reply was trying to make the same
16 point that these components, these special components that are here for the
17 primary purposes of adjusting aging or addressing aging, could be removed
18 and would no longer be required once Yamada's teachings are applied and
19 you're addressing aging in a different way.

20 So, Slide 40. As explained in the petition, Yamada teaches an
21 approach to addressing display aging. And as shown on Slide 40, Matthies
22 itself explicitly instructs the POSITA to consider the use of other methods to
23 address aging and not limit the POSITA to just those that are set forth from
24 Matthies. And as explained in the petition, this provides yet another
25 motivation to combine. So, and before moving on, I'd like to note that any

1 of these reasons, standing by themselves, are sufficient motivation to apply
2 Yamada's teachings to Matthies. But together, they make it abundantly clear
3 that one of ordinary skill in the art would have more than sufficient reason to
4 apply Yamada's teachings and resize the sizes and shapes of Matthies pixels.

5 JUDGE LEE: Mr. Herman, this is Judge Lee. If I may bring you
6 back to Matthies' inconsistency of Dr. Pattison's testimony. Between the
7 initial declaration and the reply declaration, there's an issue in Matthies
8 about the virtual square, right? So, there's some disclosure in Matthies that
9 may not be consistent with virtual square. And that is, if the outermost
10 pixel, the distance from the outermost pixel to the edge of the tile that has to
11 stay fixed, right? And then you change the size of the pixels, then you're not
12 going to have a virtual square. That's one scenario. Right? I don't think you
13 would disagree with that. If that outer edge distance has to remain the same,
14 then when you vary the size, you're not going to have a mutual square.

15 But this Matthies disclosure kind of does say that in a couple of
16 places. And your initial testimony of your expert does refer to that. But in
17 his reply declaration, he changed his mind and refers to a different portion of
18 Matthies that says, oh, it's not that. It's as long as I have the same distance
19 inner tile and within a matrix, then that's okay. That's also a disclosure in
20 Matthies. So Matthies kind of says both, but in your declarant, refers to the
21 wrong part initially, and then he refers to the other part in his reply. Can you
22 address that?

23 MR. HERMAN: So, Your Honor, I don't believe our declarant
24 referred to the wrong part of Matthies. Matthies is consistent throughout. It
25 includes an example, Figure 8B, where it is where it has dimensions. And in

1 connection with that figure, it says that the dimensions are defined by
2 various different variables. Like d_e , I believe is one of them, which is the
3 distance from a pixel to the edge of the tile. But it's not saying that that's the
4 extent of its disclosure. It's saying that in that particular example, in the
5 example shown in Figure 8B, it's defining the distance between the edge of
6 the pixel and the edge of the tile in that example as d_e . It's not saying that
7 the distance always needs to be d_e , but when you read Matthies as a whole,
8 which one of ordinary skill in the art would, of course, do in assessing
9 Matthies disclosure, the only reasonable conclusion that one of ordinary skill
10 in the art can arrive at is that the only thing that Matthies requires is that the
11 spacing between pixels within a tile be the same as the spacing between
12 pixels across the tile.

13 And the reason why it's saying that is, if you included extra space
14 across the tile or across the tile seams, the seams will become visible. So
15 Matthies is avoiding that scenario. It does not want to include extra space
16 between the tiles that is not present within the tiles. And if you turn to slide
17 49, there's a summary of where Matthies says that. Right? It says
18 unambiguously that when it comes to the tile seams, all that's required is that
19 the space between pixels within the tiles be the same as the space between
20 pixels across the tiles. In other words, there should not be extra space
21 between the tiles that is not present within the tiles. If there is extra space,
22 the tile seems to come visible.

23 JUDGE LEE: Well, I don't think it says all that's required. It doesn't
24 use the word require. So a lot is open to interpretation. It seems he does say
25 different things within the same disclosure. I'll read you this one sentence

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1 from column 16. Starting at line 26, the distance between the edge of an
2 active region 526 and the edge 712 of the display is equal on all sides of the
3 tile. Right? So there's no ambiguity there. It says, from your outermost
4 pixel to the edge of the tile, that distance has to be constant.

5 MR. HERMAN: So, Your Honor, that quote that you just read is
6 describing an embodiment. So, yes, in that embodiment, the pixels are
7 exactly the same space between the edge of the tile as they are from each
8 other. But it's an embodiment, and that's how we interpret it. He's
9 describing an embodiment, not a fundamental limitation on his invention.
10 There is --

11 JUDGE LEE: And same thing with the other disclosure. You know,
12 also with respect to embodiment, it doesn't say that's all that's required. So,
13 this disclosure is kind of ambiguous. There's another statement in the
14 disclosure that says the tiles are constructed with pixel forming elements
15 evenly spaced up to the edge of the tile. That's not in connection with any
16 embodiment. I don't know where it's located, but it's outside of any
17 embodiment.

18 MR. HERMAN: So, Your Honor, the two passages that I excerpted
19 on slide 49 are occurring in Matthies' general discussion of his teachings.
20 So before and not in the specific context of any particular embodiment.

21 JUDGE LEE: Yeah, that would be good for you. But this one is also
22 in the general teaching. In column five, starting on line 47, the tiles are
23 constructed with pixel forming elements evenly spaced up to the edges of
24 the tiles. So that's outside of any embodiment, too.

1 MR. HERMAN: In the same column, however, Matthies is saying
2 that the reason why it's doing that is essentially to hide the seams. Right?
3 And the most reasonable conclusion that one of ordinary skill of the art
4 would reach is that you can resize the pixels, but resize the pixels for
5 purposes of addressing aging. And actually, there are examples of that in
6 Matthies.

7 JUDGE LEE: Okay, I understand it's kind of persuasive, but let's go
8 through your petition, though. The testimony of your expert supporting the
9 petition is focusing on the wrong part. It is focusing on the part that's not in
10 your favor. I mean, this disclosure is kind of ambivalent. And if your expert
11 in support of the Petitioner is referring to the part that dooms your case, and
12 then in your reply, he puts in another declaration that kind of backs off from
13 that and points to other disclosure that's in favor of your case, and both have
14 support in the spec. What are we to do with it? Do we say, oh, it's okay, he
15 didn't really mean what he initially pointed to. Let's forget that and just look
16 at his reply back?

17 MR. HERMAN: Your Honor, I do not believe that there is anything
18 in Matthies that dooms Petitioner's case. This is another scenario --

19 JUDGE LEE: I shouldn't say doom. I would say unfavorable to you
20 because your expert did refer to the portions that are not in your favor. He
21 referred in his initial dec. to portions of Matthies that kind of, say the outer
22 distance from the outermost edge to the edge of the tile is the same
23 throughout.

24 MR. HERMAN: That's because, Your Honor, he was referring to
25 Figure 8B, which includes uniformly sized pixels. So of course the pixels

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1 are uniformly sized, so they're evenly spaced between the edge of the tile in
2 all cases. But then he went on to explain why one of ordinary skill of the art
3 would have modified that version of Matthies to arrive at a modified version
4 that has pixels that are differently sized. So, the fundamental point that he's
5 making is that Matthies not only allows that, but that is amenable to that sort
6 of change. Right? And that is an underpinning of his opinion.

7 JUDGE LEE: So what you want us to do is to look at the whole thing
8 and say what Matthies is really saying is not the outer edge distance is the
9 same, but the inter distance and the intra distance the same. And that's all?

10 MR. HERMAN: So this is another issue that is only in this
11 proceeding because Patent Owner has attempted to limit the scope of
12 Matthies' disclosure. The reason why we're talking about this issue is
13 because Patent Owner argued in its response that the scope of Matthies'
14 disclosure is so limited that you would never do what Petitioner says we
15 would have done in modifying. And it's perfectly appropriate to reply to
16 that and explain why Matthies is not limited in the way that Patent Owner is
17 arguing. That is a prototypical reply. Precedent after precedent explains
18 that a Petitioner is allowed to respond in the proceeding, which is all that
19 we've done here. And now that we have made that reply, that's among the
20 issues that Your Honors is going to have to consider in arriving at your
21 conclusion.

22 JUDGE LEE: Thank you.

23 MR. HERMAN: So, moving back to slide 41, Patent Owner has
24 made a number of distinctions in connection with the combination of
25 Matthies and Yamada. So, Slide 42, first Patent Owner argues that a

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1 POSITA would abandon Matthies' quad pixel and use only a striped
2 arrangement with same colors of pixels arranged in columns. This,
3 however, is not how the prior art is assessed. The totality of the prior art
4 teachings must be considered, and Matthies identifies quad pixels as one
5 type of pixel arrangement usable with its display, and that teaching cannot
6 just be thrown away. Moreover, as shown by this slide, the prior recognized
7 that striped arrangements presented problems, while quad pixel
8 arrangements like that taught by Matthies provided benefits. So not only is
9 this something that Matthies already teaches, but a POSITA would have had
10 good reason to keep it when implementing Matthies.

11 So slide 43 Patent Owner's argument that a POSITA would discard
12 Matthies' teachings of the use of two green pixels and use two blue pixels
13 instead is just more of the same as shown on Slide 43. Both Matthies and
14 the other prior art not only discloses pixel arrangements using two green
15 pixels, but explains that there are benefits that derive from this. For
16 instance, it makes the display brighter and increases apparent resolution. So,
17 slide 44.

18 JUDGE HUDALLA: Mr. Herman?

19 MR. HERMAN: Yes?

20 JUDGE HUDALLA: Sorry to interrupt. It's Judge Hudalla. I did
21 want to ask you about this point you're making right here. I believe Patent
22 Owner argued that at least one contemporaneous prior art reference, which is
23 Arnold, looked at the same secondary reference that you're dealing with
24 here, Yamada, and came up with a two blue pixel arrangement based on
25 what it saw. And they say that that's evidence that maybe what you're

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1 proposing is not obvious. I would further ask if you could, in responding to
2 that, also talk about how Patent Owner's arguments go into Yamada's
3 teachings and say if we follow their Yamada's teachings on chromaticity,
4 you might actually end up with, you know, really large red pixels and not
5 necessarily a large blue pixel. Could you, could you respond to those
6 arguments for me?

7 MR. HERMAN: So the first is all the Patent Owner is really doing is
8 pointing to other design alternatives in the art. Yes, others use striped pixel
9 arrays instead of pixels arranged in squares, and yes, others proposed using
10 two blue subpixels instead of two green subpixels, but those are simply
11 alternatives. The art also teaches the very same arrangement that the claims
12 here require, and they explain why that arrangement is preferred. For
13 instance, Matthies explains that using two green pixels increases the
14 brightness of the display. Other prior art explains that using two green
15 pixels increases the resolution of the display. So not only is that teaching in
16 the prior art, but there was a reason to use that teaching and not move to
17 something else where two blue pixels were used instead. So yes, that was an
18 alternative, but it's not the only alternative that one of ordinary skill in the art
19 would consider, and the mere existence of it does not foreclose use of
20 Yamada's teachings.

21 JUDGE HUDALLA: I guess the problem I have with that is we have
22 to follow you down the path you set forth. And I believe the premise of your
23 combination is that Yamada teaches that you use a relatively larger blue
24 pixel in situations where that's the emissive element with the lowest
25 efficiency. So, if we follow you down that path, I'm not sure we get to

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1 keeping two green pixels just because there's other art out there that might
2 say that it creates a brighter display. At some point don't you have to
3 explain to us how a person of ordinary skill in the art, looking at all of these
4 different considerations, chromaticity, emissive efficiency, brightness,
5 whatever, would come up with the combination that you've actually
6 proposed?

7 MR. HERMAN: So, Your Honor, I believe this is just kind of the
8 type of routine balancing that one of ordinary skill of the art would do. But
9 we know from Matthies and other prior art that quad pixels were known in
10 the art. We know from Matthies and other prior art that there are benefits
11 from quad pixels that have two green subpixels and only one blue and one
12 red subpixel, those teachings are there. We also know from Yamada and
13 other prior art that it was well known that one ordinary skill in the art should
14 balance the relative sizes of the pixels. So one obvious place that those
15 various teachings lead one of ordinary skill of the art is to what the petition
16 has proposed here.

17 And then I'd also ask Your Honors to keep in mind the context that's
18 being provided by the '803, the '578 and the '683 Patents. Right? None of
19 these patents provide any information whatsoever about whether it's
20 important to make the blue pixel biggest. It's important to make the green
21 pixel biggest. It's important to use two green pixels versus two blue pixels.
22 And that information is simply not in the '803 Patents they are open to, and
23 they claim virtually everything Your Honor said that the prior art pieces as
24 an alternative. So if there were some sort of hurdle that one of ordinary skill
25 in the art has to get over to arrive at the claimed subject matter. In view of

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1 Matthies and Yamada, that is not a hurdle that the '803, the '683 and the
2 '578 Patent allows one of ordinary skill in the art to clear, because they have
3 to be able to do the balancing based on the teaching of the prior art and the
4 teaching on the patents here. The patents here provide far, far less guidance
5 than the prior art does.

6 The prior art includes numerical examples of how big you should
7 make the blue, the red and the green pixels. The prior art includes reasons
8 why you would want two green pixels instead of two blue pixels. And that
9 is entirely absent from the '803, the '578 and the '683 Patents. So the prior
10 art is teaching more than the patents ensued are doing, and it's providing
11 more reason to arrive at the specific structure that's discussed and proposed
12 in the petition.

13 JUDGE HUDALLA: Okay, thank you. I understand your position. I
14 think the only thing I would respond to that is we're obviously concerned
15 about using those patents as a road map when you're putting together the
16 various teachings of the different references.

17 MR. HERMAN: And I would agree, Your Honor, because then there
18 is no roadmap at all in the '803, the '683, and the '578 Patents. So the
19 reason why I'm pointing this out to Your Honors is because it goes to the
20 credibility of Patent Owner's arguments. Patent Owner is arguing that one
21 of ordinary skill in the art would not be able to do certain things when its
22 own patent disclosure is assuming that one of ordinary skill in the art can do
23 the very types of balancing they're now denying that one of ordinary skill in
24 the art can do.

25 JUDGE HUDALLA: Thank you.

1 MR. HERMAN: So, moving on to slide 45, Patent Owner's other
2 arguments are no better. For instance, it argues that by reducing the size of
3 the green and the red pixels, following Yamada's teachings, the aperture
4 ratio of mapping's display would be undesirably reduced. But aperture ratio
5 is simply one factor among many that must be balanced. And as shown to
6 the left on slide 45, the '803 Patent itself concedes in this background
7 section that aperture ratio must be balanced with manufacturing reliability.
8 As one gets better, the other gets worse. And the prior reference to Wang on
9 the right of the slide says that aperture ratio impacts must be balanced with
10 resolution. So, given that all this was known, the POSITA would have been
11 more than able to strike the right balance.

12 Slide 46 Patent Owner also argues that the petition's application of
13 Yamada to Matthies fails to properly account for the effect of chromaticity.
14 According to Patent Owner, if this was taken into account, the green pixels
15 would be made much smaller than shown in the petition, and the red pixels
16 would be made bigger. But as shown on slide 45, Yamada teaches that
17 different pixel materials have different chromaticity and thus require
18 different pixel sizes. So this is not a reason to discard Yamada. Instead, it's
19 just another one of the factors that a POSITA would consider in addition to
20 life improvement, brightness, and white balance control when choosing the
21 appropriate size of a pixel.

22 Slide 47. Nor is there any other art that teaches away from the use of
23 Yamada. Patent Owner points to two other references, one to Arnold and
24 another to Cok. But as shown on this slide, neither of these references
25 disputes Yamada's fundamental premise that the red, the green and the blue

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1 pixels should have different sizes. Yes, the references quibble about the
2 exact size ratio that should be used. For instance, should the red be biggest?
3 Should the blue be biggest? Should the blue be three or 2.5 times the size of
4 the green? But they all agree that the same size pixels should not be used by
5 a display. So far from teaching away, these references serve to further
6 confirm that a POSITA would have considered it obvious to modify
7 Matthies, Phan and Murai in the way discussed throughout the petition.
8 Moreover, the arguments that I just discussed all represent the fundamental
9 problem with Patent Owner's and its expert's approach time and time again.
10 Patent Owner and its expert argue that the display of the prior art is not
11 perfect for some reason. The aperture ratio is too small, there's blurring,
12 some of the color is shadowed, there are visual artifacts, the chromaticity is
13 not perfectly balanced, but none of this shows non obviousness. These are
14 nothing more than the routine design issues that a POSITA would be aware
15 of and would regularly balance when implementing a display.

16 Moreover, obviousness does not require perfection. The claims
17 simply need to be taught, and the claims here embrace displays with the very
18 same faults that are purportedly present in the prior art. And the prior art
19 cannot properly be held to a higher standard than the patents themselves are.
20 Now I'm going to move on to discuss the Phan reference briefly. First, slide
21 51. We talked about a little bit about this earlier Patent Owner begins by
22 disputing Phan's teachings of pixel arrangements for OLED displays as
23 highlighted in this slide where Phan references OLED displays. And if we
24 turn to slide 52, I referenced earlier that there is prior art that teaches the use
25 of the same pixel arrangement as in Phan in the context of an OLED display,

1 and that is identified on slide 52. So this slide compares one of Phan's
2 pixels that's shown in Figure 11b. Here's an example pixel from a reference
3 to Cok and as can be seen, the two pixels are virtually identical. And what
4 does Cok say? As shown in the passage to the right, Cok explains that his
5 pixel layouts are usable with OLEDs, including both passive and active
6 matrix OLEDs.

7 So slide 53. Patent Owner is also wrong, but it argues that Phan does
8 not teach the claimed virtual square to begin as shown on slide 53. Phan
9 explains that the various dots making up its display are arranged in a well
10 known grid pattern. So slide 54 this is not the extent of Phan's teaching. It's
11 shown on slide 54 in every single figure, Phan's red, green and blue dots are
12 equally spaced from each other and arranged in a regular repeating grid
13 pattern, just like discussed in Phan's specification. Phan never depicts an
14 embodiment where there is extra space between rows or columns of dots.
15 However, this is how Patent Owner appears to interpret Phan. So why does
16 Patent Owner say this? According to Patent Owner, because groups of four
17 dots in a figure like Figure 2a are surrounded by a box labeled 17 that is not
18 touching the immediately adjacent box 17. There must be space between the
19 pixels, but that isn't what Phan is showing. The box simply encircles and
20 labels the groups of dots that form a given static pixel 17. It doesn't show
21 the pixel physical bounds. It also does not negate the fact that the dots
22 themselves, regardless of how they are circled or boxed, are always evenly
23 spaced.

24 So slide 55. Not only does Patent Owner misread Phan's figures, but
25 it does so inconsistently. You see an example of that on slide 54 here, only a

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1 handful of lines apart. Patent Owner number one relies on Phan's Figure 12
2 to support its argument that there must be unequal spacing, and then number
3 two immediately discounts the petition citation to even dot spacing by noting
4 that Phan's figures are not drawn to scale. So, Petitioner agrees that Phan's
5 figures are not drawn to scale, but they do convey a general concept and
6 Phan's dots are to be evenly regularly spaced with no extra unnecessary
7 space between the dots. So slide 56. In addition to lacking support in Phan,
8 Patent Owner's addition of space between Phan's pixels renders Phan
9 unworkable. As I explained at the beginning of my presentation, Phan roots
10 the dots making up its display into both static and overlapping dynamic
11 pixels. The issue with Patent Owner's interpretation of Phan is that it
12 creates a variety of unequally shaped dynamic pixels, and you see an
13 example of that on slide 56. The four dots that are completely within the red
14 circle are arranged in a small square, but the four dots completely within the
15 blue oval are arranged in a long rectangle because Patent Owner has added
16 space between columns one and two.

17 Similarly, the four dots within the green oval are shaped as a tall
18 rectangle because Patent Owner has added space between rows one and two,
19 and the four dots circled in purple form a bigger square because there is
20 extra space between the rows and the columns. So under Patent Owner's
21 interpretation, there are at least four different dynamic pixel shapes, a small
22 square, a long rectangle, a tall rectangle, and a big square. So, slide 57.
23 Why is this a problem? Here, Phan explains that dynamic pixels are meant
24 to both increase the grid's resolution and not be seen. By making Phan's
25 dynamic pixels differently sized Patent Owner thwart both of these goals.

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1 The differently sized pixels would look different and would fail to increase
2 the grid's resolution as they do not match the grid. You can see the contrast
3 with what Phan actually teaches on the right of the slide. As shown, Phan's
4 dynamic pixels are equally sized and shaped so as to multiply the total
5 number of displayable pixels. But Phan does not teach an array with a
6 hodgepodge of differently shaped dynamic pixels.

7 JUDGE LEE: Mr. Herman, I'm sorry, you have only about two
8 minutes left. But there is an important question I did not yet ask about the
9 Murai. I'll pose it and then you can answer it or continue on with Phan. It
10 seems to me, in the Murai ground, the petition labeled the lines off centered
11 from the oblong rectangles in the figures in order to achieve a virtual square.
12 And when the Patent Owner pointed that out, instead of you saying, oh,
13 yeah, you know that's not true, I didn't place them off center. You kind of
14 passively said, oh, okay, I did, but it doesn't matter. I'm going to make them
15 all squares now. Because Murai contemplates squares, or squares are part of
16 rectangles. Is that allowed? I mean, you don't dispute that you mark the
17 lines off center initially, right? To achieve the virtual square?

18 MR. HERMAN: Yes, Your Honor. And I believe this issue is
19 actually addressed in the petition. Or if not the petition in Patent Owner -- in
20 Petitioner's expert declarations. I believe we explicitly recognized that in the
21 figures of Murai, the pixels are drawn rectangular. But we explained that
22 one of ordinary skill in the art would not consider Murai to be so limited.
23 One of the other things that Murai teaches is that what's shown as a rectangle
24 in his figures can in fact be a square. And when you make a pixel square,
25 that's when you arrive at the claimed virtual square.

1 JUDGE LEE: Yes, but the petition didn't do that. The petition
2 pointed us to your off centered markings and say there's a virtual square.
3 And Patent Owner says, no, no, no, that's not a virtual square. That's
4 oblique.

5 MR. HERMAN: Your Honor, I believe that we recognized in the
6 petition that the virtual square was not perfectly centered on each dot. But
7 our expert, in his opening declaration, agrees with you, right? He agrees that
8 the figure is drawn rectangularly and not square. And he explains why one
9 of ordinary skill in the art would not consider Murai to be so limited, and
10 instead would extend to pixels drawn in a square array.

11 JUDGE LEE: So I believe. I see. So, your answer is the expert
12 acknowledged the obliqueness, but explained that squares are contemplated,
13 and therefore, if they were actual squares, it would be an actual virtual
14 square.

15 MR. HERMAN: Yeah, you're right. That's so, Dr. Pattison
16 recognizes the very point that you're raising right that in Murai's figures, the
17 shape that your eyes see is a rectangle, that he explains how the claims
18 would have been obvious when you apply Murai's teachings as a whole,
19 including its teaching that the square can be a rectangle.

20 JUDGE LEE: Okay, it sounds like a good answer, but it would be
21 good if your petition said that. I don't recall reading that from the petition.
22 You're saying we have to dig through his testimony to find that explanation.

23 MR. HERMAN: And I believe that same issue is raised in the
24 petitions. So I'll have to go back and look, Your Honor. And I'll prepare to
25 answer this particular question in my responsive remarks. But I believe that

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1 the petition also pointed to the portions of Murai where Marai explains that
2 this rectangle that it's talking about can be a square. I believe that's at the
3 very beginning of our discussion of why Murai teaches a virtual square. It's
4 not because its figures, standing by themselves, have a virtual square, but it's
5 the figures, combined with Murai's specification, that the rectangle that it
6 depicts and its figures can be a square.

7 JUDGE LEE: Thank you. Your time is up. You still have 20
8 minutes.

9 MR. HERMAN: Yes, I'll reserve the rest for rebuttal. Unless Your
10 Honors have additional questions that you would like me to answer now.

11 JUDGE LEE: No, I think. Thank you for your presentation. And
12 we'll take five minutes. We'll come back at 11:52. Thank you.

13 (Recess)

14 JUDGE LEE: Is counsel ready from the parties?

15 MR. LERNER: This is Jeff Lerner for Patent Owner, Your Honor.
16 Patent Owner is ready.

17 MR. HERMAN: Petitioner is also ready, Your Honors.

18 JUDGE LEE: Okay, it's 11:54. You may begin anytime you're ready.

19 MR. LERNER: Thank you, Your Honor. Jeff Lerner from Covington
20 and Burling on behalf of Patent Owner and as my colleague Mr.
21 Weidenfeller mentioned earlier, we're going to share the argument. I'll
22 address the prior art, and he will address the objective indicia and if we can,
23 we'd like to reserve 20 minutes for our sur-reply.

24 JUDGE LEE: Thank you.

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1 MR. LERNER: And if it's acceptable, I will share my screen to assist
2 in going through Patent Owner's demonstratives. Reorient briefly about the
3 patents in suit, the three patents overcame fundamental challenges with
4 organic light emitting diode displays, manufacturing challenges and
5 challenges with the sensitivity of the organic materials that improved
6 aperture ratio and improved image quality. On slide three, we have passages
7 from the patents in suit and they explained that there was a fundamental
8 problem in making an OLED display in a color display, where reducing the
9 gap between neighboring pixels to improve the aperture would cause the
10 deposition reliability to be deteriorated, but then increasing that gap would
11 reduce the aperture ratio, which has a negative effect on the lifetime of the
12 display along with display resolution.

13 And as Dr. Kymissis explained, the patent overcame these issues
14 which were specific to organic light emitting materials and manufacturing
15 challenges associated with those including the deposition of those materials,
16 which is carried out differently than other display technologies. The patent
17 discusses a fine metal mask or FMM process, a vapor deposition of the
18 materials that significantly implicates the manufacturability, and on slide
19 four point out that the inventions disclose that they improve deposition
20 reliability with their pixel arrangement structures when using a fine metal
21 mask, improving the aperture ratio, improving the manufacturing time and
22 cost of the display, and improving the quality of the display. So, these were
23 tangible, real-world benefits to these inventions.

24 Petitioner's counsel has argued that the '803 Patent keeps blue the
25 same size and reduces or resizes red and green, and I just wanted to briefly

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1 take issue with that. The patents at issue, the challenged patents do not start
2 with the size of blue and then reduce the size of red and green. Rather, they
3 discuss a design that has a larger blue than red and green because of the
4 benefit that confers in this design on the display lifetime. It's very different
5 than the Petitioner's theory, which was to take an existing display with the
6 blue pixel and then to shrink the red and the green pixels, which would, as
7 Dr. Kymissis explains, have the effect of reducing display lifetime, which is
8 really contrary to the whole purpose of Petitioner's proposed combinations.
9 So, turning to the Matthies reference.

10 JUDGE LEE: Mr. Lerner, it's Judge Lee. I like to explore that a little
11 bit. I'm not sure that I understand Petitioner to be saying they're starting
12 with a physical device that has all the same color pixels, and then they're
13 going to reduce the red size and the green size, and starting with the
14 reference, right? You got to understand the reference and apply Yamada's
15 teachings to it. And Yamada's teaching is you should have relative different
16 sizing, with blue being the biggest and the red being in the middle and the
17 green being the smallest. So, taking that Yamada teaching, and then looking
18 at, say, Matthies, and Matthies is showing everything, he can go both ways.
19 He could enlarge the blue and reduce the green and get the same result, or he
20 could keep the blue the same and then reduce the red and reduce the green,
21 which is what they did. They're not really taking a physical device and
22 making physical modifications. They're applying the general teaching of
23 relative sizing among three different colors and applying it to what's shown
24 in Matthies. So, I don't follow what you're saying.

1 MR. LERNER: Your Honor, there's aspects of that question that I
2 respectfully disagree with. To begin, Yamada does not teach that a display
3 should have blue bigger than red, bigger than green. Yamada teaches that in
4 a triplet pixel structure, where you have equal numbers of red, blue and
5 green pixels, if one is designing the display, they may be sized relatively
6 differently to have different emissive areas. And one point here is that's a
7 situation that applies to a triplet structure where you have equal numbers.
8 When you talk about a different structure, like a quad pixel, where you have
9 unequal numbers of different colors, the same considerations don't hold
10 because you could have two subpixels of the same color to enlarge your
11 emissive area relatively of that color. And that's Matthies' teaching.
12 Matthies says that if blue is the least efficient emitter, then in the quad pixel
13 structure of Figure 8B, the blue is made the largest. And Matthies says that
14 that increases the brightness of the display. And if we turn to slide 88, we
15 have Matthies' passage saying this, along with Dr. Kymissis' declaration.
16 Yamada --

17 JUDGE LEE: Isn't that just a different solution to the same problem?
18 I mean, Matthies solves it by having two blue pixels, Yamada says, goes to a
19 different approach. Instead of saying we have two pixels for the pixel with
20 the less emissivity, they're going to just make the less emissivity one bigger.
21 So why isn't the same teaching applicable to all kinds of different forms and
22 why is it limited to just a triplet and not a quad?

23 MR. LERNER: Yamada was discussing emissive area, and that
24 emissive area can be accomplished in a quad pixel through the number of
25 subpixels.

1 JUDGE LEE: But it can also be accomplished by enlarging the blue.
2 Even if you already have two blues.

3 MR. LERNER: You would have other considerations at play in your
4 particular device. And that's why it's difficult to take this at such an abstract
5 level. In Matthies, for example, you would have the design constraints
6 taught by Matthies, where Matthies' subpixels are equally sized, equally
7 spaced, and that sizing and spacing has important features to meet the
8 requirements of Matthies' tile display. But to go back to Yamada, Yamada
9 wasn't understood as teaching and didn't teach red -- blue bigger than red,
10 bigger than green. It taught taking into account considerations such as
11 emission efficiency and chromaticity that would be evaluated on a particular
12 material basis. And that's not any sort of analysis that Petitioner undertook.

13 JUDGE LEE: I read that part of your Patent Owner response, and I
14 went back to Yamada, but it looks like those are just additional
15 considerations. It seems to me Yamada did say as a totally independent
16 factor, the relative sizing. And then it says, and also you can also take into
17 account of chromaticity. So, I don't think it says chromaticity always has to
18 be in the equation. It's like you can just do the relative sizing based on
19 emissivity. It would even be better if you considered all these other things.
20 But you seem to say, no, you can't consider emissivity alone. You've always
21 got to consider that along with everything. Why can't they just hone in on
22 the one factor that's at issue here? And Yamada clearly says relative sizing
23 makes a difference.

24 MR. LERNER: Your Honor, Yamada does say the emissive area is
25 taken into consideration not only the emission efficiency, but the luminance

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1 ratio, the chromaticity to target white, and the chromaticity. This is our slide
2 72. Dr. Pattison, the Petitioner's expert at slide 73, acknowledged in
3 deposition that you need to consider the chromaticity among the
4 considerations in sizing.

5 JUDGE LEE: Yeah, I'll need to go back and look at it. But you're
6 telling us now, Yamada says you always have to consider chromaticity and
7 never just relative emissivity alone.

8 MR. LERNER: Your Honor, I think that there's some ambiguity in
9 Yamada because it gives two size ratios, and in the first size ratio, it's
10 unclear what it's being based on. There has to be a target white point for the
11 color mixing, and that target white point would take into account
12 chromaticity. But I think the more important point is Yamada was criticized
13 in the art.

14 JUDGE LEE: Well, can you not go to a different area. I really want
15 to know, does Yamada allow or suggest that you can just look at emissivity
16 alone? Never mind whether it's criticized later. Okay, forget all the reviews
17 from other people later. Just look at the reference alone. Is it limited to, you
18 always have to consider chromaticity, or it does actually suggest you can just
19 look at emissivity alone?

20 MR. LERNER: I think the better reading of Yamada is that
21 chromaticity should be considered. And to give an example in Yamada it
22 explains --

23 JUDGE LEE: Well, you say should, right? You say should, so that's
24 not like absolute you must. I kind of read Yamada to say, yeah, you can just
25 look at emissivity alone and even be better if you consider everything. But I

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1 don't read it as saying you cannot just look at emissivity. Where does it --
2 point to where in Yamada you want me to look at to dissuade me from
3 having that understanding?

4 MR. LERNER: Your Honor, I can find the passage in Yamada.
5 Yamada talks about having different size ratios of red to green to blue when
6 there is the same relative efficiency. And that implies, or maybe requires
7 that there are other considerations beyond the emission efficiency itself.
8 That's one of Yamada's teachings, where Yamada says, for the same relative
9 efficiency, you could have red and blue be the same size, bigger than green,
10 or you could have green and red be the same size. This is at column ten,
11 lines 52 to 60 of Yamada, I believe. So, it's just giving an example that you
12 could have blue bigger than red, bigger than green. But the fact that you
13 have these alternatives demands that there are other considerations at play.
14 And to one of skill in the art, chromaticity would need to be considered. So
15 would brightness. And Dr. Pattison, Petitioner's expert, agreed that
16 chromaticity would be required. And I think that it would be inappropriate
17 to take a reading of Yamada that was also criticized in the prior art, well
18 before the patents, the challenged patents. Yamada was criticized
19 specifically by Cok and by Arnold for not taking into account relevant
20 considerations.

21 If we turn to slide 80. Arnold in particular said that Yamada fails to
22 discuss differences in the inherent luminance, stability over time of different
23 materials, which is critical to the aging and decay process. That's the whole
24 foundation for Yamada's approach, and that Yamada further does not
25 consider important optical differences of the target display design. Cok

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1 similarly pointed out that Yamada's display is not optimized with respect to
2 that response of the human visual system. So, if we look at the perspective
3 of one of skill in the art, at the time of the inventions here, Arnold and Cok
4 had already come in and heavily criticized Yamada as being a naive and
5 inadequate approach. And that's even where they understood Yamada as
6 taking into account chromaticity and not just emission efficiency.

7 Dr. Kymissis also provides explanations as to why it would be
8 necessary to take into account other considerations, and why Yamada's
9 approach would not be understood to work, because Yamada is assuming
10 that the different color materials decay at the same rates and linearly, when
11 in fact, that is not how the materials operate. Turning now to slide 67,
12 Patent Owner's demonstratives, Dr. Kymissis explained with references to
13 literature, including the Arnold reference and its Figure 10, that Yamada's
14 assumptions are incorrect and were understood in the prior art to be
15 incorrect. The OLED material decays nonlinearly, and the rate of decay of
16 different materials varies. And as a result, adjusting pixel sizes for different
17 colors according to emission efficiency, each material, as Yamada suggests,
18 would fail to maintain the same ratio of red, green and blue light over an
19 extended period of operation, which is the whole theory of the petition's
20 application of Yamada.

21 So, we think there's a few fundamental problems which cut across all
22 the combinations of Yamada. In that Petitioner is not reading Yamada
23 consistent with its disclosures and how one of skill in the art would read it.

24 JUDGE LEE: Judge Lee again. Is this also in line with your other
25 argument that Yamada's teaching is applicable to triplets only, and that you

1 can't just arbitrarily say it also applies to quads because of all the different
2 considerations?

3 MR. LERNER: No, this is an independent argument, Your Honor.

4 JUDGE LEE: Independent and goes hand in hand, too. It's kind of
5 related. When you say Matthies has two blues, isn't it true, if you want to
6 apply Yamada's teaching to Matthies two blues, wouldn't you also have to
7 consider all of these factors? Because the two blues might give you a
8 different consideration than when you have a triplet of one each?

9 MR. LERNER: You would. But if we can go to slide 88, Matthies
10 specifically states that when the amount of light emitted by blue is low, or
11 when it's less efficient, two blues should be used in the quad pixel structure,
12 and that this would improve the overall brightness of the display. Matthies
13 also has circuitry and other means to adjust for aging of pixels. And as Dr.
14 Kymissis explained, there's no rebuttal from the Petitioner's expert that
15 circuitry would be required even if there could be some resizing of the pixels
16 in Matthies. So those are addressed through other means. But Matthies
17 certainly teaches the two blue approach is the superior one in a quad pixel.
18 And returning to Arnold, which I think is a very important reference,
19 because it's emblematic of how the prior art understood Yamada and
20 included it was inadequate.

21 Arnold, I'm starting with our slide 75. Arnold has an example of three
22 where it specifically went through Yamada's method to determine the
23 relative red, green and blue areas. And what Arnold concluded is that if you
24 apply Yamada's methodology to actual materials, the conclusion is that the
25 red emitting area should be larger than blue. So, this goes flatly against the

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1 theory of the petition and its reading of Yamada, which has no support. We
2 pointed out other references that consider Yamada and understood it to be
3 flawed and not even to lead to, if you applied it faithfully, what the petition
4 argues.

5 And as a further point from Arnold, we go to Patent Owner's slide 81.
6 Arnold further compared Yamada's approach to a conventional display of
7 the prior art and looked at the lifetime of the display under the conventional
8 display and the Yamada resize display. And what Arnold showed
9 experimentally is applying Yamada results in a shorter lifetime of the
10 display than the conventional display of the prior art. The lifetime in the
11 prior art, conventional display was 4,115 hours. For Yamada, it was nearly
12 400 hours shorter, 3,714. And so this is --

13 JUDGE LEE: Is there any particular reason for that? Why would it
14 be shorter if Yamada was saying that it's a good thing to do?

15 MR. LERNER: Yamada -- Arnold does not get into this, and so there
16 has to be some reading between the lines. But I think this gets to the
17 explanations that Dr. Kymissis provides, which is that Yamada is based on
18 an incorrect assumption of linear decay, linear aging, and the luminance
19 stability of materials being the same across different colors, both of which
20 are not correct, both of which don't actually accord with how these materials
21 operate. And so, accounting for how materials actually age and age
22 nonlinearly, because there is a reduced light emission of red and blue, those
23 are going to degrade faster and over and under, ultimately reduce the life of
24 the display, which is the exact problem that Dr. Kymissis points out would
25 exist if one made the combination that the Petitioner proposes in all of its

1 combinations with Yamada. There are other problems as well. But that is a
2 fundamental problem that runs across all of them.

3 JUDGE LEE: Okay, this is Judge Lee. What about in Matthies?
4 Would Matthies, using two blues, lengthen the life of the display or simply
5 make the blue brighter?

6 MR. LERNER: Matthies doesn't describe that, but by increasing the
7 emissive area of blue, that allows a reduction in the current density. And the
8 current density plays a significant role in the aging process. So, in the
9 Matthies approach, when you have blue being least efficient, by allowing it
10 to be driven at a lower current density, you would prolong the life of the
11 blue. You then have equal sizes of green and red. And certainly there is a,
12 by increasing the size of blue, there is reason to believe the lifetime of
13 display would be extended. There's no suggestion that the green being equal
14 to red would cause it to have a lower life. But that's not something that
15 anyone has analyzed.

16 JUDGE LEE: Yeah, I understand how current density is lowered
17 when you enlarge the blue pixel to something bigger. But I don't understand
18 how current density would be lowered when you have two separate blue
19 pixels. Can you explain that?

20 MR. LERNER: Yeah, because in the quad pixel, it's operating as a
21 single unit.

22 JUDGE LEE: The two blues is operating as a single unit?

23 MR. LERNER: Well, visually, the four cell pixels together are
24 operating as a visual unit.

25 JUDGE LEE: So the single current goes through all of them.

1 MR. LERNER: Well, the current will be controlled by your row and
2 column electrodes, but it can be designed, and we understand Matthies
3 would design it so that for those two blue, you would have the same current
4 going through it, which is adjusted by the voltage on your row and column
5 electrodes at that location.

6 JUDGE LEE: Yeah, I mean, this is what you say, but do I know for
7 sure it makes sense if current density is lowered when you have two blues,
8 and that would lengthen the life. So, if it's already lengthened the life of the
9 blue, you probably don't want to add anything from Yamada because the
10 problem is kind of already solved. But I don't know if we have anything in
11 the record to be able to say when you have two blues, your current density
12 has been lowered. Is there anything in the record that will support saying
13 that?

14 MR. LERNER: There's nothing that specifically analyzes the
15 materials in Matthies, but in Arnold, which, as we were discussing, did
16 experiments to undertake this analysis. I'm on slide 82. Now, Arnold, in his
17 Figure 5 presented as a solution a quad pixel structure with equally sized
18 blue subpixels. And Arnold doesn't give details about the current density.
19 But considering the experiments that he conducted and his focus on useful
20 lifetime, I think the fair reading that one of skill in the art would take is that
21 in this structure, the display has a longer life. We have Dr. Pattison's
22 testimony and deposition acknowledging that in Arnold, the sub pixels are
23 the same size as one another, and there are two blue subpixels, which is the
24 approach that Matthies teaches. And when we look at Phan, Phan also has
25 quad pixels with two blue as a structure that was discussed in the art.

1 JUDGE LEE: Yeah, all of these seem so complicated, but at the end
2 of the day, I think one critical issue for Patent Owner to win on simply is
3 that Yamada does not disclose a single minded focus. And the only focus
4 you need is relative sizing based on emissivity. Is that right?

5 MR. LERNER: I think that we could win and should win on other
6 issues, Your Honor, to be fair, but I think that is certainly a point. Another
7 point is, as Arnold shows, one can't just take Yamada and conclude from it
8 that blue will be bigger than red, bigger than green. If one actually carries
9 out its methodology, that may not be the case. And that's consistent with
10 Yamada's own statements that where you have the same relative efficiencies,
11 you may have different relative sizes of the pixels. So, I think there's that.

12 JUDGE LEE: Would this undermine the Murai ground as well?
13 Because the same Yamada teaching applied to Matthies and applied to
14 Murai. Right? So it would be the same considerations that would be lacking
15 in the Murai plus Yamada grounds?

16 MR. LERNER: I believe so. There's additional issues with, with the
17 Murai ground, because in, in the petition's theory, if one looks at the figure
18 to the extent the figure is indicating what they think the structure would be,
19 they're not resizing materially from the standpoint of area. They're just
20 making a minor cutting of a corner to introduce some difference in size.
21 And there's nothing in Yamada that would counsel in favor of that, I should
22 say on Arnold. Arnold does say that the blue quad pixel structure it shows
23 has a longer life. I believe it says 8,203 hours at column 15 lines 38 to 39.
24 And so again, with the prior art criticizing Yamada, and also showing that
25 Yamada's structure doesn't lead to blue being largest and leads to a shorter

1 lifetime, the kind of modifications Petitioner relies on or proposes simply
2 would not be followed. The prior art taught really away from that.

3 JUDGE HUDALLA: Mr. Lerner?

4 MR. LERNER: Yes, Your Honor.

5 JUDGE HUDALLA: It's Judge Hudalla. I just want to put a little
6 finer point on this, especially this criticism from Arnold. Does it really
7 matter to the combination that maybe another set of pixel structures might
8 have a better lifetime? Or does it matter if a person of ordinary skill in the
9 art might have also considered chromaticity? I think Petitioner's argument
10 was, okay, so what? Maybe I don't have the most perfect pixel structure, but
11 that's all that's being claimed here, is a pixel structure. Isn't that enough that
12 it's at least disclosed to do some of these modifications in the prior art?

13 MR. LERNER: I believe it would be enough by itself. And of
14 course, there are other issues, because this is not simply a situation where it's
15 an improvement, but one that could be improved upon further. What Dr.
16 Kymissis has shown, and what Arnold corroborates or independently
17 demonstrates, is that the modification that Petitioner proposes would go in
18 the other direction and reduce life, make a worse display. There has to be
19 some motivation for a person of skill in the art to make this change, and
20 there's no motivation. And we think that the art really went in the opposite
21 direction, particularly when you consider the references with which
22 Petitioner tries to combine Yamada. So, I don't think it's an issue of just
23 somewhat of an improvement, but it can be improved more other ways. It's
24 that it's an actual, it creates problems, and it goes absolutely contrary to the
25 proposed purpose for the modification, including Arnold showing that the

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1 lifetime is reduced from a conventional display, not just increased, but not
2 increased as much as it could be by something else.

3 JUDGE HUDALLA: Let me throw a hypothetical at you, then. Let's
4 assume that Petitioner, we find that Petitioner has properly lodged its useful
5 lifetime rationale that's in the reply. Is that enough of a motivation to get us,
6 based on this teaching from Yamada, to say that, okay, well, we've improved
7 the useful lifetime of this combined system? Is that good enough?

8 MR. LERNER: No, Your Honor, the useful lifetime still would fail
9 for the same reason that Arnold describes. Arnold is really describing useful
10 lifetime, and Arnold explains that you have to consider brightness as well in
11 useful lifetime. If your display gets to be too dim, it's considered to be
12 beyond its useful lifetime. And Arnold specifically criticized an approach
13 where you would take blue and make red and green smaller. If we turn to
14 Patent Owner's slide 65. The Petitioner in reply had a partial quotation from
15 Arnold that we think leaves out very important teachings. What Arnold said
16 is, to maximize the useful lifetime of the display, it's important to maximize
17 the time that the relative luminance of the three colors can be maintained
18 while minimizing the loss of absolute luminance. And this is where it's
19 important that Petitioner is reducing the luminance from the red and the
20 green and Arnold at column 1:63 to column 2:1 had considered this
21 possibility of reducing the luminance of red and green to balance the blue
22 but explains this lowers brightness, and once the display becomes too dim, it
23 may be considered to be at the end of its useful lifetime, regardless of the
24 relative luminance.

1 And when adding to that, Dr. Kymissis is showing that you have
2 different rates of degradation of different colors and nonlinear decay, he
3 explained. As the display is used, you will immediately under, you will
4 experience color shifting, not avoid color shifting. And that's an important
5 point. That's also why Yamada's circuitry that Petitioner argues could be
6 removed, or maybe says maybe could be removed actually is required in
7 Matthies. So, in slide 68 and slide 69, Dr. Kymissis provided detailed
8 explanations for the circuitry the petition had talked about as to why it's
9 necessary for Matthies' display to function, even if one were to consider the
10 kind of modifications Petitioner proposes in his '803 Patent declaration. It's
11 at paragraphs 140 and 141. He goes through the particular circuitry
12 Petitioner says could be avoided and says points out that eliminating it
13 would result in a non-uniform display if it could operate at all that cannot be
14 fixed by resizing the pixels. And in paragraphs 140 and 142 to 43 shown on
15 slide 69, he also explains the need for the compensation circuitry, and that
16 without it, the display's colors would shift over time, so there's no
17 simplification that would be obtained.

18 The useful lifetime concept was one the reply the Petitioner's reply
19 took from Arnold. It's not a concept that's discussed in Yamada, but reading
20 Arnold fully demonstrates that the kind of modifications the Petitioner
21 proposed would reduce, not extend, useful lifetime. As Dr. Kymissis
22 explained here, I think it may be worth noting. Dr. Kymissis was the chair
23 of the department of electrical engineering at Columbia, the president of the
24 Society for Information Display. He's now been promoted at Colombia to
25 Vice Dean. He gave these explanations in detail in his declaration, and there

1 was not a rebuttal from Petitioner's expert. There was not a disagreement
2 about this. There's attorney argument that Petitioner raises, but we think the
3 facts bear out that the rationales that Petitioner offered are unsubstantiated.

4 JUDGE HUDALLA: Just to be clear, though, Mr. Lerner, all of this
5 line of argument hinges on the notion that the combinations being proposed
6 by Petitioner keep the blue pixel exactly the same size and do not increase it.
7 Am I right in saying that?

8 MR. LERNER: I think that's largely right, with a slight caveat, which
9 is that is the petition's theory, and we can discuss that. That was a point
10 made in the sur-reply at footnote two, citing the pages from the petition, the
11 declaration. It may be that if it were possible to enlarge blue a tiny amount,
12 the analysis would be the same. That's why I'd have to caveat. But yes, it
13 certainly follows from the fact that the petition's theory was blue stays the
14 same size and red and green are reduced in size. There's a separate issue for
15 Matthies and for Phan that those are passive matrix structures. And I can
16 turn to Matthies, but that's a separate issue with those, because in passive
17 matrix structures, because only one row is illuminated at a time, the driving
18 voltages, driving currents must be much higher. And so, there would be
19 additional reasons why Yamada's discussion of aging in an active matrix
20 display would not be considered to be applicable to, or relevant to designing
21 a passive matrix display where there are different primary modes of
22 degradation and different rates of degradation. And that's something that Dr.
23 Kymissis explained, and again, wasn't rebutted by the Petitioner's expertise.

24 JUDGE LEE: Mr. Lerner, this is Judge Lee. I'd like to ask you, what
25 is the difference between reducing the size of the red and the green versus,

1 how should I say, increasing the size of the red and the blue. Is it two sides
2 of the same coin? I mean, if you started with all big sizes that are equal, and
3 then you reduce the size of the red and the green, then supposedly that will
4 live shorter than the one you started with.

5 MR. LERNER: Yeah.

6 JUDGE LEE: But we get to the same result by starting with a device
7 with very small, equally sized blue, red and greens. And then you increase
8 the red and the blue, you get to the same spot that's going to supposedly live
9 longer than the initial one you started. So I don't get the significance of your
10 focusing on the starting point.

11 MR. LERNER: Well, I have two responses, Your Honor. One is,
12 that's the petition's theory, and we're responding to the petition's theory,
13 which is to keep blue the same size and reduce the size of red and green.
14 And there are additional constraints in Matthies. For example, Petitioner's
15 expert points out that Matthies constrained the size of any subpixel to 25
16 percent of the tile area, and that they keep the blue subpixel at that size. So
17 Matthies is constraining the size of it, because in Matthies, in the tiled
18 structure it contemplates, Matthies is very focused on its electronics. It has
19 contact holes that have to come through and be spaced between the
20 subpixels so there are constraints in Matthies' Figure 8B, the quad pixel, and
21 there would be in other devices. So, I don't think one can say in the abstract,
22 it really depends on the device that one's looking at. And certainly, there is a
23 constraint in Matthies that motivated Petitioner to argue you would keep
24 blue the same size and reduce the others, because increasing blue would
25 create additional and different problems.

1 JUDGE LEE: I see. Because they're limited to the ratio, let's say it
2 can be no more than 25 percent. They cannot go above that, so therefore
3 they have to lower the other ones. Is that right?

4 MR. LERNER: That's the way they presented it, Your Honor. That's
5 how we've understood it. And if I could turn now to Matthies, unless there's
6 more questions about Yamada, one point of agreement, I believe, is
7 Matthies' Figure 8B is a passive matrix structure. Figure 8B is the quad
8 pixel in Matthies, and that's the structure the petition argues would be
9 modified. We disagree that Matthies is fairly read to disclose active-matrix
10 structures, and if Your Honor has questions, I can go into that. But we think
11 that ultimately that's not relevant because the petition is based on a particular
12 structure in Matthies being modified. And there's no disclosure or
13 suggestion that that structure would be or could be active matrix, nor what
14 kind of changes would be necessary to make an active matrix structure in
15 Matthies.

16 So on slide 21, we've shown both sides. The experts agree that the
17 quad pixel structure of Figure 8B is passive matrix. And Matthies, at
18 column 17, lines ten to twelve, mentions that there are two row and two
19 column electrodes not shown. Dr. Kymissis annotated the drawing to show
20 where they are, and you can see visually how the overlap between those
21 defines the different colored pixels. So in Matthies' Figure 8B, as is true
22 generally, the passive matrix structure is an important constraint on the pixel
23 sizing and the pixel spacing. It's not something that can simply be ignored,
24 and it directly relates to Matthies being passive matrix.

25 JUDGE LEE: So why do you need active to meet the claim?

1 MR. LERNER: You don't need an -- the claims don't recite whether a
2 structure is active matrix or passive matrix. But the theory of the petition is
3 that one would modify Matthies' Figure 8B, and Figure 8B is indisputably a
4 passive matrix structure. So, the question would be, what would lead one of
5 skill in the art to modify that in the particular ways? Would that be obvious?
6 And it's important that they rely on Figure 8B, because that's the only one
7 that has, before the pixels are resized, a disclosure of a square. There's no
8 reason to believe -- Matthies did not, we believe, fairly disclose all active
9 matrix structures, but regardless, it does not teach or suggest that Figure 8B
10 would be active matrix, nor what sort of modifications we made of to make
11 an active matrix, where there would need to be multiple transistors and a
12 capacitor at least associated with each subpixel. You wouldn't have the row
13 and column electrodes the same way that you would have in a passive matrix
14 display. So there would be wholly different design considerations. So that's
15 the relevance is because that's the theory the petition offers. Whether the
16 claim in this case requires one or the other, it's a question of whether one
17 would be motivated to make the changes that are assigned.

18 JUDGE LEE: The Petitioner has proposed to alter the passive
19 embodiment to an active embodiment?

20 MR. LERNER: I don't believe so, Your Honor. And certainly they've
21 never argued how that would be done, what it would look like.

22 JUDGE LEE: So why does it matter? You know, the claim doesn't
23 require an active OLED, and they don't propose a modification of Matthies
24 to change to an active OLED. So why does it matter that Matthies does not
25 show an active OLED?

1 MR. LERNER: Well, because if they're not arguing that Matthies
2 would be changed to active matrix, and we all agree Figure 8B is passive
3 matrix, then the passive matrix structure of Matthies imposes constraints that
4 are incompatible with the petition's proposed changes to the pixel
5 arrangement structure. That's the point that we've made that Figure 8B as a
6 passive matrix design, could not be made into a structure with different sized
7 blue and red and greenhouse subpixels. They could all be resized. If the
8 row electrodes are made shorter, you could have the green and red that
9 would be shorter. And if the column electrodes are wide and or narrowed,
10 you could have wider or narrower subpixels. But in Matthies, the geometry
11 required is that they all be the same. That's intrinsic to the passive matrix
12 structure of Figure 8B and is incompatible with the combination with the
13 modifications the Petitioners arguing for.

14 JUDGE LEE: That's what I was asking the other side, that how could
15 the sizes vary in a passive configuration? And they said you can. Even
16 though the intersection between the electrodes is where the pixel is, the
17 organic material doesn't need to be the same size. They just explained that
18 you can have different sizes for pixels by having different size organic
19 material between the two electrodes. So, what exactly is the incompatibility
20 between the claim limitations and the passive embodiment in Matthies?

21 MR. LERNER: Well, that's what Petitioner argued, which is not an
22 argument made in their briefing, is also not a disclosure in Matthies.
23 Matthies discloses that the pixels are defined by the overlap of the column
24 and row electrodes. There's no additional layer that could be used to reduce
25 the size of the pixel from that overlap region. Nor would there be a reason

1 to do that. On slide 33 of Patent Owner's demonstratives Dr. Kymissis
2 explained this in his declaration at paragraph 49, that the pixels are formed
3 where the column electrodes and row electrodes overlap and one row of
4 pixels is limited at a time. And that if you go to slide 35, to try to resize
5 pixel would require changing the size of the row or column electrode, which
6 would change the other pixels defined by that row or column.

7 JUDGE LEE: Right. That's what I was understanding and that's why
8 I asked the other side the question. It seems like this structure is not
9 compatible with varying sizes of pixels in the matrix. Is that right?

10 MR. LERNER: We agree. And that's the opinion of Dr. Kymissis.
11 And one could speculate about ways that it could be accomplished. Matthies
12 doesn't disclose any. There's no reason for one to pursue them. What
13 Matthies discusses is equally sized pixels. And then to go back to Matthies'
14 geometry on slide 32, Matthies defines the geometry of its quad pixel
15 structure explicitly by dimensions d_{SH} , the height of the subpixel, d_{sw} the
16 width and d_e the distance from the active subpixel areas to the edge, along
17 with d_{SI} , the distance between the adjacent subpixels. Matthies identifies
18 which of those can change. But the point is, there's a single value for the
19 height, there's a single value for the distance to the edge. Because it's built
20 into Matthies that the pixels are going to be the same size. And certainly,
21 the pixels, certain pixels are constrained to be the same size because they
22 share the column and row electrode.

23 JUDGE LEE: So how do you read that text, the sentence in Matthies
24 that says different sizes are contemplated, is that limited to just changing the
25 sizes of all pixels on the tile?

1 MR. LERNER: Yes.

2 JUDGE LEE: Or like they say, it means you can make whatever
3 pixel, whatever size you want.

4 MR. LERNER: I understand that to mean, and Dr. Kymissis has
5 understood that to mean you can have larger subpixels which would have a
6 relatively higher aperture ratio, constrained by Matthies limitation on the
7 maximum. Or you could have smaller, but they're all the same size.

8 JUDGE LEE: So, what's your rebuttal? Because the other side just
9 disagreed with that. The other side says that means you could have all
10 different sizes on the same matrix. What's your response to that?

11 MR. LERNER: I don't believe there's a disclosure of Matthies that
12 says that. And I heard Petitioner's counsel say that Matthies had the
13 teaching that you could have differences in sizes across the display. And I
14 don't believe that's correct for the pixels. Certainly, if it were, I would
15 expect this to have been something Petitioner would have cited and
16 highlighted in its briefing, which it hasn't. I think what Petitioner's counsel
17 was referring to was a passage in Matthies at column eight, line 63 to 67,
18 that says tile sizes can vary across the display, but the tile is not the pixel
19 unit. The tile is the small partial display. If we look at slide 18 showing
20 Matthies' Figure 1, Matthies is creating large area tile displays by combining
21 a series of small tiles. And what Matthies says is you can have different tile
22 sizes, but that's entirely different from saying you could have different pixel
23 sizes within the same display. So, I just believe that there's not a disclosure
24 or saying that. Certainly, if Petitioner's counsel believes that's mistaken, that
25 can be raised.

1 JUDGE LEE: Okay. But they also said that there's disclosure in
2 Matthies about different pixel sizes in different tiles. Is at least that part
3 correct?

4 MR. LERNER: Again, I don't believe if one's talking about tiles
5 within the same display, that that's correct. Now, certainly one can design a
6 tile, as we were discussing, where you have larger subpixels or smaller
7 subpixels, they'll be equally sized, but it --

8 JUDGE LEE: It should be the same from tile to tile, right?
9 Otherwise, it wouldn't match up. But I remember distinctly that Mr., the
10 counsel for Petitioner said otherwise, that there's teaching in Matthies that
11 different tiles would have different size pixels.

12 MR. LERNER: Yes, Your Honor, I said, I'm not aware of what he's
13 referring to. And to the extent it was the passage I mentioned at column
14 eight, line 63-67, Matthies is saying that the tiles themselves can be of
15 different sizes, not that the pixels that are on the tiles can be, which is a very
16 different.

17 JUDGE LEE: Thank you.

18 MR. LERNER: And then, even setting aside whether the issue of
19 passive matrix versus active matrix, Matthies has specific requirements that
20 are incompatible with the Petitioner's modifications. I think it's important
21 here to start with the fact that Matthies was focused on tile displays and was
22 very clear that no practical tile display system has yet been developed, and
23 that there were barriers to implementing that, including the visibility of
24 seams between tiles. And so, Matthies has certain structural requirements

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1 that are associated with its effort to make the first ever tile display system
2 that would be practical.

3 We go to Patent Owner's slide 54. Matthies requires even spacing to
4 the edges of tiles. This is showing on the slide testimony from Dr. Pattison
5 agreeing that one thing that Matthies discusses is the importance of having
6 uniform spacing from the edges of its tiles. He said yes, and the subpixels
7 are even to the edges of the tiles. That's also reflected in Matthies definition
8 of its quad pixel structure with that single value d_e , which is the space
9 between the outermost edge of the pixels and the edge of the display.

10 Petitioner's theory, however, violates that by introducing differential spacing
11 between each different colored subpixel and the edge of the tile, and that's
12 inconsistent with the teachings of Matthies and its requirements for a tile
13 display.

14 There's an additional point that, as Dr. Kymissis explained, the
15 spacing in Matthies is important to avoid what Matthies calls, or what's
16 described in Matthies as shadowing. Matthies has Figure 19, which we
17 show Dr. Kymissis shows below a figure from the petition where it's looking
18 at how to avoid differential light emission that will cause color shifting or
19 shadowing, and the solution Matthies has is predicated on a constant pixel
20 size across the subpixels. Petitioner's theory removes that and would
21 introduce the very things that Matthies was designed to prevent, which are
22 shadowing and color shifting. Matthies has another requirement of equal
23 spacing between the pixels. On slide 50, we show Dr. Kymissis declaration
24 explaining that and Dr. Pattison citing that from the Matthies patent. But
25 again, and on slide 49, we have other disclosures from Matthies and from the

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1 petition acknowledging that the distance between pixels of adjacent tiles
2 must be the same. But again, if we turn to slide 51, the Patent Owner is
3 introducing through its modifications uneven spacing between subpixels that
4 are inconsistent with Matthies' requirements.

5 If we turn to slide 99 for the '578 Patent, there's an additional issue,
6 which is the claims require a pixel defining layer and Matthies doesn't have
7 one, doesn't suggest one, doesn't require one. Dr. Kymissis has explained
8 this in his declaration, and the absence of a pixel defining layer is a failure as
9 to all of the asserted claims, all the challenged claims of the '578 Patent. On
10 slide 100, we've shown the manufacturing steps described in Matthies builds
11 its display and they don't include anything that would be picked for the
12 defining layer that continues on slide 101. Dr. Kymissis explained that a
13 person of skill in the art wouldn't add a pixel defining layer to Matthies.
14 There's no disclosure of one, there's no need for one. And it would have
15 negative consequences. Increasing thickness, adding process steps, adding
16 cost, reducing yield, and increasing power consumption, all which go against
17 what one is attempting with an OLED display. And there was no rebuttal
18 from Dr. Pattison on this.

19 In fact, although the Petitioner had cited Matthies' Figure 10B as had
20 labeled it with a label pixel defining layer, this is shown in slide 102. Dr.
21 Pattison's declaration had pointed out that it's not actually labeled or shown
22 in Figure 10B, this alleged pixel defining layer, because there is none. And
23 what the Petitioner's figure points to is not a layer at all. It has no number,
24 it's not described. There's no material that would serve that role. And as Dr.
25 Kymissis explains, it's not necessary. And one wouldn't add an unnecessary

1 layer, particularly with the negative consequences. So that's an additional
2 reason that the '578 challenges fail.

3 JUDGE MCMILLIN: Mr. Lerner, this is Judge McMillin. In that
4 section of the petition where the Petitioner discusses the pixel defining layer,
5 there is reference to Yamada at the bottom of page 25. And then there's a
6 Figure 6B from Yamada at the top of page 26 of the petition. Does Yamada
7 teach a pixel defining layer?

8 MR. LERNER: Your Honor, in --

9 JUDGE MCMILLIN: You got it. Thank you.

10 MR. LERNER: I'm on slide 105, Your Honor. Yamada has a
11 planarization insulating film 167. In one embodiment, Figure 6B. It has
12 other embodiments, like Figure 6A. Without that layer, there's no. So
13 Yamada is conveying that a pixel defining layer is not even necessary in an
14 active matrix OLED. But the petition did not argue that one would take the
15 layer from Yamada, or a layer of that type and add it to Matthies. The
16 petition didn't argue for adding a layer to Matthies at all. The petition's
17 theory was that Matthies obviously includes one, and it doesn't. And there
18 are the reasons I mentioned why a person of skill in the art wouldn't add one.
19 It's not necessary in the structure of Matthies. And there are the very
20 significant deleterious results of trying to add one.

21 Claim 5 of the '578 Patent requires that the first pixels and second
22 pixels have a shortest distance, and the shortest distance between the first
23 and third pixels be the same first length. The petition's theory for this, as
24 shown in slide 108, is that the red and blue subpixels will be the same size.
25 They only argue that for this limitation of dependent claim 5, which depends

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1 from claim 1. So one problem is it's an internally inconsistent theory, where
2 there's one theory for the elements of the independent claim and a different
3 and inconsistent theory for the dependent claim. But a further problem is
4 that Dr. Pattison admitted that a person of skill in the art would not think it's
5 a good idea to make blue the same size as red. This is shown on slide 111,
6 citing his testimony. In your opinion, a person of ordinary skill in the art
7 would recognize it would not be a good idea to make blue the same size as
8 red. Correct. Answer, correct. This is on slide 111. So, there's no support
9 or even the structure that the petition draws, or figure five, and its own
10 expert indicates a person at skill in the art would not make it. There are
11 similar issues with other claims that require elongated pixels. Claims 41, 44,
12 52, and ground two, where the petition again has one theory for the
13 independent claim and a different structure, a different theory for the
14 additional elements of the dependent claim that are incompatible. And
15 there's no showing that the structure argued for the dependent claim met or
16 would meet all elements of the independent claim. And we pointed out
17 briefing limitations that may be affected.

18 Turning briefly to the Hong reference, and this is more questions
19 about Matthies. In Hong, there is chamfering of corners specifically to
20 increase separation between adjacent subpixels in a zigzag pattern structure
21 that Hong uses to increase aperture ratio. So, the purpose of cutting off a
22 portion of the corner is to increase the separation so that the pixels can be
23 closer together. There's no disclosure in Hong of any octagonal elongated
24 pixel, which is a disclosure the petition purports to get from Hong. Again,
25 Dr. Kymissis has pointed this out and there is no response from Dr. Pattison

1 at this point. This is important because Hong is trying to increase the
2 separation to allow manufacturability of the claims while reducing the
3 shadowing effect. The petition takes this idea of chamfering but applies it in
4 a way that's wholly inconsistent with and incompatible with Hong.

5 If we go to slide 129, Dr. Kymissis showed the petition's theory for
6 ground two, and you'll see that the shortest distance between adjacent pixels
7 is not the diagonal. So, there's no benefit to be obtained by chamfering a
8 corner, even if one could actually do this with a passive matrix display of
9 Figure 8B, which Dr. Kymissis explains you couldn't do. But in addition,
10 the shortest distance is the vertical and horizontal distance. And in fact,
11 what Petitioner's theory does is reduce the spacing between the green and
12 blue pixels from what it was, which would promote the problem that Hong
13 was addressing or trying to solve by leading to a greater risk of color mixing.
14 So, the petition's theories again are inconsistent with the teachings of the
15 prior art and are really an effort to look backward from the asserted pattern
16 from the challenged patents, rather than in application of the teachings of the
17 prior art. These structures that Petitioner draws are also inconsistent with
18 the passive matrix structure of Matthies' Figure 8B, which is the basis for the
19 combination. This is shown in slide 122, citing testimony of Dr. Kymissis.

20 Claim 45 of the '578 Patent for this claim, this issue on slide 131.
21 The petition doesn't even address all elements of the independent claim,
22 claim 45. It simply addresses one limitation and argues it's met. And Dr.
23 Kymissis has shown that analysis is deficient. But regardless, there's been
24 no effort by the petition to show that all elements of the claim would be

1 satisfied. Unless there are additional questions on the Matthies, Yamada and
2 Hong grounds. I'll turn to the Phan reference briefly.

3 I'm on slide 136. We agree with the point made by Judge Lee earlier
4 that Matt, that Phan in column one, line 15-29, simply says the invention
5 relates to a display comprising pixels and dots and enlists various display
6 technologies. That's not a disclosure that the figures that are shown in Phan
7 are of each of those display types. And in fact, there's no disclosure in Phan
8 that those particular structures are either the invention, that is the pixel
9 structures like 11a, 11b, 10a, 10b. There's no statement in Phan that those
10 are disclosures of the invention that wasn't Phan's invention. Phan's
11 invention was an idea that you have a physical layout. And then to that an
12 algorithm is applied to dynamically treat certain of those physical pixels as
13 their own pixel units in subframes.

14 So, in Phan, there's no disclosure that those particular pixel
15 arrangements are for OLED. No suggestion that it is. And if we turn to
16 slide 143, Dr. Pattison, Petitioner's expert, admitted as much. He was asked
17 and there's nothing in the description of any figure of Phan that says it's
18 describing or purporting to describe OLED pixel arrangements. Correct?
19 He said no, we probably should have had the next two lines which confirm
20 that by no, he's agreeing with that statement. In case there's some ambiguity
21 then go to Exhibit 2083, page 300, line 16 to 21, for that additional
22 clarification. And the experts have both testified that they've never even
23 heard of and don't know what Phan means by a number of the listed items.
24 Here on slide 136, Dr. Pattison didn't know what was meant by electronic
25 inks or surface emitting displays. On slide 137, he didn't know was meant

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1 by digital light processing displays or electromechanics. On slide 138, he
2 didn't know it was meant by Phototronics or Biotronics. And in slide 139,
3 Dr Pattison suggested that maybe he was trying to, Phan was trying to future
4 proof this concept. When Phan recites any light sources known or invented
5 in the future, as well as a method for controlling the set pixel.

6 The experts agreed that the particular display technology informs and
7 constrains pixel arrangements because they're manufactured differently, they
8 have different needs. And there's nothing in Phan that discloses that any of
9 its pixel arrangements that are pictured are for OLEDs or could be
10 implemented in OLEDs. Slide 141 has more testimony from Dr. Pattison,
11 where he says even though he's not aware of any Phototronics or Biotronics
12 displays, it's his opinion that that one paragraph of Phan discloses pixel
13 arrangements or Phototronics and Biotronics displays. And we think that
14 shows the clear error in the logic that display types the experts had never
15 heard of, he's saying, are depicted in figures that never say that they are
16 implementing particular technologies or even are showing what the
17 invention is. The pixel arrangement figures are just being described by Phan
18 as a stepping stone to describe its invention, which is the dynamic pixel
19 algorithm.

20 JUDGE HUDALLA: Mr. Lerner?

21 MR. LERNER: Yes, Your Honor.

22 JUDGE HUDALLA: It's Judge Hudalla. I just wanted to put a finer
23 point on something that Judge McMillin said earlier. I thought he made a
24 good point about your definition of the level of ordinary skill in the art. It
25 has in it that the person of ordinary skill would have experience in the design

1 of active matrix displays. Why isn't it that such a person with that
2 experience reading what is admittedly a laundry list of technologies, some
3 may not even exist, based on what you've said, but certainly OLED is in
4 there. Why isn't that enough to, with the experience looking at the pixel
5 arrangements that are disclosed in Phan, why isn't that enough to get to
6 where they want to go with the claimed arrangement?

7 MR. LERNER: Well, there's a couple answers to that, but the main
8 one, Your Honor, is that there's no reason to believe that an implementation
9 in OLED would look anything like the figures that are drawn in Phan, and
10 the petitions drawing of them. That it may be that someone could see Phan's
11 concept of dynamic pixel driving and come up with an OLED display and
12 then come up with a way to implement it on the display. But the key point is
13 Phan is giving examples of pixel arrangements, which again, it's not saying
14 are the invention of Phan. There's no reason to think that those, and in
15 particular the Figure 11a and b, that the petition relies on order, could be
16 implemented in OLED. And Dr. Kymissis testifies and gives reasons why
17 that would not be something that could be implemented in OLED.

18 So Phan is describing its display as a passive matrix display, and in
19 the background of Phan it's criticizing LCDs for relying on thin film
20 transistors TFTs, because that reduces yield and increases manufacturing
21 costs. So it's saying instead of an active matrix display with LCD, you can
22 use this dynamic pixel driving. And then it goes on to say that its display is
23 passive matrix and that's consistent with the physical layouts which we can
24 discuss. Dr. Kymissis explains there's no rebuttal from the Petitioner's
25 expert that an OLED couldn't be implemented in the arrangement shown in a

1 passive matrix, that the driving currents would be too high and you would
2 have too quick decay of the different materials given the particular
3 sensitivity of organic light emitting materials. There are disclosures in Phan,
4 I'm turning to slide 146 like it's contouring with black mask or barrier ribs,
5 which Dr. Kymissis explained are indicative of other display types and not
6 using OLED displays.

7 Turning to slide 145, Dr. Kymissis explains that the structure shown
8 in Figure 11a and 11b with that rib or black mask would not be one that
9 could be implemented in an OLED display. And I understand the Petitioner
10 has come back and said there's a different reference, Cok. And they argue
11 that Cok is the same as Phan. We disagree. There's no black mass, there's
12 no black ribs. Dr. Kymissis explained it's a different display design, but
13 there's showing that what is described in Phan in these figures could not be
14 made with OLED. And so it may be that it would be possible to make a
15 different display type. It just won't look like what the petition relies on and
16 what it would look like would be entirely speculative. Turning to slide 152.

17 JUDGE MCMILLIN: Mr. Lerner? I'm sorry for interrupting you
18 again. It's Judge McMillin. In the petition's definition of the level of
19 ordinary skill in the art, it says a POSITA's experience would include
20 display design, including OLED displays. In Patent Owner's proposed level
21 of ordinary skill in the art, you say the experience would be in the design of
22 active matrix displays. What justification is there in the context of this case,
23 the patents at issue, and the art for eliminating the experience of a POSITA
24 to the design of active matrix displays rather than as broadly, more broadly
25 defined by Petitioner as the experience is with standard displays?

1 MR. LERNER: Thank you, Your Honor. We would understand a
2 skilled artisan who's familiar with active matrix OLED to also be familiar
3 with passive matrix OLED. If we turn to slide 25, we have an excerpt from
4 a society for information display short works on the fundamentals of
5 OLEDs, and it goes through at length. Passive matrix versus active matrix,
6 because it's a fundamental distinction in this art and has different
7 requirements. So we didn't intend to exclude knowledge of passive matrix
8 technology. The understanding would be if someone understands active
9 matrix or has experience, they would likewise be familiar with and
10 understand passive matrix. But I believe, Your Honor, that for this
11 proceeding, we are not taking the position, we don't have the view that the
12 difference matters, and that under the Petitioner's proposed level of ordinary
13 skill, all of the same arguments we've made apply and all the same
14 conclusions follow. And so I don't know that this is a case in which there's a
15 material dispute for the issues before the panel on the level of ordinary scale
16 in the art, if that helps.

17 JUDGE MCMILLIN: Thank you.

18 MR. LERNER: Turning back to slide 152, the petition offers the
19 theory of combining Phan's, Figure 11b, with the display of Figure 12 and
20 Phan. And as shown on the slide Phan has apparent spacing between the
21 pixels. To be clear, we're not attributing dimensions to those spaces. It's
22 certainly not disclosed in Phan. Which is all the more reason why Phan
23 doesn't teach or suggest a virtual square. But Figure 12 does show spacing.
24 And the experts both agree there are going to be control lines in Phan that
25 would need to be there. And in fact, that's the theory of Dr. Pattison for why

1 there's in his modifications, separation between the dots that is not actually
2 shown in Phan itself.

3 And so, Phan supports the idea that there are vertical and horizontal
4 separations between quad pixel units. The result being that there is no
5 virtual square that's formed and there's no suggestion in Phan to form a
6 virtual square. On slide 154, we have Dr. Kymissis' testimony explaining
7 that there are reasons for that spacing, including the control circuitry. And
8 on slide 155, Dr. Kymissis showed that there were many displays that did
9 have spacing between pixel units. So what is shown in Phan is not
10 anomalous or would not be thought to be an artifact of drawing. It would be
11 consistent with the need to have circuitry and how some displays were
12 designed. And again, there's nothing that's in Phan itself that would suggest
13 removing that spacing or defining arranging the dots of sand subpixels in a
14 virtual square.

15 JUDGE LEE: Mr. Lerner, it's Judge Lee. I think the other side
16 explained in their reply that they had -- weren't trying to show any spacing
17 with the borders. Square borders. They say the borders are just there to
18 label each pixel. So if that were true, then they haven't removed any spacing
19 by, you know not redrawing those square borders. So what's your response
20 to that?

21 MR. LERNER: Well, our response is that Dr. Kymissis has analyzed
22 this and concluded that there is a reason for the spacing. And if one doesn't
23 look at Phan as showing borders, then there's no disclosure in Phan of the
24 physical arrangement of the pixels, and no disclosure of how Phan would
25 accommodate the control lines that everyone agrees have to be there and

1 would not be themselves under the pixels. So I don't think it helps
2 Petitioner. In addition, Dr. Kymissis has explained that there are reasons for
3 having the spacing, and if we turn to slide 156, there's a concept of visual
4 locus that the petition also disregards. So in Figure 11b, where Phan has
5 unequally sized blue and green and red subpixels, the visual locus, where the
6 human eye is perceiving the center of that structure is offset from the
7 geometric center because of the different sensitivity of the human eye to
8 different colors of light.

9 And Dr. Kymissis explains that in paragraphs 227 and 228, showing
10 on Figure 11b, the visual locus with a red text mark. And he explains that
11 were there no spacing in the dynamic pixel driving, in the situation in which
12 you have these unequally sized pixels, then the visual locus will be offset by
13 different distances for different of those subframes that would result in a
14 perception of distortion. This is, I would acknowledge, a complicated issue
15 that Phan does not get into. Phan doesn't also show any display structure
16 with unevenly sized pixels. So Dr. Kymissis has explained the control
17 circuitry that would need to be there. It's consistent with Phan's drawing.
18 There's a visual reason for it, consistent with Phan's disclosure of the
19 dynamic pixel driving. So we believe that those are all reasons why the
20 better reading a Phan is that the spacing is intentional. But if it's not, then
21 there's really no basis to draw any conclusions in Phan at all about the
22 geometric layout, because Phan doesn't disclose it.

23 JUDGE LEE: Thank you.

24 MR. LERNER: And Petitioner argues that Phan would naturally be
25 read to have equal spacing. But that's not correct, and Phan is quite clear

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1 about that. In slide 158, we point out that in Phan, the quad pixel units can
2 be rectangular, and in a rectangular unit, you're going to naturally have
3 different spacings that would not yield a virtual square. So, the premise of
4 the petition is clearly inconsistent with Phan, which contemplates unequal
5 spacing horizontally and vertically between the dots that are at subpixels that
6 would not form a virtual square. In terms of the argument that Petitioner
7 made in reply about the dynamic pixels, this is slide 160. The point here is
8 that the circles that are being drawn are not consistent with Phan. They're
9 not drawing around four subpixel units. You can see that blue, for example,
10 is covering six. Dr. Kymissis provided the technical explanation of the
11 visual locus that was unchallenged in the deposition of him, and the
12 Petitioner's attempt to find fault in that really falls flat.

13 In terms of the '683 Patent. The substantially equidistant pixel
14 limitation is not met for claim seven for the same reason as the virtual square
15 limitations for the '803 Patent and for Phan. I'm sorry. For the Phan with
16 Yamada combination there are all the problems with Yamada we discussed,
17 but a further problem that the petition introduces arbitrary spacing and sizing
18 of the subpixels that are inconsistent with Phan's passive matrix structure
19 and Phan's disclosure of resizing along a cross point. In slide 166, we show
20 Figure 11a and how it implements a passive matrix structure. Yamada, in
21 contrast, is active matrix. The Petitioners pointed to Figure 3 of Yamada to
22 show squares. Just want to point out that Yamada refers to as a conceptual
23 drawing, and Figure 5 of Yamada with its cutout is what it describes as a
24 schematic. But it's apparent how the resizing of pixels across a cross point is
25 related to and based on Phan's passive matrix structure, which would make it

1 unsuitable to modify in the way that the Petitioner argues as discussed in
2 slide 167.

3 And to go back to slide 164, the drawing that Petitioner creates with
4 these pixels that are now split from one of the ways that Phan discloses is
5 not only at odds with Phan, but it's at odds with its passive matrix structure.
6 If we go to slide 169, this is discussing Phan teaching of resizing long cross
7 points. Slide 170 shows how that relates to its passive matrix structure and
8 the relative sizes of the row and column electrodes in Phan structure. If blue
9 is larger than the other subpixels, green is necessarily larger than red. And
10 that seems to be the only reason, a hindsight-based reason, for the Petitioner
11 to not follow Phan's disclosure of resizing and instead to introduce its
12 arbitrary spacing. Dr. Kymissis explains that Phan's disclosures are
13 inconsistent with the structure Petitioner argues in slide 171, and that there's
14 no basis for the spacing that Petitioner draws. Certainly, spacing that is
15 calibrated by Petitioner to be in a virtual square when there's no disclosure
16 or suggestion and can of any virtual square.

17 Finally, the resizing of Phan along a cross point has a visual
18 importance which Dr. Kymissis describes. Slide 171, he's describing the
19 passive matrix structure further in Phan structure. The petition's theory of
20 keeping blue the same size and reducing red and green, which is what's
21 shown, would have negative effects for all the same reasons that were
22 discussed for the other references. Very briefly, to turn to Murai, Murai is
23 directed to LCD displays. This is slide 189, highlighting Murai's disclosure.
24 In paragraph two, Dr. Kymissis explains how the problem Murai is solving
25 about blurring, because pixels are so close together, is related to its LCD

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1 structure and wouldn't exist with OLEDs because they necessarily would
2 have greater spacing. This is slide 190 and that Murai's description on slide
3 191 of its technical components is indicative that it is LCD. It discloses a
4 single TFT, while OLEDs require two TFTs, and it has other electronics that
5 are characteristic of LCDs.

6 So Murai is not an OLED structure and it has one passing reference to
7 organic EL display devices at the end and was shown in slide 192, but Murai
8 never states that the particular structures that the petition relies on would be
9 or could be implemented in an OLED display. The petition also takes some
10 liberties with Murai's spacing and in terms of the argument that Petitioner
11 made, that even though it depicts something that's not a virtual square, its
12 expert said dots could be square. Murai doesn't have disclosures that the
13 pixel units are all arranged in a square and there's no basis to draw the
14 geometry the Petitioner is arguing for, which it doesn't even depict in any of
15 its figures, and that its expert didn't draw.

16 One thing I wanted to mention is slide 19 of Petitioner's slides. This
17 may be an oversight, but the drawing there is different from the petition's
18 drawings of its theory at pages 70 to 71 and 74 of the petition in the '803
19 patent. In the petition that red subpixels are drawn with two opposing
20 corners that are chamfered or cut off. In the slide that was presented here on
21 slide 19, there's only one red dot that's cut off. I presume that was an
22 oversight, but just wanted to raise that with the Board so there's no confusion
23 about that. And if one corner were cut, that would necessarily shift the
24 geometric center of the pixel and would have implications for the limitations
25 about distances and the virtual square.

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1 Unless Your Honors have more questions on the prior art, I'll turn to
2 Mr. Weidenfeller to address the objective indicia evidence.

3 MR. WEIDENFELLER: Thank you, Your Honors. And may it
4 please the Board. And let me try to get my slides up for you. Okay, so I'm
5 going to go through industry copying issues and some other objective indicia
6 issues. And I wanted to start with this slide because I think it shows that the
7 industry has adopted the diamond pixel design, which is the sort of trade
8 name for the design claimed in these patents almost uniformly. There were
9 many other designs that were attempted. As I'll go through it used to be a
10 market dominated by LCD displays. It's been overtaken now by AMOLED
11 displays, both for Samsung phones and for Apple phones. And the claimed
12 diamond pixel display technology is what is used uniformly throughout the
13 industry. The history of phones and phone usage of display technology
14 shows an identified long felt need for AMOLED HD technology. As I had
15 said that the industry had been using LCD technology historically, it was
16 moving to LEDs because of the advantages that AMOLEDs provide and it
17 was trying to get to Full HD technology and it was really struggling with the
18 existing technology, using fine metal masks to lay down the pixels. The
19 industry was unable to do that until the display technology that Samsung
20 display invented was put into place. There were many attempts.

21 JUDGE LEE: Mr. Weidenfeller, a question. This is Judge Lee.
22 Sometimes your briefs refer to 1920 x 1080 as the HD level to be achieved,
23 and sometimes it's referenced as 180 PPI. Are those the same, like
24 synonyms?

1 MR. WEIDENFELLER: So the 180 PPI is less than Full HD
2 technology. So the 1080 times. The 1080 times is it 720, I think is Full HD.
3 But in order to get that, you need to have over 400 pixels per inch, PPI.

4 JUDGE LEE: No, I mean sometimes your briefs indicate 1920 x
5 1080 is Full HD, and then sometimes you say people are trying to achieve
6 180 PPI. Is there an equivalence between those two? So read your briefs.
7 One equals the other.

8 MR. WEIDENFELLER: So there is an equivalence, and it depends
9 on the display having 1920 by 1080 pixels on the size of the display on a
10 phone, how many pixels you need to get into the particular size. It's a
11 function of the resolution as it relates to the physical size of the display. So
12 if you're trying to make a display that's around five inches diagonally like
13 the displays at the time, it would be around 400 pixels per inch. In order to
14 get the 1080 by, I'm sorry, the 1920 by 1080 pixel display technology, which
15 is for the overall device, how many pixels are in the overall device, how
16 many pixels per inch there are, is a function also of the size of the display.

17 JUDGE LEE: Is that the same as 180 PPI?

18 MR. WEIDENFELLER: No. So for the 1920 by 1080 display size,
19 you need to have more than 400 PPI, not 180 PPI.

20 JUDGE LEE: So which is the goal people were trying to achieve?
21 I'm a little confused because, you know, the solving a long felt need and all
22 that since we have a target. Right? People were trying to achieve
23 something. What is that something people were trying to achieve? Is it 180
24 PPI or is it 1920 x 1080?

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1 MR. WEIDENFELLER: They were trying to achieve 1920 x 1080,
2 and that's the Full HD technology.

3 JUDGE LEE: And then 180 PPI is less than that. Right?

4 MR. WEIDENFELLER: Right. You need more than 400 PPI, or
5 approximately 400 PPI in order to do that at the size of a mobile phone's
6 display. So 180 PPI does not get you Full HD. It gets you something closer
7 to standard definition, something better than that, but something closer to
8 standard definition than it is to Full HD. So the P in 1080p refers to the
9 resolution of how many pixels there are across. It's different from how
10 many pixels there are per inch, which is also a function of the size of the
11 display.

12 JUDGE LEE: So, in doing our analysis, we should treat 400 PPI as
13 what people are trying to achieve.

14 MR. WEIDENFELLER: Yes, Your Honor, the 180 was what people
15 were able to achieve before the diamond pixel. The diamond pixel is more
16 than 400 PPI. So that was the goal, was to get above 400 so you could have
17 the Full HD technology. And that was not achieved until the patented
18 display technology was invented.

19 JUDGE LEE: Thank you for clearing that up. Another related
20 question. Talk about long felt need's satisfaction, long felt need. And the
21 briefs mentioned Samsung was the first company to come up with the first
22 commercialized OLED display at some time, right? 2007, somewhere
23 around there. But that already happened a long time ago. That's not the
24 invention. Right? That was just the first commercialized OLED display.
25 Am I correct so far?

1 MR. WEIDENFELLER: Yes. And there were LED displays before
2 the diamond pixel.

3 JUDGE LEE: Okay.

4 MR. WEIDENFELLER: They had 180 PPI, not 400. I'm sorry.

5 JUDGE LEE: So at that time, people thought it was good. It was not
6 until after that. Then people go, oh, no, we really need even higher. We
7 really need to achieve 1920 cross 1080. Right? So that need really didn't
8 surface until after 2007, until after Samsung came up its first try that was
9 commercialized. People go, oh, no, this is not good enough. We need to go
10 even further to 400 PPI. Is that also correct?

11 MR. WEIDENFELLER: I think technology was developing and
12 people knew that they could not see the sorts of things on their cell phones
13 that they could see on their televisions, and that's not that they didn't want to
14 see it. And there was a need for the ability to achieve the Full HD displays.
15 People were now filming things in Full HD. They were displaying things in
16 them in Full HD on television sets. And in order to display it on a phone,
17 they had to do a lot of calculations to get the Full HD data converted into
18 something that would display on the display. That was very --

19 JUDGE LEE: I think you missed the goal of my question. I'm trying
20 to see how long standing was the problem if people were trying to achieve
21 400 even before 2007, that's one thing, right? If people didn't realize they
22 need 400 PPI until after Samsung's 180 came out and people used it for a
23 while, and no, this is not good enough, we need even more, then it wouldn't
24 be as long standing. It could be just a couple of years.

1 MR. WEIDENFELLER: Sure. I think that the need existed before
2 the 180 PPI display came out. The need was for people to display videos in
3 the definition that the video was filmed in or shot in, and that data was being
4 sent. If you were watching a video that was being streamed to your
5 television, it would be the Full HD. It would not have to be converted
6 because the screen could display Full HD. Your phone would have to
7 convert it. So there was a technological solution to resolve the fact that there
8 were not displays that could handle the Full HD and that solution --

9 JUDGE LEE: The need was there even before 2007. But the
10 Samsung's first commercialized thing was just on its way to 400, but through
11 providing the 180?

12 MR. WEIDENFELLER: Yes. So they were doing the best they could
13 to display it as displayed. The video that had been introduced in 1998, Full
14 HD was introduced into the United States. And so since 1998, through the
15 invention of these in 2012, they were trying to display Full HD. The
16 displays were not able to get there using LED displays, so they were instead
17 using LCD displays, liquid crystal displays, or having to convert so that the
18 LED displays could display some video even if it was not as perfectly --
19 without the same definition and required a lot of calculation and a lot of train
20 the battery to convert from the Full HD to something that could be displayed
21 on the less the display with less resolution on the phone.

22 JUDGE LEE: Okay, thank you. I'm also confused on exactly what
23 other things was in need, because your briefs talk about Petitioner
24 recognized as urgent technical problems to be solved. Three things, not one
25 thing. Three things. One is a need for a display suitable for high resolution,

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1 which is what you talk about. We need higher resolution stuff. But they
2 also say that they recognize as a technical, urgent technical problem. To
3 increase the aperture ratio of sub pixels. That's number two. And to obtain
4 good brightness level and to extend the lifetime. It's almost like three or
5 four. What is the, is it just one need or are you identifying all of these as
6 separate needs that are long felt needs that are solved? So, focusing on one
7 thing, resolution or all of these.

8 MR. WEIDENFELLER: So the need is for a number of different, a
9 number of different things. And the idea is that one is trying to balance the
10 all the technological feasibility issues with what one wants to display. So in
11 order to have a display that people would use on their phones, that they
12 would prefer to an LCD display, it needed to be as bright and to work in the
13 same conditions and to have a good aperture ratio, it had to have all these
14 features. So, in order to invent it, it wasn't just, I want to meet this, lay down
15 this many pixels. I have to lay down this many pixels in a way that it will be
16 a viable display that will match or exceed the capabilities of the existing
17 displays. Otherwise, the device manufacturers are going to continue buying
18 the displays that they use and not move over to these other displays.

19 JUDGE LEE: Have reasonable lifetime and good brightness level.
20 So really it's one thing you need higher resolution, but with workable
21 lifetime and brightness and good aperture ratio. Is that a fair way to see
22 this?

23 MR. WEIDENFELLER: Yes, that's right. In order to have a viable
24 display, to have a viable Full HD display, you need to have all of those
25 features.

1 JUDGE LEE: But you can sort of short abbreviate it down to is really
2 a need for higher resolution, workable commercialized unit.

3 MR. WEIDENFELLER: Yes, that's a fair characterization, I think.

4 JUDGE LEE: Okay, thank you.

5 JUDGE HUDALLA: Mr. Weidenfeller?

6 MR. WEIDENFELLER: Yes?

7 JUDGE HUDALLA: It's Judge Hudalla. You're pretty much out of
8 time. You only have about a minute left here. But I did want to ask about
9 the nexus portion of your case here. As you know, the first motion to strike
10 from Petitioner challenges your evidence, and in particular the claim charts
11 apparently that your expert has put together, as being improperly
12 incorporated by reference. And I have looked at the briefs and I see that, for
13 instance, your Samsung Galaxy 22 Ultra contentions literally are one
14 sentence in your brief and then see this claim chart. Why is it proper for us
15 to consider that? I mean, it seems to me like you should have at least some,
16 maybe at least one claim chart, or at least some explanation in the brief, in
17 the main brief, for this to be something that we can consider without
18 improper incorporation by reference.

19 MR. WEIDENFELLER: Well, I think what this slide shows is that
20 you don't actually need a lot of description in a claim chart to show that the
21 displays that are out there, excuse me, the displays that are out there in the
22 Galaxy S 22 Ultra display practices, the claimed inventions, the overall
23 design of the display in the layout of the pixels is more apparent from a
24 picture than they are in spelled out in words. And in fact, if you look at the
25 exhibit, that is a claim chart for it, it really just says the claim language in

1 one column, and then the claim language repeated in the next column with a
2 colon and a picture of the display. And that's really all you need to do. The
3 picture is actually far more useful for conveying the nexus than words would
4 be. You can tell by looking at this that it has the claimed arrangement, it has
5 the claim virtual square, it has the claim lines going in particular directions.
6 You can see all of that much more easily than you could simply by trying to
7 use words.

8 And in fact, I think one piece of evidence in support of that argument
9 is that the petition has lots and lots of pictures trying to explain how the art
10 would be altered in order to meet the claim limitations. And the figures are
11 actually a very helpful way of just explaining it and just showing the nexus.
12 And we do have the claim charts. But I think that even without the claim
13 charts, there's enough in the Patent Owner response itself, in the figures, and
14 in the descriptions of the figures in the patent on a response to make a case
15 for nexus.

16 JUDGE HUDALLA: And just to be clear, you didn't include any of
17 the verbiage in the claim charts in your word counts for the Patent Owner
18 response, is that right?

19 MR. WEIDENFELLER: That's correct, Your Honor, although to the
20 extent that the claim language is really the verbiage in the claim chart, that is
21 in the Patent Owner response already. But we did not count the exhibit, the
22 words in the document that is the exhibit with the claim chart. We did not
23 count those words in the, when we recited the word count in the Patent
24 Owner response.

25 JUDGE HUDALLA: Thank you.

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1 JUDGE LEE: Patent Owner, you're out of time, unless Judge
2 McMillin has another question.

3 JUDGE MCMILLIN: No.

4 MR. WEIDENFELLER: Thank you, Your Honors.

5 JUDGE LEE: We can take a break for about five or six minutes.

6 Come back at 1:43. Thank you.

7 (Recess)

8 JUDGE LEE: Counsel ready?

9 MR. HERMAN: Yes, Your Honor.

10 JUDGE LEE: Okay, we're back to Petitioner's counsel. Mr. Herman,
11 you have 20 minutes. It's 1:43.

12 MR. HERMAN: Thank you, Your Honor. Now, before getting into
13 the meat of my reply, I'd like to very briefly address one issue that came up
14 during Patent Owner's presentation and that is with respect to my comment
15 regarding Matthies and contemplating varying pixel sizes across the display.
16 And I'll reiterate that Matthies does in fact already teach that there are and
17 can be differently sized pixels on the same display. And the passage I was
18 referring to can be found in column 19 at line nine. And there, Matthies
19 explains that, quote the different tiles may also employ different pixel
20 pitches, such that the tiles on the sides of the display may have a relatively
21 large pixel pitch, while the tiles near the center of the display have a
22 relatively small pixel pitch. End quote.

23 JUDGE LEE: So what does pixel pitch mean?

24 MR. HERMAN: The width, essentially, of the pixel. So, the width of
25 the pixel can be either small or large, depending on where you are on the

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1 display. So, one of the things that Matthies is expressing here is that you can
2 employ different pixel pitches on one display. And I'm not citing that
3 passage for the first time today. You can find it in the petition in the '803
4 proceedings on page 30.

5 Now, I'd like to shift gears and spend a little time talking about the
6 secondary considerations arguments that Patent Owner concluded its
7 presentations discussing. And if you turn to slide 86 of Petitioner's
8 demonstratives, there are numerous issues with these arguments. First,
9 while Patent Owner's Samsung Galaxy product lies at the heart of its
10 secondary considerations, Patent Owner itself has produced no evidence.
11 Instead, it relies entirely on a pile of non-authenticated third party hearsay,
12 essentially a collection of random websites that Patent Owner's counsel
13 managed to pull off the Internet. You won't see any declarations from Patent
14 Owner explaining how its product works, how many products were sold, its
15 market share, the features of its products. You'll see no newspaper articles,
16 discussions, and published technical magazines or peer reviewed journals.
17 Instead, all you will see are essentially one-off Internet posts by non-
18 declarants.

19 Next, Patent Owner has not established the required nexus, and I'll
20 explain why that's the case shortly. And finally, any considerations that
21 Patent Owner does point to are attributable to many, many features beyond
22 the generic pixel layout the claims here require. So, turning to slide 87, I'll
23 start with the lack of nexus. And there are two ways the Patent Owner could
24 have proven that there's a nexus. First, it could have shown that there is a
25 product that not only embodies the claims, but is coextensive with them.

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1 Now, those are two separate requirements, or it could have shown that any
2 secondary considerations directly resulted from the claimed subject matter,
3 and Patent Owner has done neither.

4 So turning to slide 88, there's a lot of testimony on this slide, but what
5 it's meant to show is that all the Patent Owner's secondary consideration
6 arguments focus on smartphones like the Samsung Galaxy. So the Samsung
7 Galaxy is a mobile device. It has a high-definition display, it employs an
8 active matrix OLED, and it offers what Patent Owner calls an improved
9 pixel density and improved aperture ratios. But as you can see from the
10 excerpts from the deposition of Patent Owner's expert on this slide, Patent
11 Owner and its expert admit that none of this is required by the claims. The
12 claims do not require mobile devices, improved aperture ratios, HD displays
13 or even active matrix displays. So, the product at the heart of Patent
14 Owner's arguments is certainly not coextensive with the claims.

15 So, turning to slide 89, any secondary considerations are also not the
16 direct result of the claimed pixel layout. And why is that? So this slide
17 reproduces a public statement by Patent Owner and what did Patent Owner
18 say? It says that it is its, quote, highly sophisticated evaporation technology,
19 end quote. That is actually what allows for production of its improved
20 display. So, at best, the patent's pixel arrangement is the indirect result of
21 any success. It is the manufacturing method, by Patent Owner's own
22 admission, that is the direct cause at the end of the day.

23 Now finally, as shown on slide 90, even if there were a nexus, it has
24 been rebutted here in each and every case, Patent Owner's arguments lack
25 merit. There was no long felt need for OLED displays. These existed

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1 before the '803 Patents and the '683 and the '578 Patents. Patent Owner and
2 his expert made clear by pointing to examples of such displays that existed.
3 Whether or not HD displays existed is of no moment because the claims do
4 not require HD displays. Similarly, there was no failure in the art. Patent
5 Owner itself cites numerous examples of working OLED displays. Patent
6 Owner has not produced a difference in kind. Instead, all it did was produce
7 a marginally prettier to look at display. Likewise, while certain of the
8 random Internet articles Patent Owner cites mentions its displayed pixel
9 arrangement, they also reference a whole bevy of other features, both related
10 to the display and the phone itself, that have nothing to do with the claim
11 subject matter and are also attributable to those particular phones
12 commercial accessibility. There's also no evidence of copying. All that
13 Patent Owner has done is shown that others use pixels arranged in square
14 matrices, but that concept has long been in the prior art. And finally, there is
15 no evidence at all of commercial success. Yes, the Samsung Galaxy is a
16 well-known product, but there is no evidence tying any such success or
17 recognition to the claims at issue here.

18 Now, moving back to the substance, I'd like to start by pointing out
19 that Patent Owner began its presentation by discussing all the supposed
20 benefits that its patents provided. Now, supposedly the patents provide
21 better aperture ratios, improved manufacturability, and the like. But the
22 patents never really say how any of that is to be achieved. Yes, they use the
23 words, but they disclose nothing beyond the fact that the pixels should be
24 arranged in the square, with some made bigger than others. That's all that
25 they say. That's all that they contribute to the art. There's no discussion or

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1 examples of actual pixel spacing. There's no real specification of how far
2 apart or close together the pixels should be. And the patents also say that
3 virtually any pixel size or shape can be used. Yes, the patents include
4 figures, but the patents also say that the dimensions in those figures are,
5 quote, arbitrarily given, end quote. Those are the patents' words in column
6 three at lines 32 to 35. So, the figures are not providing any real guidance to
7 a POSITA. Instead, the patents effectively assume that a POSITA, after
8 merely being told to put pixels in a square and make them different sizes, is
9 capable of figuring out how to properly balance the size, spacing and the
10 like, and choose the right pixel colors to achieve a working display entirely
11 on their own and without any guidance whatsoever. The Petitioner submits
12 that that is a concession of what a POSITA is able to do. The prior art here
13 teaches much more than the patents in suit actually do.

14 So next, I'd like to highlight where most of the dispute between the
15 parties here actually lies. There is almost no dispute that the prior art, at
16 least separately, teaches what the vast majority teaches, the vast majority of
17 the claim limits. For instance, when it comes to the '803 and the '683
18 Patents, Patent Owner points to nothing missing from the combination of
19 Matthies and Yamada. Everything the claims require is, admittedly there.
20 When it comes to the '578 Patent, Patent Owner only points to the pixel
21 defining layer limit, and I'll address that in a couple of minutes, but
22 conceives that the art teaches everything about the pixel layout that those
23 claims require. Instead, the dispute here focuses on the motivation to
24 combine. Now, when it comes to this motivation, Patent Owner points to all
25 sorts of supposed issues with the prior art. So Matthies' display supposedly

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1 is too dim if the pixels are resized. If reported, they won't last very long. It
2 could be subject to failure. There could be shadowing. Phan's displayed
3 pixels that are too close together. The display could be blurry. Rectangular
4 pixels would never work. Octagon pixels aren't actually manufacturable.
5 And so on and so on. But none of this has anything to do with the patents
6 that are at issue here.

7 Again, these patents are directed only to a pixel arrangement, and they
8 require only that the pixels be arranged in a virtual square and have different
9 sizes. Nothing else is required. The claims do not say anything about how
10 bright or dim the display is, how long it needs to live, whether there is
11 shadowing, how close or far apart the pixels are, whether they're blurring, or
12 what shapes can be used, what shapes cannot. None of this is claimed. So
13 all of Patent Owner's arguments are rooted in unclaimed features. And none
14 of this is addressed in the specification either. The specification says
15 nothing about how to best strike the balance between display life and
16 brightness. In contrast, the prior art does. The prior art provides examples
17 of when pixels should be made bigger. For instance, with commonly used
18 materials, the blue pixel is recognized to be the least efficient and the green
19 is recognized to be the most efficient. So, Yamada provides a numerical
20 example as to how to best address that particular common scenario.

21 Now, I'd also like to address how Patent Owner has characterized the
22 evidence, both in this presentation today and in the briefing. First, in most
23 cases, it tries to limit the art to exactly and only what is shown in some of
24 the limited subsets of the figures in the prior art. For instance, you heard
25 that Matthies' Figure 8B appears in the context of a passive matrix display.

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1 So Patent Owner posits that Matthies teaches only this and nothing else. So
2 Phan references an LCD display, or at the very least, maybe a passive matrix
3 OLED. So according to Patent Owner, that's all it teaches. But that's not
4 how the art is to be assessed. One is not limited to bodily combining figures
5 from one patent with figures from another. Everything the art discloses must
6 be taken into account. And here Matthies teaches generic pixel layouts and
7 says that those layouts can be used with a variety of different driving
8 electronics. And Phan does the same thing.

9 Patent Owner also stated multiple times that its expert made some
10 point that is supposedly unrelented, but this is simply not the case. The
11 Petitioner disputes the substance of Dr. Kymissis' opinions, but more
12 importantly, the factual underpinnings of those opinions. Most of what Dr.
13 Kymissis says both lacks factual support and is directly contradicted by the
14 actual evidence of record. For instance, he opines at length that Matthies is
15 just limited to passive matrix displays. But Dr. Kymissis did not even
16 reference, let alone consider, the import of the passages in Matthies talking
17 about both active and passive driving circuitry. He also opines about how
18 it's impossible to make pixels in a passive matrix display with different sizes
19 and shapes. But he doesn't actually cite anything to support that notion, and
20 he does not attempt to square this with many examples in the prior art,
21 including the Cok, Smith and Arnold references that I pointed to earlier that
22 teach displays with variously sized pixels and say that those displays can be
23 made as a passive matrix display.

24 Now another of the issues that came up during Patent Owner's
25 presentation is whether you could improve the life of a display simply by

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1 using two blue pixels in a quad pixel without resizing those blue pixels.
2 Patent Owner pointed Your Honors to Arnold, but what does Arnold say? It
3 says that you should resize your pixels even if you use two blue, one green,
4 and one red. And in fact, it does this in Figure 5, the embodiment that
5 includes two blue pixels by making its blue pixels thicker in the vertical
6 direction than both the green and the red pixels. So there's nothing
7 inconsistent with this. And Yamada all that Arnold really teaches is another
8 design option to address aging. And Arnold, like Yamada, teaches that you
9 should resize your pixels and not use the same size. And it does this even in
10 Figure 5 when using two blue pixels.

11 Now I'd like to briefly address the Phan reference. So, one of the
12 points that Patent Owner raised is that because Phan references other not yet
13 known types of displays, that that somehow allows one to read out its
14 reference to OLED. It doesn't. Phan references OLED in any event. No
15 one here disputes that this type of display was known and would have been
16 on top of minds of a POSITA when assessing a reference like Phan. Patent
17 Owner also appeared to argue that Phan cannot be an OLED because it
18 includes a black mask or black matrix. But Matthies, which admittedly does
19 teach an OLED, also includes a black matrix, and you can see that, for
20 instance, in the abstract.

21 Now I'd also like to briefly address Patent Owner's arguments
22 regarding the pixel defining layer limit in the '578 Patent. Now before
23 talking to that, I'd like to point the Board to slide 68 of Petitioner's
24 demonstrative, because before discussing what the prior art teaches, I'd like
25 to summarize what the '578 Patent says about this limitation. And as shown

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1 on slide 68, the patent explains that this type of pixel defining layer is, quote
2 a technology known in the art. So the patent is simply using existing known
3 pixel dividing layers, not something that the patent contributed. Now, these
4 same passages explain that the pixel defining layer can simply be an
5 insulating layer that surrounds the pixels. Other examples are shaped power
6 lines, anodes and the like. So slide 69, what does Matthies teach? First, as
7 shown here, it explains that this display includes shaped red, green and blue
8 pixel forming elements that define an active area and occupy a specific
9 amount of space. Matthies does in fact teach pixels with defined shapes.

10 Slide 70, Matthies also explains that additional layers may be present
11 in its device beyond those shown in its figures. So according to Matthies,
12 these layers may be present to improve the device's function or life. And
13 further, one type of layer that is specifically contemplated is a structural
14 layer of insulation. You see that in the bottom excerpt on slide 70. Now,
15 slide 71, the petition also highlighted where a POSITA would have
16 obviously placed such a layer of insulation in an OLED as shown on this
17 slide. Yamada provides an example. In particular, Yamada includes a layer
18 of insulation 167 that surrounds each pixel to define its emissive area. And
19 Yamada explains that this layer improves the device function by preventing
20 inadvertent contact between the anode and the cathode surrounding is
21 OLED. There's no dispute that this layer is exactly what the claim requires.
22 So, turning to slide 72.

23 JUDGE MCMILLIN: Mr. Herman, you're talking so fast, so maybe
24 it'll be a good thing if I ask a question and you breathe for a few seconds.
25 The Patent Owner contends that Dr. Kymissis explained that Matthies'

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1 structure does not have and does not need a pixel defining layer, and a
2 POSITA would have no reason to attempt to add one, and that this testimony
3 is un rebutted. Do you have a response to that?

4 MR. HERMAN: Yes. So first, it is rebutted. And there's two reasons
5 for that. Number one, it assumes that Matthies is limited to a passive matrix
6 display. And that's the fundamental premise of the argument. Dr. Kymissis
7 is assuming that Matthies teaches only a passive matrix display, and in his
8 view, a passive matrix display does not require an insulation layer that's
9 taught by an active matrix reference like Yamada. But as I've explained
10 today, Matthies is not so limited. Matthies explains that its display can be
11 active matrix or passive matrix. And if implemented as an active matrix
12 display, there is no reason why there would not be an insulating layer like
13 that taught in Yamada present.

14 But even assuming that Matthies display were a passive matrix
15 display, there is art of record that teaches that passive matrix displays, just
16 like active matrix displays, can benefit from layers of insulation. And there's
17 two ways that's derived from the record. First, Matthies itself talks about
18 additional layers, including structural insulation layers are being present.
19 And then there's another reference that's Exhibit 1021 that's referenced in
20 Petitioner's reply. Exhibit 1021 is a prior art reference, and it teaches both
21 active and passive matrix OLED displays. One of those is shown in Figure
22 2B. And another one of those is shown in Figure 3B. And in both of those
23 figures, the same insulation layer 167 surrounds the pixels. So, Dr.
24 Kymissis is wrong on both counts. He's wrong that Matthies is limited to
25 just passive matrix displays and thus does not need an insulating layer. And

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1 he's also wrong that passive matrix displays that the class would never ever
2 have an insulating layer. And the evidence of record shows that both of
3 those positions are wrong. Does that answer your question, Your Honor?

4 JUDGE MCMILLIN: It does. Thank you.

5 JUDGE LEE: And you're out of time Mr. Herman, you got 30
6 seconds to wrap up.

7 MR. HERMAN: So, I'll just use this opportunity to ask if Your
8 Honors of any further questions. I'd be happy to answer them.

9 JUDGE LEE: Thank you. Back to Patent Owner's side with
10 remaining 20 minutes, we are at 02:04.

11 MR. LERNER: Thank you, Your Honor. Jeff Lerner for Patent
12 Owner to start things off. And I'll turn to my colleague, Mr. Weidenfeller
13 for objective indicia. I'd like to start wherever Petitioner did, with this
14 question of whether Matthies contemplated different pixel sizes. Petitioner
15 has cited column 19, line nine, and which is a reference to pixel pitch, and
16 made the argument that pixel pitch is the width or the size of the pixel. And
17 I'd like to point out that's not correct. Column 24, lines nine to eleven of
18 Matthies explains a display tile has an array of pixels equally spaced a
19 distance known as P, the pixel pitch. The pixel pitch refers to the spacing
20 between pixels. It's not the sizing of the pixels. And so, what Matthies is
21 referring to is this possibility that in certain tiles you would have a different
22 spacing between pixels than in others. But there's no suggestion that in any
23 tile you would have uneven size of pixels, unequal size of pixels. And in
24 Exhibit 2083 at page 307, line six to 19, this is cross examination of
25 Petitioner's expert, Dr. Pattison. He was asked a question. Matthies defines

1 the values d_{SW} and d_{SH} as the sides of the pixels in the quad pixel structure.
2 Correct? Answer, correct. And that's referring to Figure 8B. Question.
3 And for example, in Figure 8B, the red subpixel would have a width d_{SW} and
4 a height d_{SH} . Answer, yeah, they're all the same size. Question. And there's
5 no passage or figure in Matthies that state the subpixels in the quad pixel
6 structure can have unequal sizes, correct? Answer, no, that was arrived at in
7 light of Yamada. Question, no, there's no such disclosure, correct? Answer,
8 yeah, that's correct.

9 So, Petitioner's expert, when asked about this, specifically
10 acknowledged there's no disclosure in Matthies of unequally sized pixels.
11 And if we look at the petition in the '803 Patent that Petitioner's counsel
12 cited, page 30, column 19, line nine to ten, is cited for the point that sub
13 pixel spacing can also be made different.

14 JUDGE LEE: Thank you. That's important. Can you give me that?
15 Dr. Pattison's deposition, where he said, there's no such disclosure in
16 Matthies?

17 MR. LERNER: This is Exhibit 2083, page 307, lines six to 19. And
18 for clarity, Your Honor, that's testimony he gave in the ITC under oath,
19 about the same references.

20 JUDGE LEE: Oh, I see.

21 MR. LERNER: But that's consistent with the absence of any
22 discussion of such unequal spacing in the petition, in Dr. Pattison's
23 declaration, and Petitioner's counsel not citing one. Now, in terms of the
24 pixel defining layer, Dr. Kymissis explained, there is none in Matthies.
25 Doctor Pattison didn't identify one. He didn't say there's one in Figure 8B,

1 which is the basis for the combination. He didn't identify one somewhere
2 else. I think that there were some, perhaps, mischaracterizations of Dr,
3 Kymissis' opinions here. He simply said that Matthies' Figure 8B structure
4 doesn't have one, doesn't require one. No structure described in Mathies has
5 a pixel defining layer, or requires it. If you look at the materials, the
6 manufacturing methods, there's no disclosure of one. And adding one would
7 have the negative effects I discussed before. And so, there's no basis to
8 argue that, as Petitioners do now, that there would be this undisclosed active
9 matrix OLED design that somehow requires one. And in fact, as we
10 discussed before, Yamada shows it's not even required for an active matrix
11 design.

12 As to the other reference that Petitioner's counsel cited, that's pure
13 attorney argument that was offered for the first time in the reply, and is in no
14 way inconsistent with Dr. Kymissis' opinions. In terms of the column
15 seven, line 24 to 28, disclosure in Petitioner's slide 70. If one reads that it's
16 talking about a tile structure having a structural layer, such as a high
17 softening point metal or insulator to provide freedom from distortion during
18 the processing of the ceramic materials and or thermal management during
19 the operation of the display. It's talking about thermal insulation, not
20 electrical insulation, and it has nothing to do with the shaping of the pixels.

21 In terms of Petitioner's argument that Matthies mentions black matrix
22 in terms of Phan disclosures, Phan refers to black mask, and what Matthies
23 describes as black matrix is a structure entirely different in form and
24 function. It doesn't contour shapes of pixels, it doesn't divide pixels. It's
25 meant to block the pixel, certain light from the pixels to help hide the seams

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1 between the tiles. So, there's no inference that can be drawn from Matthies
2 of the type that the Petitioner is arguing for.

3 JUDGE LEE: Can I ask you a quick question on Murai? I understand
4 your argument mainly to be that only an LCD embodiment is disclosed, and
5 if you were to change that into an OLED, additional spacing is required.
6 And there's no description of by petitioner of how to do it. So, we don't
7 know what the end result looks like, and therefore we don't know whether
8 there will be a virtual square for the '803 Patent.

9 MR. LERNER: That's correct, Your Honor.

10 JUDGE LEE: Thank you.

11 MR. LERNER: If we turn to slide 210 of Patent Owner slides, which
12 I can share. There's additional arguments as well that Murai was directed to
13 preventing a visual artifact along diagonals because green pixels were so
14 tightly spaced, which we mentioned would not be a problem with OLEDs
15 because they couldn't be spaced so tightly. But that was the concern in
16 Murai. Not only is it inapplicable to an OLED, but the petition's proposal,
17 as Dr. Kymissis has explained, would actually introduce that the way it has
18 the blue and red pixels along the diagonals without any sort of chamfering or
19 cutting of corners.

20 Dr. Kymissis explained this in his declaration. There's no response
21 from the Petitioner's expert on this point. So it's true that Murai's LCD,
22 there's no indication of how it would look if it were implemented in OLED,
23 but the whole point that Murai was driving at the would be inapplicable.
24 And the structure the petition proposes would actually introduce the very
25 problems Murai was trying to prevent and trying to solve. And so, there are

1 additional reasons why that combination would not yield the kind of
2 structure the Petitioner argues.

3 JUDGE LEE: Thank you.

4 MR. LERNER: And just to clarify one point, there was a suggestion
5 that Patent Owner's argument is that because Matthies' Figure 8B is passive
6 matrix, therefore all of Matthies' disclosure is passive matrix. That's not the
7 case. Figure 8B is the structure that the Petitioner is proposing to modify,
8 and so naturally one has to look at that structure. But in addition, we could
9 discuss if it were helpful, the other disclosures that don't support Petitioner's
10 theory that Matthies elsewhere discloses active matrix. So, we think this is a
11 immaterial point which I didn't focus on it, but in slide 42 of Patent Owner's
12 slides, we point out that there's only a single mention to active matrix
13 circuits in the entire Matthies reference, as Petitioner's expert admitted. And
14 it's not saying it's a circuit that's used in Matthies. It says electronics are
15 used in the broadest sense to include both active and passive. So again,
16 active and passive components and both discrete devices mounted on the
17 layers and devices formed in place by processes such as those now used to
18 make active matrix circuits for displays on various high temperature
19 substrates.

20 So, all that Matthies is saying is there are manufacturing processes
21 known to make components that you can use, such as those that are currently
22 used to make active matrix circuits. That's a far cry from saying Matthies
23 itself is disclosing active matrix circuits, which it does this. Its structural
24 disclosures, its description of how the pixel is formed by the overlap of
25 column electrodes, its discussion of its circuitry, all support the conclusion

1 that it's directed to passive matrix. But again, because Figure 8B
2 indisputably is passive matrix, and there's no basis to treat Petitioner as
3 arguing that that would be converted to active matrix, let alone any way to
4 determine what Matthies' quad pixel would look like in an active matrix
5 OLED implementation if it were possible. It really, we think, is not a point
6 that needs to be resolved. It becomes largely irrelevant.

7 There were a number of statements made about Patent Owner's
8 arguments that I may take some issue with, but I'd just like to point out one
9 that this suggestion by Petitioner is well, of course people would create a
10 virtual square as disclosed and taught in the challenged patents. The
11 challenged patents do not disclose absolute sizes, but they very clearly
12 disclose relative sizes and distances and explain the importance of those to
13 manufacturing real devices. And there is nothing in the prior art that taught
14 the importance or a reason for arranging pixels the way the challenged
15 claims require in a virtual square. It's implicit in the challenged claims that
16 there are two green subpixels along with one blue and one red. That's just a
17 consequence of the arrangement that I've described. And there are very
18 particular relative spacing requirements that the patent explains. Allow
19 manufacturer using an FMM, fine metal mask process, in a way that's
20 commercially suitable, improves lifetime, improves quality.

21 Mr. Weidenfeller discussed the real-world benefits that this yielded,
22 but there was nothing in the prior art, and Petitioner hasn't cited anything
23 that taught the importance of doing that. The only thing the Petitioner can
24 grasp onto, and that's why they rely on Figure 8B of Matthies, is that
25 happens to have equal spacing. But that was because of the particular

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1 requirements of Matthies' tiled device. And as we discussed, there wouldn't
2 be any motivation or reason to make the modifications the Petitioner urges.
3 And in fact they would be incompatible in very crucial respects with
4 Matthies, not to mention inconsistent with Yamada and the prior art's
5 understanding of Yamada. So, unless there are further questions about the
6 art, I'll turn it over to Mr. Weidenfeller to address the objective indicia.

7 MR. WEIDENFELLER: Thank you. Scott Weidenfeller again for
8 Covington and Burling on behalf of Samsung Display, and I'll be covering
9 objective indicia. First, I'd like to say that we're not just picking random
10 things off the Internet, as Petitioner's counsel argued. If you look, for
11 example, at slide 217, it refers to Petitioner's own patent, it refers to a
12 textbook, it refers to a journal article, and it has a published news article for
13 the things that a Petitioner said we did not have. When you look to the
14 praise information that we cite, for example at 219 and 220, it's additional
15 news articles and it's information from a website that focuses on display
16 technology, the sort of thing that one skilled in the art would look at and be
17 aware of. It also refers on slide 221 to an award from Korea's Ministry of
18 Energy, Industry and Trade. And that's not something randomly, I'm sorry,
19 the trade industry and energy, that's not something randomly pulled from the
20 Internet.

21 And on the nexus point, basically Petitioner's arguing for the type of
22 theory of nexus that was rejected in a number of cases by the Federal
23 Circuit, including *Ecolochem*, *WBIP*, *Volvo Penta*, and *Teva v. Eli Lilly*,
24 where Petitioner's essentially arguing that because there are unclaimed
25 features in the products being copied in the products for which praise is

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1 being made, that the evidence is not coextensive with the claims possession.
2 But that's not the case. *Teva v. Eli Lilly* described that approach as, quote,
3 unsound. Virtually every innovative product inevitably has some unclaimed
4 feature that materially affects its functionality. And that does not take away
5 from the nexus inquiry. Unless the Board has further questions about
6 objective indicia.

7 JUDGE LEE: Yeah, I do. It's Judge Lee. But there is, you know, the
8 commensurate in scope requirement, right? So, if you say the claims of all
9 three patents are, you know, read on, whatever product you're talking about,
10 isn't that by definition, not commensurate in scope? Because, you know, all
11 these three patents have different claims. The claims of each patent has
12 different focus. And whatever device you're focusing on, if it infringes on
13 all three, then for every single one, it's got additional features that might
14 account for whatever property you're talking about. So, I can't get my head
15 around that. If you can help me understand that, I'd appreciate it.

16 MR. WEIDENFELLER: Sure. Thank you, Judge Lee, for the
17 opportunity. I think this is an interesting case of nexus. I have often heard
18 the argument, and even sometimes made the argument, that it's difficult to
19 establish nexus for a number of patents when they all claim different things.
20 And I think what's different here is that it's not three patents claiming
21 different things, it's three patents claiming different aspects of the same
22 thing. It's the same diamond pixel technology, the same diamond pixel
23 arrangement. And what it's claiming is the virtual square that is developed
24 when you use that design, it's claiming the way the pixels are aligned along
25 lines. When you use that design, disclaiming regions that are not

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1 overlapping when you use that design, it's all the same design. It's that
2 design that has been copied and that has been phrased and the design that
3 has been has -- we haven't spent much time on commercial success, in part
4 because we have a lot of the commercial success evidence on which we
5 relied in the ITC is subject to a protective order, and we've instead focused
6 on copying as another objective indicia.

7 And I think that what is important here is it's not something like the
8 *Fox Factory* case, where one patent covered teeth pointing in opposite
9 directions from each other. Another patent covered the fact that teeth took
10 up 80 percent of the distance along the chain. These are different things, and
11 each claimed a different particular invention. And in *Fox Factory*, in fact,
12 the difficult issue for the Patent Owner there was that they said one of those
13 features which was not claimed in two of the three patents at issue, one of
14 those features was critical. And it's important to look at the *Fox Factory*
15 three cases. In the case that claimed the critical feature that the objective
16 indicia was relevant, it did have nexus, and it did help establish patentability.
17 And the other two, because they said that was the critical one to the
18 objective indicia evidence. Those did not have nexus, and there's no such
19 evidence here. And because of the way the three patents are overlapping
20 and cover the same design, there would be no such argument that one of
21 these is met, but the other two are not met. So, I think the objective indicia
22 goes to all three in a way that is not always the case when it comes to
23 multiple patents addressing the same claimed product. Here, it's multiple
24 patents addressing the same claimed design and the claimed technology.

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1 JUDGE LEE: Are we able to cross reference the record from the
2 other case? Let's say I'm doing my case right, and then am I able to treat the
3 record of the other case like it's the record in my case?

4 MR. WEIDENFELLER: No, I'm just, I was responding to the
5 argument that we did not address secondary considerations, and it's in this
6 case, and explaining why. The evidence in this case is in the, in the exhibits
7 submitted along with the petition. They're cited in the Patent Owner
8 response. The record in this case is what establishes the praise, establishes
9 the long felt need, and establishes the copying. We did not attempt to
10 establish commercial success in this case.

11 JUDGE LEE: Okay. I'm just saying I might be a need to refer to the
12 evidence in the other case about, oh, the same product is said to have
13 infringed the other patent, but that evidence is in the other case. I'm just
14 grappling with what record do I actually have in my case if there are issues
15 on which I need to talk about the evidence in the other case? You see what
16 I'm talking about?

17 MR. WEIDENFELLER: I do. The Federal Circuit is grappling with
18 that issue right now as well. And they have -- they see cases come up from
19 the ITC wherever objective indicia are proven, and the same case, same
20 patent comes up from the PTAB where objective indicia is not proven, and
21 they are struggling with how to handle that. And they've suggested that
22 possibly, in such a case, the matter, the PTAB matter should be remanded
23 back to the PTAB to consider the objective indicia evidence that was
24 relevant and critical in the ITC.

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1 I don't think the Board needs to do that here. I think we have put in
2 sufficient evidence to establish the objective indicia here. But that is
3 something that the Federal Circuit is grappling with. And I don't think the
4 Federal Circuit's answer necessarily is we look only at the record in the
5 particular proceedings. They seem to be looking at it a little bit more
6 holistically.

7 JUDGE LEE: Thank you, and your time is up if you care to wrap up
8 in 30 seconds or less.

9 MR. WEIDENFELLER: Thank you, Your Honors. And we ask the
10 Board to hold that Petitioner has not carried its burden of proving the
11 challenged claims are unpatentable.

12 JUDGE LEE: Okay, we thank you for answering all of our questions,
13 and we appreciate the efforts in doing so. And if you could remain online
14 for the court reporter, the reporter may have some questions for you and the
15 case is submitted. And we are adjourned. Thank you.

16 (Whereupon, the proceedings at 3:00 p.m. were concluded.)

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