

HISENSE USA CORPORATION vs BRIGHTPLUS VENTURES, LLC
William Bohannon on 09/16/2024

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3

4	HISENSE USA CORPORATION,	)	
		)	
5	Petitioner,	)	
		)	
6	vs.	)	CASE NO.
		)	22-cv-02774-TCB
7	BRIGHTPLUS VENTURES, LLC,	)	
		)	
8	Claimant.	)	
	_____	)	

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REMOTE DEPOSITION OF:

14

WILLIAM BOHANNON

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Taken on behalf of the Petitioner

16

September 16, 2024

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HISENSE USA CORPORATION vs BRIGHTPLUS VENTURES, LLC
William Bohannon on 09/16/2024

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1 REMOTE APPEARANCES:

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1	I N D E X		
2			Page/Line
3	THE WITNESS: WILLIAM BOHANNON		
4			
5	EXAMINATION BY MR. FERRARIO	5	4
6			
7			
8			
9	INDEX OF PREMARKED EXHIBITS		
10	Exhibits	Description	
11	EX 1001	U.S. Patent No. 8,941,331 B2	
12	EX 1005	International Publication Number WO 2005/089293 A2	
13	EX 2001	Declaration of William Bohannon	
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1 The deposition of WILLIAM
2 BOHANNON was taken by counsel for the
3 Claimant, on September 16, 2024,
4 commencing at 1:01 p.m. Central, via
5 remote proceedings, for all purposes
6 under the Federal Rules of Civil
7 Procedure.

8 The formalities as to notice,
9 caption, certificate, et cetera, are not
10 waived. All objections, except as to
11 the form of the questions, are reserved
12 to the hearing.

13 It is agreed that Carissa L.
14 Boone, being a Notary Public and Court
15 Reporter, may swear the witness, and
16 that the reading and signing of the
17 completed deposition by the witness are
18 not waived.

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* * *

1 WILLIAM BOHANNON,

2 having been first duly sworn, was examined and
3 testified as follows:

4 EXAMINATION

5 BY MR. FERRARIO:

6 Q. Good afternoon, Mr. Bohannon. My
7 name's Matias Ferrario, for the record. I
8 represent Hisense, and we are here to discuss your
9 opinion in IPR 2023-014-01 with regards to the
10 '331 patent.

11 Does that sound familiar?

12 A. Yes.

13 Q. Now, we've been involved in a few
14 depositions already, but I'll lay out some ground
15 rules, and then we can go from there.

16 Does that sound good?

17 A. Sure.

18 Q. You understand that we need your
19 answer to be oral. In other words, the court
20 reporter is taking your testimony down, so she
21 needs something verbal; is that fair?

22 A. Yes.

23 Q. And I would ask if you'd please
24 wait until I've finished my questions, so that if
25 necessary, your attorney can interpose an

1 objection. And that way, the court reporter can
2 take everything very clearly, okay?

3 A. All right.

4 Q. I'll do my best to not speak over
5 you, and I would ask the same courtesy of you,
6 okay?

7 A. Sure.

8 Q. Now, you understand that it's
9 your counsel that may, from time to time, lodge
10 objections during your testimony?

11 A. I would hope so.

12 Q. And you understand that unless
13 specifically instructed by your counsel, you must
14 answer my questions?

15 A. Yes, I understand.

16 Q. And you understand that you're
17 under oath today?

18 A. Yes.

19 Q. And you have to answer to the
20 best of your ability, right?

21 A. Yes, I understand.

22 Q. Now, if you need a break, please
23 let me know. I would only ask that if there's a
24 question pending, that you answer the question and
25 then we can try to take a break, okay?

1 A. Right.

2 Q. Is there any reason you cannot
3 testify truthfully today?

4 A. No.

5 Q. In other words, you're not on any
6 medication or anything else that would prohibit
7 you from understanding my questions and answering
8 them truthfully?

9 A. That's correct.

10 Q. And you can hear me okay?

11 A. I can.

12 Q. Mr. Bohannon, what did you do to
13 prepare for your deposition today?

14 A. It's Mr. Bohannon.

15 I read my declaration, and I read
16 the prior art.

17 MR. MASSAND: And I'm going to, I
18 guess, object and instruct the witness
19 to only answer to the extent he can
20 without revealing any privileged
21 communications with counsel.

22 BY MR. FERRARIO:

23 Q. Yeah. And my questions hopefully
24 -- I'm not asking for any communications you had
25 with your counsel. I just want to understand.

1 Approximately how much time did you spend

2 reviewing your declaration and the patent?

3 A. Oh, a couple of days.

4 Q. Now, I'm going to drop into chat
5 a copy of the declaration. And please let me know
6 if you're able to see that and open it.

7 A. Yeah, I got it. I also have a
8 printed-out version that contains no notes or
9 anything. It's a clean version printed out that I
10 can also refer to.

11 Q. Okay. Perfect. Let's just make
12 sure that we're working on the same document,
13 then. So the paper copy that you have, does it
14 have IPR 2023-014 01 at the top?

15 A. Yes.

16 Q. And is it, underneath the
17 statement on the left-hand side, Declaration of
18 William K. Bohannon, EX --

19 A. Yes.

20 Q. -- 2001?

21 A. Yes.

22 Q. And if you flip to the last page,
23 Page No. 37, is that your signature on that page?

24 A. It is.

25 Q. It's dated December 21st, 2023?

1 A. That's correct.

2 Q. Perfect. So this is the
3 declaration you submitted in conjunction with your
4 opinions on the '331 patent and IPR, correct?

5 A. That's correct.

6 Q. Now, in paragraph 17 of your
7 declaration, you identify the basis of your
8 opinion and materials considered, correct?

9 A. Yeah. On page 6, basis of my
10 opinion and materials considered. I have reviewed
11 the '331 patent, including the claims.

12 Q. And in addition to that, you also
13 reviewed the specification of the '331 patent,
14 correct?

15 A. Yes. It says I have reviewed the
16 '331 patent, including the claims of the patent,
17 and review of the specification. I've also
18 reviewed the '331 Specification History.

19 Q. You also reviewed Mr. Benticort's
20 (phonetic) declaration; is that correct?

21 A. Yes.

22 Q. You also reviewed the prior art
23 that's been discussed both in the IPR petition --

24 A. Yes.

25 Q. -- and anywhere else in other

1 declaration or prosecution history, et cetera?

2 A. Yes, I have reviewed the prior
3 art and the exhibits listed in here.

4 Q. I'm going to drop into chat
5 another as well. And please let me know once you
6 are able to open it.

7 A. So....

8 MR. MASSAND: Are you dropping
9 more than one, Matias, or just one?

10 MR. FERRARIO: Just one document.

11 THE WITNESS: Which document is
12 that?

13 BY MR. FERRARIO:

14 Q. It should be labeled EX 1001.

15 A. Which is what?

16 Q. It's the '331 patent?

17 A. All right. Thank you.

18 Q. Are you able -- were you able to
19 open that document, Mr. Bohannon?

20 A. Yes.

21 Q. All right. And this is the '331
22 patent that you reviewed in connection with
23 forming your opinions in your declaration; is that
24 correct?

25 A. That's correct.

1 Q. And you understand that in the
2 IPR proceedings, claims 17, 18 and 20 through 25
3 are at issue in the proceedings?

4 A. That's my understanding.

5 Q. And you read those claims to --
6 in order to form the opinions you set forth in
7 your declaration; is that correct?

8 A. Yeah, that's correct.

9 Q. And in forming those opinions,
10 you also reviewed the specification in connection
11 -- this -- I'm sorry. Let me restart.

12 In forming those opinions, you
13 also reviewed the specification of the '331
14 patent, correct?

15 A. That's correct.

16 Q. And then based on your
17 understanding of the claims and the specification,
18 you provided opinions in your declaration,
19 correct?

20 A. That's correct.

21 Q. All right. Well, I'm going to
22 try to share my screen here. Although I'm on a
23 new setup, so give me a -- give me a moment.

24 All right. Are you able to see
25 the '331 patent?

1 A. Yes.

2 Q. And the '331 patent is titled
3 "Solid State Lighting Panels with Variable Voltage
4 Boost Current Sources," correct?

5 A. Yes, that's correct.

6 Q. I'm going to ask you about your
7 understanding of some of the claims here that
8 you've provided opinions on, all right?

9 Are you able to see claim 17
10 here?

11 A. I am. "A lighting system
12 comprising a lighting panel including at least
13 first and second strings of solid state lighting
14 devices," that's part of the first sentence.

15 Q. All right. Well, I want to ask
16 you about the different parts of these -- this
17 claim and understand your understanding of the
18 claim, okay?

19 A. All right.

20 Q. So as I think you read, claim 17
21 pertains to a lighting system, correct?

22 A. That's what it says.

23 Q. And it comprises a lighting
24 panel, right?

25 A. That's what it says.

1 Q. Now, did you understand this
2 claim to be directed to any particular type of
3 lighting system?

4 A. Well, if you look at my
5 declaration, I talk about the Background in the
6 patent, so you can see that it....

7 Q. Okay. Well, I'm ask- -- I'm
8 asking you what -- did you understand it to be
9 limited to any particular type of lighting system?

10 A. I just want to go to one part. I
11 know I read it in the Background. Let's see where
12 is it? It's not jumping out. There we go.

13 So -- so at any rate, on
14 paragraph 30 of my declaration on page 10, it
15 talks about the relevant field for that is solid
16 state lighting systems, including lighting panel,
17 supply on-state drive current in response. Solid
18 state lighting panels are commonly used as
19 backlights for small liquid crystal display
20 screens, such as LCD display screens used in
21 portable [Note: Portable means low voltage,
22 battery-powered like Smartphones] electronic
23 devices.

24 And this is from the 331's
25 Background, which you can see on one of the prior

1 pages that you'd have to go back to if you want to
2 see where it says it in the Background.

3 Q. Did you --

4 A. So -- which is not a limitation,
5 per se, but just an explanation of how I
6 understood it.

7 Q. So did you understand the claim
8 to be limited to small liquid crystal display
9 screens?

10 A. Not necessarily, but that's
11 what's in the Background.

12 Q. And, in fact, isn't small liquid
13 crystal displays just one example of the
14 applications of -- of the lighting system
15 explained in claim 17?

16 A. So if you go to the Background --
17 which I will read. So it says, starting in column
18 1, line 48 or so: "Solid state lighting panels
19 are commonly used as backlights for small liquid
20 crystal display screens, such as LCD display
21 screens used in portal electronic devices."

22 "There has -- in addition, there
23 has been increased interest in the use of solid
24 state lighting panels as backlights for larger
25 displays such as LCD television displays."

1 That's from the Background.

2 Q. Thank you.

3 And I think you mentioned 40, but
4 I think you were reading from about 47 or 48; is
5 that correct?

6 A. Yes, something like that.

7 Q. Okay. So this section describes
8 small LCD display screens and larger displays as
9 well, correct?

10 A. LCD television displays, yes.

11 Q. Now, just above, though, you
12 skipped a section here in line 36 which states
13 that: "Solid state lighting panels, including
14 arrays of solid state lighting devices, have been
15 used as direct illumination sources, for example,
16 in architectural and/or accent lighting."

17 Do you see that?

18 A. I do.

19 Q. And so claim 17 also relates to
20 lighting systems involved in architectural and/or
21 accent lighting; is that correct?

22 MR. MASSAND: Objection to form.

23 THE WITNESS: Well, I think the
24 Background speaks for itself.

25 BY MR. FERRARIO:

1 Q. I'm asking you if that was your
2 understanding of the claim.

3 A. I gave you my understanding.

4 Q. And does your understanding
5 include architectural and/or accent lighting?

6 A. Well, let me look at my
7 declaration where I say. "Technology Overview:
8 The relevant field for the '331 patent is that of
9 solid state lighting systems, and more
10 particularly through a lighting system including
11 lighting panel with strings and solid state
12 lighting devices and current supply current --
13 circuits that supply on-state drive currents in
14 response to control signals commonly used as
15 such," and it says: "Solid state lighting panels
16 that are commonly used as backlights for small
17 liquid crystal display screens."

18 So there we go.

19 Q. Did you limit your understanding
20 of claim 17 to small liquid crystal display
21 screens?

22 A. No, I did not.

23 Q. Going back to your understanding
24 of claim 17, the first element is a panel that
25 includes at least first and second strings of

1 solid state lighting devices.

2 Do you see that?

3 A. I do.

4 Q. And are solid state lighting
5 devices, are those LEDs?

6 A. Well, there's also lasers.
7 That's a solid state lighting device.

8 Q. And are -- could lasers be used
9 in small LCD or large LCD screens?

10 A. I have seen lasers used in a
11 variety of ways.

12 Q. So it includes -- so the -- the
13 phrase "solid state lighting devices" includes
14 LEDs and lasers; is that your understanding?

15 A. Well, there's other kinds of
16 solid state lighting devices. There are
17 electroluminescent devices. There's a variety of
18 solid state lighting devices.

19 Q. Now, in the case of an LED solid
20 state lighting device, are you familiar with the
21 description of those devices arranged in a string?

22 A. I have seen -- I have inspected a
23 wide variety of LCD display screens from the
24 smallest phones, or just indicators on other
25 devices, all the way up to the largest of the

1 large screen televisions, and they use a variety
2 of LEDs usually in some kind of a string where
3 they're connected together.

4 Although, you can have just a --
5 one or two LEDs connected to a power supply which
6 would make for a really short string. So I've
7 seen all kinds of arrangements.

8 Q. Well, and would you understand
9 "string" to mean at least two LEDs connected in a
10 series?

11 A. Oh, something like that.

12 Q. And typically if it was five or
13 ten, would -- would a string connote that they're
14 connected in a series?

15 A. I don't think that -- whether
16 they're connected in series or parallel, I don't
17 think it matters whether -- how many there are.

18 Q. Are the LEDs that you -- strings
19 that you have mentioned working with, are they
20 typically connected in a series?

21 MR. MASSAND: Objection.

22 THE WITNESS: Probably. Although
23 they could also be connected in
24 parallel. I mean, what -- where --
25 where you have a series, say you have

1 the cathode diode connection or do you
2 have all the cathodes tied together and
3 all the anodes tied together? I mean, I
4 would call that parallel. So parallel
5 or series. I don't think it --

6 BY MR. FERRARIO:

7 Q. And you've seen them --

8 A. -- matters greatly.

9 Q. Sorry, go ahead.

10 A. I don't think it matters greatly.

11 Q. Okay. And in your experience,
12 say back at the time this patent was filed, you've
13 seen displays using both connection
14 configurations; is that correct?

15 A. That that claims. It doesn't --
16 doesn't seem to distinguish between a series or a
17 parallel configuration, whether that is the first
18 instance. So it's the lighting system comprising
19 of a lighting panel including at least first and
20 second strings of solid state lighting devices
21 that are respectively configured to emit at least
22 the first light and a second light respectively.

23 Q. Right. So it's your testimony
24 that the strings of solid state lighting devices
25 does not mean that the claim is limited to LEDs

1 connected in a series. They could also be
2 connected in parallel; is that right?

3 A. I don't see any wording in the
4 claim that limits it in how they're connected.

5 Q. And there's nothing in your
6 background or your experience would -- that would
7 say that one of skill in the art would understand
8 it limited to a particular connection
9 configuration, correct?

10 A. Yeah, I don't think it matters
11 much.

12 Q. All right. Moving to the next
13 element, it recites: "At least first and second
14 current supply circuits."

15 Do you see that?

16 A. I do.

17 Q. And what is a supply circuit?
18 I'm sorry, let me -- let me re-ask that.

19 What is a current supply circuit?

20 A. Well, it's something that
21 supplies a current, obviously. We should go to
22 Figure 9. It shows a good illustration of current
23 supply circuits, Figures 8 and 9.

24 Q. So I'm showing you Figure 8 here
25 of the '331 patent. And you say this shows a good

1 **current supply circuit?**

2 A. I think 320 is a current supply
3 -- is an arrangement of current supply circuits.

4 Q. And then you mentioned Figure 9
5 as well that I'm showing here on the screen?

6 A. Which is a -- an expanded view of
7 -- of the 400 in the previous Figure 8.

8 Q. I see. So each of the 400A,
9 400B, 400C, and 400D would be some version of
10 what's shown in Figure 9; is that correct?

11 A. Yes. That's my understanding.

12 Q. And so this is a circuit that
13 supplies currents, correct?

14 A. That's how it's described in the
15 patent.

16 Q. And it supplies the drive
17 current?

18 A. That's how it's described.

19 Q. And that drive current drives the
20 string of LEDs?

21 A. Go to Figure 9. There you go.
22 You can see how it's connected to the diodes. You
23 see the -- the cathode diode/diode connections.

24 Q. And so that current supply
25 circuit provides a current that drives the LEDs;

1 is that right?

2 A. That's what is described in the
3 patent.

4 Q. Now, is your understanding of
5 this element -- and by that I mean the section
6 I've highlighted here which runs from the "at
7 least first" all the way to the semicolon, that
8 the claim requires at least two current supply
9 circuits that supply an on-state drive current to
10 one of the first and second strings of solid state
11 lighting devices?

12 Is that your understanding?

13 A. So the element that you've
14 highlighted or tried to highlight reads: "At
15 least first and second supplies -- current supply
16 circuits coupled to the at least first and second
17 strings of solid state lighting devices
18 respectfully [sic] and configured to supply an
19 on-state drive current to a respective one of the
20 first and second strings."

21 So I think that's more better
22 described in Figure 8. So you can see multiple.
23 You can see first and second supply circuits
24 connected to first -- first and second string.

25 There you go. You skipped past

1 it. Where the strings are 23A and 23B, and you
2 see 400A is a supply current, 400B is a supply
3 current?

4 Q. I see.

5 Okay. So in the words of the
6 claim, the first circuit is coupled to the first
7 string and then the second circuit's coupled to
8 the second string, not to be limited by the number
9 of circuits; is that fair?

10 A. That's my understanding.

11 Q. All right. Now, the next clause
12 of claim 17, if you will, recites a pulse width
13 modulation controller.

14 Do you see that?

15 A. Yeah. So that -- that element
16 reads: "A pulse width modulation (PWM) controller
17 that is coupled to a first current supply circuit
18 and a second current supply circuit, that's
19 configured to generate, for each of the first
20 current supply and the second current supply, a
21 first PWM control signal and a second PWM signal
22 that are supplied to each of the first and second
23 strings."

24 Q. Okay. Thank you.

25 So the PWM controller, there --

1 **there's one PWM controller; is that right?**

2 A. Well, go to Figures 8 and 9 and
3 you can see what they're talking about.

4 Q. So is -- in Figure 8, is
5 **controller 230 the PWM controller?**

6 A. I think so.

7 Q. And this is connected to --

8 A. Or go to Figure 9.

9 So there you see the PWM input
10 signal, or a PWM input signal.

11 Q. And this PWM input signal is
12 **coming from this controller 230; is that correct?**

13 A. That's -- that's described in the
14 -- in the -- if you go to the patent description,
15 you can see where that's described.

16 Q. But that was -- that's your
17 **understanding of the claim, right?**

18 A. Let me review to be careful.
19 (Witness reviews document.)

20 Any rate, the -- the Figures 7
21 and 8 are described in column 12, line 31 through
22 44 or so where it says: "As shown in Figure 8 and
23 some embodiments, each bar driver circuit 320 may
24 supply -- may include four current supply
25 circuits, 400A to 400D. One current supply is

1 circuit for each LED string of the corresponding
2 bar assembly, 30. Operation of the current supply
3 circuits may be controlled by the control signals
4 342 from controller 230."

5 Q. Excellent, thank you.

6 So 230 in Figure 8 generates and
7 supplies the PWM signal 342 to the current supply
8 current; is that correct?

9 A. Well, I want to be absolutely
10 correct in my words here. So it says: "The
11 current supply circuit 400 also receives a pulse
12 width modulation signal from the controller 230,"
13 which is what we see in that figure. Here, I
14 wanted to be sure what 242 is -- or 2- -- or and
15 320 -- yeah, 342 -- and to be absolutely accurate
16 in that.

17 So give me a minute. Okay.
18 There's another here at 412. Any rate, it says
19 that -- the '331 patent says in column 12, line
20 4-, let's see where the -- probably the best line,
21 42 or so. "Operation of the current supply
22 circuits 400A to 400 B may be controlled by
23 control signals 342 from the controller."

24 So that's how they're defined in
25 '331. It says: "The current" -- oh, you go down

1 a little bit more. It says: "The current supply
2 circuit 400 also received the pulse width
3 modulation signal PW- -- PWM from the controller
4 3- -- 230."

5 So any rate, 342 are called
6 control signals. And if you look at Figure 8,
7 you'll see there is a VIN and a PWM signal. It
8 doesn't show -- going into Figure 9, it doesn't
9 show any other signals going in.

10 So that's as much information as
11 we've got. There may be other signals. Hopefully
12 that makes it clear for you.

13 Q. So my question, then, on claim 17
14 is that it recites: "...are each of the first
15 current supply circuit and the second current
16 supply circuit a first PWM control signal and a
17 second PWM control signal that are supplied to
18 each of the first -- the at least first and second
19 strings?"

20 Do you see that?

21 A. Yes, I do.

22 Q. Okay. So I want to unpack that a
23 little bit so I understand it. Or -- or
24 understand what you understand about it.

25 So the PWM controller is

1 generating at least a first PWM control signal and
2 a second PWM control signal; is that correct?

3 A. No. That's described in -- and
4 it's an explanation in Figure 9. I'll get to the
5 words for you, where it says on column 12, about
6 line 52 or so: "The current supply circuit 400
7 also receives a pulse width modulation signal
8 (PWM) from the controller 230. It's configured to
9 -- the current supply circuit is configured to
10 provide constant current to the LED string."

11 It talks about PWM controller,
12 that it's using. Then it talks about -- there we
13 go. "The data from" -- dah, dah, dah, dah, dah.
14 "All the variable boosts. So current supply" --
15 so I'm reading from column 14, about line 21 or
16 22. "Current supply circuit 400 may include a PWM
17 controller 410 configured to control the operation
18 of a first transistor 450 and the second
19 transistor 460."

20 And you see those in Figure 9, so
21 flip over to Figure 9.

22 So there you see 450 and 460. So
23 control 1 and control 2 are the two pulse width
24 modulation inputs coming from 410 and coming from
25 the PWM, which comes from 230, in the other

1 figure, 8.

2 Q. Thank you.

3 Going back to claim 17, if you
4 will, then. Well -- well, let me -- let me go
5 back.

6 So claim -- Figure 9 is just
7 showing one current supply circuit, right?

8 A. It's showing two current supply
9 circuits.

10 Q. Oh, I thought you had previously
11 testified that 410 --

12 A. Oh.

13 Q. -- was one of these 400s here
14 (indicating), the one circuit. Just an expanded
15 view of 400A in Figure 8.

16 Am I wrong about that?

17 A. You've got two pulse control
18 circuits, control 1 and control 2, and they're
19 controlling different sides. They're controlling
20 the diode plus side and the diode minus side
21 separately.

22 Q. So is -- is this one current
23 supply circuit or is this two current supply
24 circuits?

25 A. Well, it's a current supply

1 circuit that does two different things. So for
2 each of the current supply circuits and -- for
3 each of the -- I'm reading from claim 17: "For
4 each of the first current supply circuit then the
5 second current supply circuit, for each of those,
6 the first PWM control signal and a second PWM
7 control signal, which is supplied to each of the
8 first and second strings."

9 So it's --

10 Q. And you've given --

11 A. -- using "first" and "second"
12 kind of loosely and going back and forth there,
13 but....

14 Q. So as I understand it, Figure 9
15 shows two PWM signals being supplied to one set of
16 strings; is that correct?

17 A. So for each of the first -- so
18 for each -- for each of the first current supply
19 circuit and the second current supply circuit, the
20 PWM control signal -- the first PWM control signal
21 and the second PWM signals that are supplied
22 through each of the first and second string.

23 So -- so, yeah, you would have to
24 replicate Figure -- Figure 9 four times to cover
25 everything that's shown in -- in Figure 8.

1 Q. All right. Thank you.

2 Now, here we have the -- in the
3 '331 patent, the disclosure of a controller that
4 is controlling multiple strings; is that right,
5 shown in Figure 8?

6 A. Well, which are you referring to,
7 the controller, the 230 controller?

8 Q. Correct, the 230 controller.

9 A. Yeah, that's what -- how it
10 appears.

11 Q. Now, is that common at this time
12 in the field to have controllers that have
13 multiple channels that could output multiple PWM
14 control signals?

15 A. Well, I have taken apart a bunch
16 of different displays from phones, up to big TVs,
17 and -- and a lot of times you see a controller
18 that controls multiple strings and sometimes you
19 see controllers that control one string or two
20 strings.

21 Q. So those are options available to
22 people of ordinary skill in the art at the time
23 this patent was filed?

24 A. Well, it depends upon which
25 controller you get. They point to a -- at the

1 bottom of one of these pages here, they point to a
2 controller that's an off-the-shelf controller.
3 Supertex control.

4 Q. Are you referring to the
5 reference to the Supertex?

6 A. I thought it was column 12. "The
7 PWM controller 410 may include, for example, a
8 current mode PWM controller from Supertex."

9 Q. And the -- the model number
10 referenced there is the HV9911NG controller; is
11 that correct?

12 A. That's what's written.

13 Q. You familiar with that
14 controller?

15 A. I may have looked it up. I can't
16 remember the details. So if you've got it on your
17 computer, display it.

18 Q. Now, I asked you about Figure 8
19 again and the controller 230.

20 A. Yes.

21 Q. Okay. It's disclosed as
22 generating and supplying a PWM signal through the
23 current supply circuits, right?

24 A. I think so. I also can read to
25 you.

1 Q. Well, I mean, I think we -- I'm
2 just trying to make sure I lay some foundation so
3 I -- the ultimate question makes sense.

4 But do you recall your testimony
5 that 324 was a PWM signal? Correct?

6 A. So I'm looking at what 430 does.
7 It says: "Values starting to register -- in a
8 register of the controller 230 corresponds to a
9 particular LED string and may be based upon diodes
10 received from on the color management unit," et
11 cetera.

12 So 230 does a bunch of stuff.

13 Q. But 230 is what sends out the --

14 A. I think you have --

15 Q. -- the PWM --

16 A. I think you have to go back to
17 another earlier figure to see how 230 is used in
18 the conjunction of the entire thing.

19 Q. Are you referring to any
20 particular --

21 A. Yeah, right in here (indicating).

22 Q. -- figure other than this one?

23 Let me make sure you can see it.

24 A. So you can see controller 230.

25 You can see registers. So that's kind of an

1 overall block diagram of what's going on.

2 So what was your question?

3 Q. Yeah. So my question is: Just
4 to confirm, it's the controller 230 that sends the
5 PWM signal to current driver 220, right?

6 A. All other signals as well. It's
7 hard --

8 Q. And am I --

9 A. -- in the diagram.

10 Q. And my question is: The signal
11 that is sent to the controller 230, does that have
12 to be a PWM signal as well?

13 A. So you said the signals that are
14 sent to 230? Is that your question?

15 Q. Yes, that's my question.

16 A. So it's talking about 235, which
17 is -- I think I just read to you in here what 235
18 does. There you see it, right there, on whatever
19 column that is.

20 Q. I'm in column 10, and I think we
21 are right around line 35, right?

22 A. "Color management unit may be
23 connected to controller 230 through an I2C
24 communication link 235."

25 So that's a serial interface that

1 transmits a whole bunch of different data.

2 Q. Now, is it necessary that the
3 communication link 235 include a PWM signal in
4 order for the controller 230 to then send another
5 PWM signal to the current supply circuit?

6 A. So I don't see that limitation in
7 the description here. That's a -- an I2C
8 communication link, which is a standard serial
9 interface that conveys a whole bunch of different
10 data. You can use that signal to load the
11 registers on 230, as you see. So the 235 serial
12 interface can load a whole slew of data to that
13 controller.

14 We don't have much of a -- we
15 don't have any kind of a block diagram for 230, so
16 you're just going to have to kind of black box it
17 here. It's a whole bunch of data that gets
18 transmitted over the serial interface, probably
19 all the temperature sensor, photo sensor, other
20 sensor, user input, et cetera, will go in there
21 and then load registers. Those look like
22 registers 1 to 9 -- that's described in a variety
23 of different ways in the description -- are able
24 to communicate with the 220, which then
25 communicates with the lighting panel.

1 So you -- you don't have all the
2 information you would like, do you?

3 Q. Well, one of skill in the art
4 could fill in the missing information with just
5 general knowledge in the -- in the field; no?

6 A. No. You look at Figure 5 and you
7 see an overall block diagram.

8 You look at Figure 7 and you see
9 the controller. You see 220. You see the
10 lighting strings.

11 Look at Figure 8, you see the
12 controller. You see 320. You see 342. You see
13 the light -- the LED strings.

14 You look at Figure 9, you see
15 some of the inputs and outputs to the 400 current
16 supply circuits described previously. So you can
17 see some of the inputs and outputs.

18 And then you look at Figure 10,
19 and you can see how it operates in a variety of
20 power supply modes.

21 Q. Now, claim 17 refer -- I think
22 uses the phrase "on-state drive current."

23 Do you see that?

24 A. Right. You're looking at claim
25 1, not 17.

1 Q. I'm sorry, you're right. Let me
2 highlight that for you.

3 MR. MASSAND: And, Matias,
4 whenever you get a chance for a
5 ten-minute break, that would be good for
6 me.

7 MR. FERRARIO: Okay, yeah. Let's
8 just -- let me just find this. And,
9 maybe -- oh, yeah, here it is, and then
10 we can move -- take a break.

11 BY MR. FERRARIO:

12 Q. So let me re-ask, Mr. Bohannon,
13 the claim 17 refers to an "on-state drive
14 current."

15 Do you see that?

16 A. I do.

17 Q. What does the "on-state" mean in
18 that claim?

19 A. Well, I think it's pretty clear.
20 It's an on-state drive current.

21 Q. Yeah. Well, what -- what --
22 what's the difference? What does the "on-state"
23 do in that phrase?

24 A. That's not an off-state drive
25 current; it's an on-state drive current. I can't

1 help you. It's -- its words are right there.

2 There's only a few of them.

3 Q. And so "on-state" means a drive
4 current that turns the LEDs on; is that right?

5 MR. MASSAND: Objection to form.

6 THE WITNESS: So I think the
7 claim terms are completely clear. It's
8 an on-state drive current. So the first
9 and second supply -- current supply
10 circuits are coupled to at least first
11 and second strings of solid state
12 lighting devices respectively and
13 configured to supply an on-state drive
14 current in -- through a respective one
15 of the first and second strings of a
16 solid state lighting device.

17 I mean, it's only, what? What,
18 three words. On-state, one word.
19 Drive, one word. Current, one word.
20 Three words.

21 How much can we argue about that?

22 BY MR. FERRARIO:

23 Q. It's, Mr. Bohannon, not an
24 argument. I really am just trying to understand
25 how you interpret these claims and whether on- --

1 A. They're words.

2 Q. -- the phrase "on-state" has any
3 particular meaning to you as an expert.

4 A. It's -- the words are exactly as
5 they are. It's an on-state drive current.

6 Q. What is an off-state drive
7 current?

8 A. The opposite of an on-state drive
9 current.

10 Q. And what is an on-state drive
11 current?

12 A. The opposite of an off-state
13 drive current.

14 Q. Reference to "state," what does
15 that refer to?

16 MR. MASSAND: Objection to form.

17 THE WITNESS: "State"? I mean,
18 these words have plain and ordinary
19 meaning. I don't understand what the
20 problem is.

21 BY MR. FERRARIO:

22 Q. Well, I'm giving you an
23 opportunity to understand -- to explain your
24 understanding of the claims, and that's what I'm
25 asking. So --

1 A. Plain and ordinary -- plain and
2 ordinary meaning of simple words. On-state drive
3 current means on-state drive current.

4 **Q. And so one of skill in the art**
5 **would easily understand what it means -- what an**
6 **on-state drive current is versus an off-state**
7 **drive current, correct?**

8 A. So a person of ordinary skill in
9 the art would know what an on-state drive current
10 is an on-state drive current.

11 **Q. Okay.**

12 MR. FERRARIO: Yeah, Neal, why
13 don't we -- let's take 15 and come back
14 at 3:10?

15 MR. MASSAND: Okay. Works for
16 me.

17 MR. FERRARIO: That work for you,
18 Mr. Bohannon?

19 THE WITNESS: Yep.

20 MR. FERRARIO: Perfect. All
21 right. See you then.

22 (Brief recess observed.)

23 BY MR. FERRARIO:

24 **Q. Mr. Bohannon, I have dropped into**
25 **chat Exhibit 1005, Lys.**

1 A. Okay.

2 Q. Would you please open that up
3 when you get a chance?

4 A. It's open.

5 Q. Okay. Are you familiar with this
6 reference?

7 A. I've read it.

8 Q. And how do I pronounce Lys? Is
9 it Lys or Lyse (phonetic)?

10 A. Either way is okay with me.

11 Q. Okay. I may -- I probably will
12 default to Lys. I'll go ahead and share my
13 screen.

14 All right. Do you see the title
15 page of Lys here?

16 A. Yes.

17 MR. MASSAND: Objection.

18 BY MR. FERRARIO:

19 Q. And so Lys is entitled: "Methods
20 and Systems for Providing Lighting Systems,"
21 correct?

22 A. Yeah, it's hard to read. It's --
23 it's awfully small. I'm trying to zoom it in.
24 Maybe you can do that.

25 Q. Let me --

1 A. There you go.

2 Q. Is that better?

3 A. Yes.

4 Q. Okay.

5 A. "Methods and Systems for

6 Providing the Lighting Systems."

7 Q. All right. Perfect.

8 So I want to ask you about

9 Figure 1 here. I'll have to scroll all the way

10 through. Bear with me, if you will.

11 All right. I'm sharing Figure 1

12 of Lys.

13 Do you see that?

14 A. Yes, but it's not legible.

15 Q. Yeah, it's difficult to read the

16 -- the words in the boxes, right?

17 A. It's not legible.

18 Q. Are you able to make out the

19 words "Control Facility" for the box 3500?

20 A. It might say that.

21 Q. And are you able to make out

22 "Power Facility" for 1800?

23 A. No.

24 Q. Are you able to make out

25 "Lighting Unit" for 102?

1 A. No. It's just not legible.

2 Q. All right. Let me go to page 30,
3 if you will, of Lys. Well, let me start,
4 actually, on page 27 of Lys. You see it states:
5 "Fig. 1 depicts a configuration for a controlled
6 lighting system"?

7 Do you see that?

8 A. I do.

9 Q. All right. And let me -- let's
10 go to page 30, the section detailed "Description."

11 Do you see that?

12 A. I do.

13 Q. And it says: "Referring to
14 Figure 1 in a lighting system 100, a lighting unit
15 102."

16 Do you see that?

17 A. I do.

18 Q. So you -- now you recognize that
19 102 is a lighting unit?

20 A. I suppose.

21 Q. And it's controlled by a control
22 facility 3500?

23 A. Yes, that's clear.

24 Q. All right. And then I think a
25 little bit later, around line 9, it says: "The

1 lighting unit 102 can draw power from a power
2 facility 1800."

3 A. I see that.

4 Q. Okay. So going back, then, to
5 Figure 1. So my -- my question, then, is simply
6 that in this depiction of the lighting system of
7 Lys, is the power facility providing current to
8 the lighting unit?

9 A. So this figure is illegible, so I
10 cannot tell what it's saying.

11 Q. Well, do you just know by virtue
12 of the -- the electrical engineering that power
13 facility is providing a drive current to the
14 lighting unit 102?

15 A. It's hard to say. I mean, it --

16 Q. Is --

17 A. -- could go both ways.

18 Q. When Lys says that "lighting unit
19 draws power from the power facility," does that
20 mean that current is flowing through the lighting
21 unit 102?

22 A. Well, it's hard to say from that
23 figure. Why don't you talk about a figure that we
24 can see better?

25 Q. Well, just -- what about just

1 from the words describing Figure 1?

2 A. So do you have a description of
3 this thing, that you're willing to share?

4 Q. Well, I was just looking at the
5 Detailed Description here where it says: Lighting
6 unit draws power from the power facility 1800.

7 Do you see that?

8 A. I do.

9 Q. Does that mean that current is
10 flowing through the lighting unit 102?

11 A. I mean, if they wanted to say the
12 current is flowing through there, why didn't they
13 say that? It says that it can draw power from a
14 power facility 1800.

15 Q. Does that mean that a current is
16 flowing through lighting unit 102?

17 A. No. It says it can draw. So it
18 says -- how does it say it? "Lighting unit 102
19 can draw power from a power facility." Doesn't
20 say anything about flowing or what -- what you
21 said. It said it -- "lighting unit 102 can draw
22 power from a power facility. Lighting unit 102
23 can include a light source 300, which in
24 embodiments is a solid-state light source."

25 I mean, there's not a lot of

1 information in that sentence.

2 Q. And for one of skill in the art,
3 would they understand that lighting unit 102 is
4 receiving current?

5 A. A person of ordinary skill in the
6 art would look at some other figure to find out
7 what's going on in this thing. I don't know why
8 you're stuck on the, you know, worst illegible
9 figure in the patent.

10 Q. So you're unable to tell from
11 this disclosure in this discussion here whether
12 lighting unit 102 is drawing current?

13 A. It says it can. "Lighting unit
14 102 can draw power from a power facility 1800."

15 So why don't you go to some
16 better description of 102 and 1800?

17 Q. I'd like to ask you whether based
18 off of this alone, one of skill in the art would
19 understand whether lighting unit 102 has current
20 flowing through it.

21 Are you able to answer that
22 question?

23 A. Well, I just told you. I said a
24 person of ordinary skill in the art would look
25 elsewhere for information on 102 and 1800. This

1 one sentence doesn't answer all of your questions,
2 does it?

3 Q. So you're not able to tell
4 whether -- well, you're not able to say whether
5 one of skill in the art would understand that
6 lighting unit 102 has current flowing through it
7 based off of this description alone?

8 A. So that description is grossly
9 deficient. A person of ordinary skill in the art
10 would look elsewhere for more information.

11 Q. Now, on page 58 of Lys, line 13
12 it recites: "In one embodiment, the lighting unit
13 102."

14 Do you see that?

15 A. I do.

16 Q. And then it goes on to describe
17 that the power facility 1800, and include but is
18 not limited to, and then it lists a variety of
19 power sources.

20 Do you see that?

21 A. So it says: "In one embodiment,
22 the lighting unit 102 or a light source 300 in
23 Figures 1 and 2 may include and/or be coupled to a
24 power facility 1800."

25 So I guess they're saying that

1 they don't have to be coupled to a power facility,
2 but they may include or can be coupled. "In
3 various aspects, examples of power facilities 1800
4 include, but are not limited to, AC power sources,
5 DC power sources, solar-based power sources,
6 thermoelectric or mechanical-based power sources
7 and the like."

8 **Q. Do those power sources provide**
9 **current?**

10 A. They provide everything that's
11 associated with AC power sources, DC power
12 sources, batteries, and the like.

13 **Q. Is current associated with those**
14 **power sources?**

15 A. Well, current would require -- in
16 order for there to be current, there has to be
17 voltage and resistant. $V = IR$.

18 **Q. And does lighting unit 102 create**
19 **resistance?**

20 A. We don't have a fair figure of
21 what's in lighting unit 102. You can draw your
22 own conclusions for that.

23 **Q. If lighting unit 102 is an LED,**
24 **does that provide a load or resistance?**

25 A. So you're asking me to speculate.

1 It -- it -- what -- it doesn't say what's in
2 lighting unit 102 or light source 300.

3 Q. Well, would any light source
4 provide a load or resistance?

5 A. So why don't you get -- find a
6 sentence that describes what's in these things, or
7 get a better block diagram? I mean, you're almost
8 there. You just need more information. You want
9 me to draw -- you want me to throw stuff in here
10 that's not in these sentences.

11 Q. I'd like you to answer my
12 question. Would -- would any light source
13 necessarily provide a load or -- or resistance?

14 A. So would any light source, any
15 light source at all, provide a load? Is that your
16 question?

17 Q. That's my question.

18 A. So I guess I'll grant you that,
19 that there is a light source that would provide a
20 load. But you need a better description.

21 Q. And because of $V = IR$ -- well, let
22 me back up.

23 So you said $V = IR$. Is -- are
24 you referring to Ohm's, O-h-m?

25 A. Yes.

1 Q. And "V" there is voltage; is that
2 right?

3 A. That's correct.

4 Q. And "I" is current; is that
5 right?

6 A. That's correct.

7 And "R" is resistance. So "I"
8 current equals E divided by R.

9 Q. And these power sources here
10 provide current; is that correct?

11 A. Well, they have to be functional.
12 I mean, it's all -- you know, your preliminary --
13 you need a better figure.

14 Q. You need a figure to understand
15 if these power sources provide current?

16 A. You know, you -- I don't know why
17 you're making a big deal out of a sentence that
18 doesn't have much meaning to it.

19 Q. Can you answer my question,
20 please?

21 A. Well, your Figures [sic] 1 aren't
22 -- isn't legible, and Figure 2, you haven't showed
23 me and haven't --

24 Q. Well, you --

25 A. I have no description of 1800,

1 other than a power facility 1800.

2 So let's put some meat on the
3 bone. You know, show me a description of 1800.
4 Show me a better description of the lighting unit
5 102. I mean, you must have some better figures.

6 Q. I -- I would just like you to
7 answer my questions. If they appear basic to you,
8 I'm sorry. I'm not an expert like you. And if
9 you're able to answer them, you can answer them;
10 and if not, you don't have to.

11 Now, I understand you've reviewed
12 Lys. Right?

13 A. Yes.

14 Q. And so you're familiar with its
15 disclosures and all the figures and things like
16 that, correct?

17 A. I don't have it memorized. It's
18 300 -- almost 400 pages, so it's not memorized.

19 Q. But you understand that a power
20 supply that is powering a light would be providing
21 current through the light; is that correct?

22 A. So it says: "Lighting sources
23 300 have varying power requirements. Accordingly,
24 lighting units 102 may be provided with dedicated
25 power supplies that power from power lines and

1 convert it to power suitable for running a
2 lighting unit 102. Power supplies may be separate
3 from light units or may be incorporated on-board
4 lighting units and power-on-board configurations.
5 Power supplies may power multiple lighting units
6 or a single lighting unit. In embodiments, power
7 supplies may provide low-voltage output or
8 high-voltage output. Power supplies may take line
9 voltage and may take power input that is
10 interrupted or modified by other devices, such as
11 user interfaces, switches, dials, sliders, dimmers
12 and the like."

13 So that pretty much describes it.
14 There you go.

15 Q. Now, do you recall a reference to
16 controller 3500 earlier?

17 A. No.

18 Q. You understand that Lys discloses
19 a controller that provides PWM signals, correct?

20 A. If you want to show me something,
21 show it. I'm not going --

22 Q. Well, I asked -- sorry, go ahead.

23 A. I'm not going to recite something
24 off the top of my head.

25 Q. All right. So you don't -- you

1 didn't recall that. My question was whether you
2 recalled it or not.

3 Do you recall that?

4 A. I don't have it memorized.

5 Q. Do you see on page 76, line 11,
6 where Lys discloses that control signals that may
7 be generated include, but are not limited to, PWM
8 signals?

9 A. Yep.

10 Q. And so Lys discloses controllers
11 that use PWM signals to control lights?

12 A. So it says that "Some examples of
13 control signals that may be generated by the
14 processor to control the light sources include,
15 but are not limited to, pulse modulated signals,
16 pulse width modulated signals (PWM), pulse
17 aptitude modulated signals (PAM), pulse
18 displacement modulated signals, analog control
19 signals, DG current control signals, voltage
20 control signals, combinations and/or modification
21 of the foregoing signals or other control signals.
22 In one aspect, processor 3600 may control other
23 dedicated circuitry that in turn controls the
24 light sources, so as to verify their respective
25 intensities."

1 That pretty much --

2 Q. Now --

3 A. -- includes everything.

4 Q. Thank you.

5 Now, were PWM signals commonly
6 used to drive LEDs at this time?

7 A. So I've seen everything being
8 driven. So you can -- it just depends upon how
9 people have designed their system. You know, like
10 I said --

11 Q. But it would --

12 A. -- once upon a time, people
13 wanted to have a cost-effective system. So
14 whatever the cheapest solution was is what would
15 be in there.

16 Q. Would you say it was common to
17 use PWM signals to drive LEDs at the time of the
18 filing of the '331 patent?

19 A. So it's not unknown, I'd say
20 that.

21 Q. Now I want to direct your
22 attention to page 77, line 9. Lys discloses that
23 "PWM signals supply substantially constant current
24 to the LEDs for particular periods of time."

25 Do you see that?

1 A. Yes.

2 Q. And then a little bit later in
3 Line 14, Lys says: "The PWM technique is
4 considered" -- I think it writes "on," but it
5 should be "one" -- "of the preferred techniques
6 for driving LEDs."

7 Do you see that?

8 A. I do.

9 Q. Do you agree that the PWM
10 technique was considered one of the preferred
11 techniques for driving LEDs at the time this
12 reference was filed?

13 A. Preferred? I wouldn't call it
14 preferred. I would call it one of the techniques.

15 As I said earlier, there is a
16 variety of ways. People generally look for the
17 most cost-effective method they could do in a --
18 particularly in televisions or phones.

19 Q. Now I want to ask you about
20 Figure 25a of Lys.

21 Do you see this figure here?

22 A. I do. Yeah.

23 Q. Are you familiar with it?

24 A. Yeah, it's also in Mueller.

25 Mueller is one of the co-inventors, and so the

1 Mueller patent has the same figure and the same
2 words, by the way.

3 Q. Well, let me ask you about this.
4 So this shows a controller 3600.

5 Do you see that?

6 A. It does.

7 Q. And the controller is generating
8 two PWM control signals, correct?

9 A. Well, it shows a PWM on/off and a
10 PWM current control, but the pictures of the
11 signals are the same. So it looks like one signal
12 that you can use.

13 Besides, I don't think you can
14 control a current source with a PWM signal, which
15 is why both Lys and Mueller pull out a deck in
16 their description. So the -- so the top signal is
17 probably just a bit stream into a deck going into
18 a current control.

19 Q. Well, let me back up here. So
20 are you saying these are the same signal? Are --

21 A. They look the same.

22 Q. -- you saying that?

23 And you're basing that based on
24 the way they look here; is that right?

25 A. Well, I --

1 Q. Yeah.

2 A. What else do I have to look at?

3 Q. Right. And so in your opinion,
4 because they're the same signal, they're not two
5 different signals; is that right?

6 A. They look the same to me. And
7 besides, as I said, you couldn't control a current
8 source with a PWM signal. And that's why if you
9 go back and look at the patent description, you'll
10 see that both Mueller and Lys call out a deck. So
11 I would call that a bit stream going into a deck.

12 Q. Let's take a look at what Lys
13 says about the signals. It's on page 82. Do you
14 see around line 6, it says: "Referring to Figure
15 25b"?

16 A. Yeah.
17 Would you scroll down a little
18 bit, please?

19 Q. Sure.
20 Now, Lys says: "Figure 25b shows
21 two PWM signals."

22 Do you see that?

23 A. I do.

24 Q. And that they both -- "they vary
25 both in current level and width."

1 Do you see that?

2 A. I see that. I see what he's
3 saying.

4 Q. And then Lys says that the top
5 one has a narrower pulse width, but a higher
6 current level than the bottom one.

7 Do you see that?

8 A. Well, that's not in line with
9 that figure. Because you'd --

10 Q. And what --

11 A. -- see in that figure that
12 they're same.

13 Q. I see. So you were -- you were
14 basing your interpretation of 25b based on the
15 graphical representation of the figure, not on the
16 words that Lys has in the Detailed Description,
17 correct?

18 A. Well, I want to find the part
19 that talks about the -- how the PWM signal is
20 really a deck.

21 Q. Well --

22 A. We need to go down further.

23 Q. Mr. Bohannon, can you just answer
24 my question? So when you said that they were the
25 same signal, that was because you were

1 interpreting the graphical representation of the
2 signal in Figure 25b, correct?

3 MR. MASSAND: Objection to form.

4 THE WITNESS: I would -- I would
5 say, in part because they -- they looked
6 the same in that figure, but there is a
7 different description, the description
8 that talks about the deck.

9 BY MR. FERRARIO:

10 Q. Now, Mr. Bohannon --

11 A. If you scroll around in your --
12 in your document to show that to you.

13 Q. It's my -- it's my deposition, so
14 I'm asking you the questions here, I'm sorry. But
15 let's focus on this for right now, okay?

16 So in this section of Lys that
17 I'm showing you now on page 82, Lys describes two
18 different PWM signals, correct?

19 A. It says: "Figure 25b shows two
20 PWM signals."

21 Q. And the top one is different than
22 the bottom one, correct?

23 A. Well, the words are, but it --
24 but in my opinion, they do not make sense. PWM
25 signals are control signals.

1 Q. Now, Mr. Bohannon, Lys relates to
2 LED lighting systems; is that correct?

3 A. Yes.

4 Q. Now, Lys includes systems that
5 are directed to architectural displays, correct?

6 A. So let's see the thing that
7 you're reading from.

8 Q. Well, I'm just saying if you
9 recall.

10 A. I'm not taking anything for
11 granted. Let's see what you say. Let's see what
12 Lys says.

13 Q. So you just sitting there --
14 sitting here today, you don't -- you don't know
15 which application Lys is directed to?

16 A. No. This is generally high
17 voltage. It's not just architectural signals.
18 It's, like, lighting up a city or something with
19 streetlights and all that stuff.

20 Q. Did you understand that Lys --
21 Lys discloses embodiments involving large-scale
22 displays?

23 A. Well, show me where it says that,
24 please.

25 Q. And do you think that Lys is

1 limited to architectural lighting and large-scale
2 displays?

3 A. Let me go into what my opinion
4 says on that. I'm not going to speak off the top
5 of my head. I have a description of this, I
6 think.

7 So if you look on page 16,
8 paragraph 48, I say: "Lys primarily relates to
9 network lighting systems," and then there's a
10 quote from the top of Lys where it, quote, says:
11 "The methods disclosed herein include a method of
12 determining an identifier of a networked lighting
13 devices among a group of networked lighting
14 devices...delivering a plurality of signals to the
15 lighting devices, observing a condition of the
16 network in response to each one of the plurality
17 signals, and inferring an identifier of at least
18 each one of the plurality of lighting devices
19 based on the condition of the network." Lys, page
20 1/11 to 17.

21 "Lys further describes a variety
22 of lighting embodiments. For example, the
23 lighting system may include architectural lighting
24 fixtures, may include theatrical lighting
25 fixtures, may include lighting systems for a

1 transportation environment, and the lighting
2 systems may include general illumination for a
3 venue. The venue may include an entertainment
4 venue or a restaurant."

5 So a network. That's my opinion
6 of what Lys is about.

7 Q. Now, would Lys also disclose
8 relevant electronics and other technical
9 information relating to things like a flashlight?

10 MR. MASSAND: Objection to form.

11 THE WITNESS: So you're talking
12 about a networked bunch of flashlights?

13 BY MR. FERRARIO:

14 Q. Nope, just a single flashlight.
15 Is that sort of too small for the applications
16 that you think Lys is applicable to?

17 A. So does it say flashlight
18 somewhere in Lys? Is that what you're telling me?

19 Q. I'm asking you, based on what you
20 just read, whether that would exclude things like
21 a flashlight?

22 A. So --

23 MR. MASSAND: Objection.

24 THE WITNESS: -- so I say in
25 paragraph 48: "Lys primarily relates to

1 networked lighting systems," and then I
2 have quotes about that. "Lys further
3 describes a variety of lighting
4 embodiments, for example, architectural,
5 theatrical, et cetera."

6 So that's my opinion, and I'm
7 sticking to it.

8 BY MR. FERRARIO:

9 Q. Yeah. And I just want to
10 understand whether you limited your understanding
11 of Lys to those types of applications or whether
12 you understood it applying to other applications.

13 A. So this primarily relates to
14 networked lighting systems. That's my statement.

15 Q. Did -- let me ask you about blue
16 LEDs. There is a description in Lys here on page
17 3 that says: "The optical facility may include a
18 phosphor for shifting a wavelength of light
19 emitted from one or more of the plurality of
20 LEDs."

21 Do you see that?

22 A. "The optical facility." So what
23 do you mean by "the optical facility"?

24 Q. I understand it to be the LED.
25 Do you understand that?

1 A. I --

2 (Unintelligible overlapping
3 speakers.)

4 THE WITNESS: -- LEDs.

5 BY MR. FERRARIO:

6 Q. It's a lens that may include an
7 optical facility for operating on the lights from
8 a plurality of the LED light sources.

9 Do you see that?

10 A. So the lens may include an
11 optical facility. So they put a phosphor on the
12 lens? Is that what you're telling me?

13 Q. That's what I'm asking you. Is
14 that how you understand that?

15 A. Well, I can read and understand
16 English. So it says: "The lens may include an
17 optical facility for operating the light -- for
18 operating on the light from a -- from the
19 plurality of LED light sources."

20 So I guess there's a fixture,
21 some kind of a street lamp or something, that's
22 connected to a network that's got a bunch of LEDs
23 grouped together and a lens over them.

24 Q. It lists --

25 A. The Lys patent includes big

1 lighting arrangements.

2 Q. The use of a phosphor with a blue
3 LED to create white light, was that known at this
4 time?

5 A. Well, people made -- tried to
6 make white from a variety of sources. So there
7 are -- there is kind of a grouping of LEDs that
8 they used to make white light, like blue and
9 yellow or kind of an orangey color. Depends.
10 People did a lot of different things to try and
11 create white light.

12 Q. And this is one of the ways
13 people did, that's using phosphor with a blue LED?

14 A. So it says: "The optical
15 facility may include a phosphor for shifting a
16 wavelength of light from one or more of the
17 plurality of LEDs."

18 I don't see any statement in
19 there that says blue LEDs. It says one or more.

20 Q. I'm just asking, since you're an
21 expert in the field, was it common and known at
22 the time to use blue LEDs with phosphor to create
23 white light?

24 A. People did a variety of things to
25 create white light.

1 Q. And is that one of the ways?

2 A. Well, it doesn't say blue LEDs in
3 this thing you're arguing about on Lys. Why are
4 you bringing up blue LEDs? They're not saying
5 that here.

6 Q. Mr. Bohannon, that's -- just
7 because it's on the screen -- I can take it down
8 and we can just have a conversation.

9 The question is: Was it common
10 at this time to use blue LEDs with phosphor to
11 create white light?

12 A. So where in my declaration does
13 it talk about using blue LEDs to create white
14 light?

15 Q. Can you just answer my question,
16 please?

17 A. You're asking me to speculate,
18 and I don't want to speculate. Where in my --

19 Q. Are you refusing --

20 A. -- declaration does it talk about
21 blue LEDs?

22 Q. Are you refusing to answer my
23 question, Mr. Bohannon?

24 MR. MASSAND: Objection to form.

25 THE WITNESS: I'm not refusing to

1 answer. I told you I won't speculate.

2 You're asking me to speculate.

3 BY MR. FERRARIO:

4 Q. Does it require you to speculate
5 to answer that question?

6 A. I think it does. Where does it
7 say blue LEDs anywhere in here?

8 Q. Again, I'm -- just so we're
9 clear, I'm asking based on your general
10 understanding of the technology. Are you aware
11 whether the use of blue LEDs with phosphor was a
12 common technique to achieve white light?

13 MR. MASSAND: Objection to form.

14 THE WITNESS: So you're outside
15 the scope of my declaration. Unless you
16 can point to some part in my declaration
17 where I talk about using blue LEDs or
18 whatever, you're outside the scope. My
19 understanding --

20 BY MR. FERRARIO:

21 Q. They're --

22 A. -- is you're supposed to stay
23 within the scope of the declaration. It's a
24 cross-examination. You want an expert to admit to
25 something, get your own expert to write a brief.

1 Q. Are you refusing to answer my
2 question?

3 MR. MASSAND: Objection to form.

4 THE WITNESS: Your question
5 requires me to speculate, one. And, B,
6 it's outside the scope of my
7 declaration.

8 BY MR. FERRARIO:

9 Q. Do you -- do you know the answer
10 to the question?

11 MR. MASSAND: Objection to form.

12 THE WITNESS: You're trying to
13 shift around. You're outside the scope
14 of the declaration.

15 BY MR. FERRARIO:

16 Q. Did -- do you know the answer to
17 my question?

18 MR. MASSAND: Objection to form.

19 THE WITNESS: So you're outside
20 the scope of the declaration.

21 BY MR. FERRARIO:

22 Q. Do you see in line 4 -- I'm
23 sorry. On page 4, the same sentence: "The
24 optical facility may include a phosphor for
25 shifting a wavelength of light emitted from one or

1 more of the plurality of LEDs"?

2 A. That's the same sentence or the
3 same words that we were arguing about before.

4 Q. Same words, right?

5 A. You can probably find them in
6 Mueller also. I think Mueller is actually the
7 prior art for this.

8 Q. Then do you see on line 28 -- I'm
9 sorry. Page 38, line 8: "An LED may be
10 associated with a phosphor that is considered as
11 an integral part of the LED"?

12 A. I see that.

13 Q. We've been going for almost an
14 hour. Why don't we take a ten-minute break.

15 A. Okay.

16 Q. Come back at 4:05; is that okay?

17 A. Come back at what time?

18 Q. 4:05.

19 A. Okay.

20 Q. Thanks.

21 MR. FERRARIO: We can go off the
22 record.

23 (Brief recess observed.)

24 BY MR. FERRARIO:

25 Q. Mr. Bohannon, I don't have any

1 more questions today. Thank you for your time.

2 MR. FERRARIO: Pass the witness.

3 MR. MASSAND: We have no
4 questions at this time.

5 MR. FERRARIO: We can go off the
6 record.

7 (Discussion off the record.)

8 MR. MASSAND: So, Carissa, just
9 so you know, from the patent owner's
10 side, we don't need copies of anything.

11 THE COURT REPORTER: Okay.

12 MR. MASSAND: We'll read and sign
13 if there's no charge. I think that's
14 what I understood the case to be. But
15 if not, then we won't read and sign. If
16 there is a charge, we won't read and
17 sign.

18 MR. FERRARIO: And, Carissa, we
19 would need a rough as soon as possible.
20 We have a response due next week that
21 we'll need to use this for.

22 THE COURT REPORTER: Okay. I
23 think I have a 3-day expedite on it.

24 MR. FERRARIO: So that would mean
25 we would get it by Thursday?

1 THE COURT REPORTER: Thursday,
2 yes.

3 MR. FERRARIO: Okay. Well, we'll
4 take it whenever you can get it.

5 THE COURT REPORTER: Okay.

6 FURTHER DEPONENT SAITH NOT.

7 (Proceedings concluded at 3:06
8 p.m.)

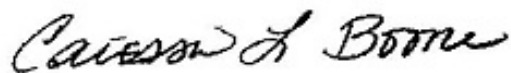
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REPORTER'S CERTIFICATE

I certify that the witness in the foregoing deposition, WILLIAM BOHANNON, was by me duly sworn to testify in the within entitled cause; that the said deposition was taken at the time and place therein named; that the testimony of said witness was reported by me, a Shorthand Reporter and Notary Public of the State of Tennessee authorized to administer oaths and affirmations, and said testimony, Pages 5 through 70 thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for either or any of the parties to said deposition, nor in any way interested in the outcome of the cause named in said deposition.

IN WITNESS WHEREOF, I have hereunto set my hand this 19th day of September 2024.



Carissa L. Boone, LCR No. 382
My License Expires: 6/30/2026

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1 E R R A T A

2
3 I, WILLIAM BOHANNON, having read the
4 foregoing transcript, Pages 5 through 70 do hereby
5 certify said testimony is a true and accurate
6 transcript, with the following changes (if any):

5	PAGE	LINE	SHOULD HAVE BEEN
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