

*** UNCERTIFIED ROUGH DRAFT ***

1 CASE: HISENSE USA CORPORATION VS. BRIGHTPLUS
VENTURES

2 WITNESS: WILLIAM BOHANNON

3 DATE: OCTOBER 8, 2024

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1 (Sworn)

2 THE REPORTER: Thank you.

3 EXAMINATION

4 BY MR. LEE:

5 Q. Mr. Bohannon, can you please state your
6 name again for the record?

7 A. William Bohannon.

8 Q. And you've been deposed before,
9 correct?

10 A. A few times.

11 Q. And you understand the court reporter's
12 making a written record of this deposition today?

13 A. I do.

14 Q. And because of that you understand it's
15 important for you to answer my questions verbally
16 as opposed to nodding your head or something
17 similar, correct?

18 A. Right.

19 Q. And if I speak too quickly or if you
20 don't hear me or understand my question, I ask
21 you to please let me know or else I will assume
22 you have understood my question.

23 Is that fair?

24 A. Yeah.

25 Q. And we can take breaks whenever you

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1 need. I would only ask that you please answer
2 any question that's pending before we break.

3 Is that agreeable?

4 A. Yeah.

5 Q. And you understand that you're under
6 oath today?

7 A. I was just sworn in.

8 Q. And you understand that because you're
9 under oath you're agreeing to swear to tell the
10 truth, correct?

11 A. That's what I did.

12 Q. Any reason you're unable to testify
13 truthfully today?

14 A. No.

15 Q. Are you on any medication that would
16 prevent you from testifying truthfully today?

17 A. No.

18 Q. Mr. Bohannon, where are you presently
19 sitting?

20 A. Carlsbad, California.

21 Q. Is there anyone in the room with you?

22 A. There is not.

23 Q. Aside from the computer screen, is
24 there anyone within your field of vision?

25 A. Any what?

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1 Q. Aside from looking through the computer
2 screen, is there anyone in your field of vision?

3 A. No.

4 Q. Are there any documents in the room
5 with you today?

6 A. I printed out a copy of my declaration
7 so that I can easily refer to it. No notes.

8 Q. And just to be clear, the copy of the
9 declaration that you have is a clean copy; it
10 does not contain any notes or other handwriting?

11 A. Yes.

12 Q. Aside from that document, are there any
13 other documents with you in the room today?

14 A. No.

15 Q. For completeness, I'm going to
16 introduce into the chat a copy of what's been
17 previously marked as Exhibit 2003.

18 (EXHIBIT 2003, Declaration of William
19 Bohannon, was previously marked for
20 identification.)

21 BY MR. LEE:

22 Q. Mr. Bohannon, I'd ask you to take a
23 moment, access that document and let me know when
24 you've -- when you've had a chance to review it.

25 A. So the copy that I printed out has got

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1 2003 on the top and 2001 on the bottom.

2 Q. And is a cop- -- and I just want to
3 understand correctly. The exhibit that I
4 introduced, Exhibit 2003, is that an electronic
5 version of the physical document that you have
6 with you today?

7 A. It appears to be so. It's the same
8 number of pages. I'm going to see if the
9 signature is the same.

10 Q. Please, go ahead.

11 A. Yes, it appears it's -- to be the same.
12 They're both signed January 26th, 2024.

13 Q. And -- and that's your signature next
14 to the date January 26th, 2024, on Exhibit 2003?

15 A. Yes, that's my signature.

16 Q. And this is a copy of the declaration
17 that you prepared in this proceeding concerning
18 U.S. Patent Number 8,330,710, correct?

19 A. Yeah.

20 Q. If I refer to that patent as the '710
21 patent, will you understand what I'm referring to
22 today?

23 A. I will.

24 Q. Aside from this declaration, Exhibit
25 2003, have you authored any other declaration

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1 regarding the '710 patent in this proceeding?

2 A. No.

3 Q. And this declaration contains a
4 reference to Exhibit 2003 at the top of the first
5 page, correct?

6 A. It does.

7 Q. And it also contains a reference to
8 Exhibit 2001 at the bottom of the first page,
9 correct?

10 A. It -- it does. It also says it in the
11 middle. So as you can see in the middle of the
12 declaration it says, Exhibit 2001, declaration of
13 William Bohannon.

14 Q. Thank you, Mr. Bohannon.

15 Is it your understanding that this
16 declaration was submitted twice, both as Exhibit
17 2001 and as Exhibit 2003 in this proceeding?

18 A. Yeah.

19 Q. How much time did you spend working on
20 this declaration?

21 A. I'm not sure. 40 hours, probably,
22 something like that.

23 Q. When did you begin work on this
24 declaration?

25 A. I'm not sure. Sometime late 2023.

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1 Q. Can you be more precise?

2 A. No.

3 Q. Did you speak with anyone in connection
4 with preparing this declaration?

5 MR. MASSAND: I'm going to just object
6 and caution the witness to only answer to the
7 extent that he can without revealing the
8 substance of communications with the attorneys.

9 A. Yes. I spoke with the attorneys for
10 the patent owner.

11 Q. Aside from attorneys for the patent
12 owner, did you speak with anyone else in
13 connection with prep- -- preparation of this
14 declaration?

15 A. I did not.

16 Q. Mr. Bohannon, what did you do, if
17 anything, to prepare for your deposition today?

18 A. I went --

19 MR. MASSAND: Objection and instruction
20 as previously given.

21 A. So I've had video calls with my
22 attorney, Neal, and I reread the declaration and
23 the prior art.

24 Q. How many video calls did you have with
25 counsel?

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1 A. I don't know. One or two.

2 Q. Let's take the first video call. Did
3 anyone other than counsel join that video call?

4 A. No.

5 MR. MASSAND: Objection to form.

6 BY MR. LEE:

7 Q. With respect to your second video call,
8 did anyone other than counsel join that video
9 call?

10 MR. MASSAND: Objection to form.

11 A. No.

12 Q. How long was your first video call with
13 counsel?

14 MR. MASSAND: Objection to form.

15 A. I don't know. Hour or so.

16 Q. How long was your second video call
17 with counsel?

18 MR. MASSAND: Objection to form.

19 A. I'm not sure.

20 Q. I'm -- I'm sorry. I didn't --

21 A. I said I'm not sure. Hour or so.

22 Q. Did you have any additional video calls
23 with counsel?

24 A. No.

25 Q. I've introduced to the chat and marked

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1 to this deposition what's previously marked as
2 Exhibit 1001. Mr. Bohannon, will you please take
3 a moment and access that document and let me know
4 when you've had a chance to review it.

5 (EXHIBIT 1001, U.S. Patent No. 8, 330,
6 710, was previously marked for identification.)

7 A. Looks like the '710 patent.

8 Q. So you recognize this document?

9 A. Yeah.

10 Q. When was the first time you became
11 familiar with the '710 patent?

12 A. I can't remember.

13 Q. Were you familiar with the '710 patent
14 prior to your engagement in this proceeding?

15 A. No.

16 Q. On the first page of Exhibit 1001, the
17 '710 patent, two inventors are identified, John
18 K. Roberts and Keith J Vadas.

19 Do you see that?

20 A. Get up there. Yeah.

21 Q. Did you speak with either of these
22 named inventors in preparing your declaration?

23 A. I did not.

24 Q. Have you ever spoken with either of
25 these named inventors in any capacity?

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1 A. Like I said before, I've been to lots
2 of SID and other kinds of display conferences,
3 run into all kinds of people. I may have run
4 into them so that was a while back.

5 Q. Mr. Bohannon, sitting here today, do
6 you have any specific recollection of speaking
7 with either named inventor on the '710 patent
8 prior -- in preparation of your declaration?

9 A. I did not speak to them about the
10 patent.

11 Q. Sitting here today, do you have any
12 recollection of speaking with either named
13 inventor on the '710 patent in any capacity?

14 A. No.

15 Q. The first page of Exhibit 1001, the
16 '710 Patent, also identifies Cree, Inc., as the
17 assignee.

18 Do you see that?

19 A. I do.

20 Q. Did you speak with anyone at Cree,
21 Inc., in preparing your declaration in this
22 proceeding?

23 A. I did not.

24 Q. Mr. Bohannon, I'm going to share my
25 screen to help facilitate some of these next

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1 questions.

2 Can you see a copy of Exhibit 1001, the
3 '710 patent on your screen?

4 A. I do.

5 Q. I'd like to turn your attention to
6 Column 1 of the '710 patent and the background
7 section which begins at approximately Line 17.
8 Do you see the background section of the '710
9 patent?

10 A. Yeah. It looks like it starts on Line
11 19.

12 Q. Fair enough. I want to direct your
13 attention to Column 1, Line 32 which reads, Solid
14 state lighting panels are commonly used as back
15 lights for small LCD display screens, such as LCD
16 display screens used in portable electronics
17 devices. In addition, there has been increased
18 interest in the use of solid state lighting
19 arrays for backlights of larger displays, such as
20 LCD television displays.

21 Do you see that?

22 A. I do.

23 Q. Did I read that correctly?

24 A. I think so.

25 Q. Do you agree that the use of solid

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1 state lighting panels as backlights for LCD
2 displays was known prior to the '710 patent?

3 A. I'd have to look at the date. So it
4 looks like the date of this thing is -- it says,
5 continuation of a application filed on May 8th,
6 2007. So 2007ish.

7 Q. Okay. Let me reask my question. Do
8 you agree that the use of solid state lighting
9 panels as backlights for LCD displays was known
10 in the art prior to May 8th, 2007?

11 A. Yeah, I think so. That's why it's in
12 the background section of the patent.

13 Q. Prior to May 8th, 2007, is this how a
14 person of skill in the art would have understood
15 the term backlighting?

16 MR. MASSAND: Objection to form.

17 A. What do you mean by this term?

18 Q. Prior to May 8th, 2007, would a person
19 of skill in the art have understood the term
20 backlighting to refer to the use of lighting
21 panels as backlights for LCD display screens?

22 MR. MASSAND: Objection to form.

23 A. Well, I mean, just taking issue with
24 the solid state lighting part of it, I mean, if
25 we're assuming that the sentence you just read

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1 talks about -- where it says solid state lighting
2 panels are commonly used as backlights for small
3 LCD display screens such as used in portable
4 electronic devices, in addition, solid state
5 lighting arrays in larger displays such as TVs.

6 Just want to point out that lamp based
7 systems were in use at the time that this thing
8 was -- was published so I can't agree that it's
9 all solid state.

10 Q. So you would agree that prior to May
11 8th, 2007, the term backlighting would refer to
12 the use of lighting sources as backlights for LCD
13 display screens?

14 MR. MASSAND: Objection to form.

15 A. What do you mean by lighting sources.

16 Q. Well, it appears that you distinguish
17 between solid state lights and lamp sources. Is
18 that what you were intending?

19 A. I've also done a lot of work with
20 electroluminescent type -- type of display
21 devices and people have published systems where
22 they've used kind of a plasma screen as a
23 backlight. People have done displays without
24 backlights. In fact, there was a big push for
25 reflective-based systems. Didn't use any kind of

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1 a backlight at all and just used the ambient
2 light to light up the display. I think some of
3 the reflective systems with ambient lighting are
4 still in use these days. So there's a whole lot
5 of technology out there.

6 Q. Un- -- un- -- understood. And so given
7 that -- I guess it's your reputation that some --
8 some display systems use backlights and others
9 did not use back lights?

10 A. I wanted to make sure I clarified that
11 people use a wide variety of lighting systems
12 from electroluminescence and other types of
13 systems to fluorescent tubes to other kinds of
14 lights to LED-based systems so there is a wide
15 variety of technology out there -- or was out
16 there in 2007 and before.

17 Q. And you're referring to the -- the
18 lighting technology?

19 A. Well, I'm referring to what I referred
20 to. Do I have to do it all over again?

21 Q. No, you certainly don't. I'm just
22 trying to understand in your opinion how a person
23 with skill in the art would understand the term
24 backlighting as of May 8th, 2007. What would
25 backlighting refer to?

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1 A. LCDs -- LCDs are just basically optical
2 shutters and so there has to be some kind of
3 light, whether it's ambient light from the front
4 or some kind of light from the rear. So they
5 need -- something needs to illuminate the screen
6 in order to see an image so everybody knows that
7 with an LCD. There's a bunch of different types
8 of flat panel displays that don't use lights such
9 as plasma screens. Electroluminescent displays,
10 BFDs, all kinds of stuff.

11 Q. So prior to May 8th, 2007, a person
12 with skill in the art would understand the term
13 backlighting to refer to providing a lighting
14 source for an LCD panel?

15 MR. MASSAND: Objection to form.

16 A. Generally speaking. But like I said
17 before, there was reflective systems as well that
18 are still in use that don't require a light
19 source. They use ambient light to light up the
20 display.

21 Q. Would a person of skill in the art
22 consider that back -- backlighting?

23 A. No. It's a reflective system.

24 Q. So prior to May 8, 2007, a person of
25 skill in the art would understand the term

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1 backlighting to refer to provision of an
2 illumination source for an LCD panel?

3 MR. MASSAND: Objection to form.

4 A. I'm not sure if I understand your
5 question. You should repeat it.

6 Q. Prior to May 8, 2007, a person of skill
7 in the art would understand the term backlighting
8 to refer to the provision of an illumination
9 source for an LCD panel --

10 MR. MASSAND: Objection to form.

11 BY MR. LEE:

12 Q. -- correct?

13 A. Well, I've seen illumination sources
14 used in reflective systems, too. Some people
15 created an invention where they could have a
16 lighting panel in front of a reflective screen to
17 increase its -- its visibility. So you're trying
18 to make it too general.

19 Q. So someone would understand
20 backlighting to be something more narrow than
21 what I described?

22 A. Well, you are -- I don't know if narrow
23 is the right term. You just need to be correct.

24 Q. Well, can you just articulate for me
25 how a person of skill in the art would understand

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1 the term backlighting as of May 8, 2007?

2 A. Some kind of illumination system that
3 works in a transmissive mode with an LCD panel.

4 Q. Thank you.

5 Is the '710 patent limited to only
6 backlighting for LCD displays?

7 A. Let me look at the -- something and
8 see. I'm looking at the claims. So you want to
9 repeat your sentence or repeat your question?

10 Q. Happy to. Is the '710 patent limited
11 to only backlighting for LCD displays?

12 MR. MASSAND: Objection to form.

13 A. So I want to read to you Claim 1 of the
14 '710 patent. Claim 1 says, a lighting system
15 comprising a plurality of strings of solid state
16 lighting devices arranged in a first direction
17 and positioned at intervals in at least one
18 second direction; a current supply circuit
19 configured to selectively supply a plurality of
20 on-state drive currents to the plurality of
21 strings responsive to a plurality of control
22 signals; and a control system configured to
23 receive a user input and to selectively provide
24 control signals to the current supply circuit
25 responsive to the user input to selectively drive

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1 the plurality of strings, and control system
2 further including firing logic configured to
3 determine a firing order of the plurality of
4 strings. So that's Claim 1. Nowhere in Claim 1
5 is the limitation you just described.

6 Q. So in your opinion, Claim 1 of the '710
7 patent is not limited to only backlighting for
8 LCD displays, correct?

9 A. So Claim 1 says a lighting system
10 comprising a plurality of solid state lighting
11 devices arranged in a first direction and
12 positioned at intervals in at least one second
13 direction.

14 So I think that's awfully clear.
15 Doesn't have the limitation you would like.

16 Q. So I think we're in agreement. You
17 would agree Claim 1 of the '710 patent is not
18 limited to only backlighting for LCD displays,
19 correct?

20 MR. MASSAND: Objection to form.

21 A. Claim 1 says a lights system comprising
22 a plurality of strings and solid state lighting
23 devices arranged in a first direction and
24 positioned at intervals in at least one second
25 direction. So that's the first preamble and

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1 first part of the claim. The other claims are
2 similar.

3 Q. So nothing in Claim 1 of the '710 is
4 limited to only backlighting for LCD displays,
5 correct?

6 MR. MASSAND: Objection to form.

7 A. So Claim 1 says, a lighting system
8 comprised in a plurality of strings of solid
9 state lighting devices arranged in a first
10 direction and positioned at intervals in at least
11 one second direction.

12 Q. I don't believe you answered my
13 question, Mr. Bohannon. I'm just trying to
14 understand if you agree that Claim 1 of the '710
15 is not limited to backlighting an LCD display?

16 MR. MASSAND: Objection to form.

17 A. I don't have to agree with you. I can
18 read Claim 1. A lighting system comprising a
19 plurality of strings of solid state lighting
20 devices arranged in a first direction and
21 positioned at intervals in at least one second
22 direction. That's my answer to your question.

23 Q. Mr. Bohannon, you recall that you swore
24 to tell the truth today, correct?

25 A. I am truthfully reading Claim 1 to you.

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1 Q. Mr. Bohannon, I'm asking for your
2 expert opinion regarding Claim 1. And my
3 question is, in your opinion, is Claim 1 of the
4 '710 limited to only backlighting LCD displays?

5 MR. MASSAND: Objection to form.

6 A. So my opinions are stated in my
7 declaration. There is nothing in my declaration
8 that limits or interprets the claims beyond plain
9 and ordinary language. So Claim 1 just says --
10 the example says a lighting system comprising a
11 plurality of strings of solid state lighting
12 devices arranged in a first direction and
13 positioned at intervals in at least one second
14 direction. There's more to Claim 1, but we can
15 all -- we can both read it and it's part of the
16 IPR.

17 Q. Mr. Bohannon, in your opinion, is Claim
18 17 of the '710 patent limited to only
19 backlighting for LCD displays?

20 A. So I'm reading Claim 17. Claim 17 is a
21 method for controlling a plurality of strings of
22 solid state lighting devices configured to extend
23 in a first direction and to be arranged in
24 substantially adjacent positions relative to one
25 another and a second direction that is different

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1 from the first direction. The method comprising
2 receiving an input from a user and supplying,
3 based in part on the input from the user, a
4 plural- -- a plurality of pulsed drives currents
5 to the plurality of strings in a
6 non-spatially-sequential firing order.

7 Q. Mr. Bohannon, you agree there's nothing
8 in Claim 17 that expressly refers to a backlight
9 for an LCD display, correct?

10 A. I do not have to agree with you. Claim
11 17 we just read it. I'll read it again. A
12 method for controlling a plurality of strings of
13 solid state lighting devices configured to extend
14 in a first direction and to be arranged in
15 substantially adjacent positions relative to one
16 another and a second direction that is different
17 from the first direction. The method comprising
18 receiving an input from user and supplying based
19 in part on input from the user a plurality of
20 false drive currents to the plurality of strings
21 in a non-spatially-sequential firing order.

22 So that's the extent of Claim 17.

23 Q. Mr. Bohannon, is Claim 47 of the '710
24 patent limited to only backlighting for LCD
25 displays?

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1 A. So Claim 47 -- method for controlling a
2 plurality of strings of solid state lighting
3 devices configured to extend in a first direction
4 and arranged substantially adjacent to one
5 another. The method comprising supplying a
6 plurality of false drive currents to a plurality
7 of groups of the plurality of strings.

8 Q. I don't believe that answered my
9 question. I'll reask my question.

10 Mr. Bohannon, is Claim 47 of the '710
11 limited to only backlighting for LCD displays?

12 A. So I'll read it for you again. Claim
13 47, a method for controlling a plurality of
14 strings of solid state lighting devices
15 configured to extend in a first direction and
16 arranged substantially adjacent to one another.
17 The method comprising supplying a plurality of
18 pulse drive currents to a plurality of groups and
19 a plurality of strings.

20 Q. Mr. Bohannon, I want to direct your
21 attention to Column 17, Line 42. And I'll share
22 that on my screen -- of Exhibit 1, the '710
23 patent. So Column 17, beginning at Line 42 which
24 reads, although some embodiments are described in
25 connection with LCD backlights, embodiments of

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1 the invention may be used for other purposes,
2 such as general lighting.

3 Do you see that?

4 A. I do.

5 Q. Did I read that correctly?

6 A. I think you did.

7 Q. In your opinion, is the '710 patent
8 limited to only backlighting for LCD displays?

9 MR. MASSAND: Objection to form.

10 A. So in my opinion, which is -- my
11 opinion is contained in my declaration, so I
12 don't think I covered the topics you're
13 discussing. We can go through my opinion and see
14 if what you asked is in there, but I don't think
15 so.

16 Q. Well, I'm asking for your opinion
17 sitting here today. You're familiar with the
18 '710 patent, correct?

19 A. I am.

20 Q. You reviewed the '710 patent in
21 preparing your declaration, correct?

22 A. I did.

23 Q. In your opinion, is the '710 patent
24 limited to only backlighting for LCD displays?

25 MR. MASSAND: Objection to form.

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1 A. So my opinion is contained in the
2 declaration. My declaration is the extent of the
3 opinion that I'm providing for this deposition.
4 And unless you can prove otherwise, I don't think
5 what you just said is in my declaration. Is it?

6 Q. So it's not your opinion that the '710
7 patent is limited to backlighting for LCD
8 displays?

9 MR. MASSAND: Objection to form.

10 A. So my opinion does not contain -- my
11 opinion is in my declaration and my declaration
12 does not contain the answer to your question.

13 Q. Are you unable to answer my question as
14 to whether the '710 patent is limited to only
15 backlighting for LCD displays?

16 MR. MASSAND: Objection to form.

17 A. So you want me to make up a new opinion
18 for you on the fly and I'm not willing to do
19 that.

20 Q. I'm not asking you to do that,
21 respectfully, Mr. Bohannon. I understand that
22 you read and are familiar with the '710 patent
23 and I'm asking your understanding of the '710
24 patent including in view of the statement therein
25 where the specification states, although some

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1 embodiments are described in connection with LCD
2 backlights, embodiments of the invention may be
3 used for other purposes, such as general
4 lighting.

5 In view of that disclosure, as well as
6 other disclosures in the '710 patent, my question
7 to you is, is the '710 patent limited to only
8 backlighting for LCD displays?

9 MR. MASSAND: Objection to form.

10 A. So the answer to that question is not
11 in my opinion. It's not in my declaration. I
12 don't discuss that in my declaration so I'm not
13 going to make up something on the fly for you
14 here today.

15 Q. Do you agree that the '710 patent is
16 not limited to only back lighting for LCD
17 displays?

18 MR. MASSAND: Objection to form.

19 A. So you're asking me for opinion outside
20 the scope of my declaration and I'm not willing
21 to provide that.

22 Q. So today you're unwilling to provide
23 any opinion beyond the scope of what you've set
24 forth in your declaration?

25 A. My declaration contains my opinion. I

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1 thought we were going to be talking about my
2 declaration and not making up new stuff on the
3 fly.

4 Q. Mr. Bohannon, I want to turn to
5 Column -- Columns 1 and 2 on the '710 patent
6 which I have displayed on the screen.

7 Do you see that?

8 A. I do.

9 Q. And we touched on this earlier and I
10 believe you pointed out the background section of
11 the '710 patent begins in Column 1 at
12 approximately Line 17; is that right?

13 A. I would call it Line 19.

14 Q. Okay. Line 19. And then that
15 background section extends from Column 1, Line 19
16 through Column 2, Line 23, correct?

17 A. Looks like it.

18 Q. I want to turn your attention to Column
19 2 beginning at Line 8. You'll agree that this is
20 still in the background section of the '710
21 patent?

22 A. It appears to be so.

23 Q. And Column 2, Line 8 of Exhibit 1001,
24 the '710 patent, states, solid state lamps such
25 as LEDs, are current-controlled devices in the

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1 sense that the intensity of the light emitted
2 from an LED is related to the amount of current
3 driven through the LED.

4 Do you see that?

5 A. I do.

6 Q. Did I read that correctly?

7 A. It appears so.

8 Q. Do you agree that prior to May 8th,
9 2007 a person of skill in the art would have
10 understood that solid state lamps such as LEDs
11 are current-controlled devices in the sense that
12 the intensity of the light emitted from an LED is
13 related to the amount of current driven through
14 the LED?

15 A. Prior to the May '710, probably.

16 Q. So an LED is a solid state lamp,
17 correct?

18 MR. MASSAND: Objection to form.

19 A. I wouldn't call it a lamp per se. More
20 like a -- like a light emitter. I mean, lamps
21 have a different kind of a meaning to them.
22 That's kind of a weird choice of language.

23 Q. That was --

24 A. I wouldn't call it lamps.

25 Q. The '710 patent refers to an LED as a

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1 solid state lamp, correct?

2 A. The '710 patent has that terminology,
3 solid state lamp, and it's kind of a misnomer.

4 Q. But the '710 patent refers to an LED as
5 a solid state lamp, correct?

6 A. I said it's a misnomer.

7 Q. What else is incorrect in the '710
8 patent?

9 MR. MASSAND: Objection to form.

10 A. I don't know. I didn't go through it
11 and try and correct things.

12 Q. Do you disagree with the '710 patent's
13 statement that an LED is a solid state lamp?

14 A. I wouldn't --

15 MR. MASSAND: Objection to form.

16 A. -- call it a lamp. To me a lamp means
17 something like a -- like a bulb, like a
18 traditional light. I would call them a solid
19 state light emitter.

20 Q. Respectfully, that wasn't my question,
21 Mr. -- Mr. Bohannon.

22 A. That was --

23 Q. Do you --

24 A. -- my answer.

25 Q. -- agree or disagree with the '710

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1 patent's statement that an LED is a solid state
2 lamp?

3 MR. MASSAND: Objection to form.

4 A. I said it's a misnomer. There's
5 nothing in my declaration that says I agree or
6 disagree with it. But sitting here today, I -- I
7 personally would not use that term, solid state
8 lamp.

9 Q. Sitting here today, October 8th, 2024,
10 you would not use the term lamp to describe an
11 LES, correct?

12 MR. MASSAND: Objection to form.

13 A. I wouldn't in 20 -- I wouldn't use it
14 in 2006. I wouldn't use it in 2005. I wouldn't
15 ever use solid stayed lamp to describe an LED. I
16 would call them a light emitter or solid state
17 light emitter or just an LED because LED by
18 itself -- LED stands for light-emitting device or
19 light-emitting diode, I mean, so everyone knows
20 what an LED is.

21 Q. So do you agree or disagree with the
22 '710 patent's statement that an LES is a solid
23 state lamp?

24 MR. MASSAND: Objection to form.

25 A. I said I wouldn't use that word. I

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1 would just -- I don't think it's necessary. The
2 LED name itself, light-emitting diode, everybody
3 understands that a light-emitting diode is a
4 solid state light emitter.

5 Q. So you would not disagree with the '710
6 patent's statement that an LED is a solid state
7 lamp?

8 MR. MASSAND: Objection to form.

9 A. Like I said at least six times before,
10 I would not use the term lamp to describe an LED
11 which is a light-emitting diode.

12 Q. Respectfully, Mr. Bohannon, I'm not
13 asking you to characterize an LED. I'm asking if
14 you agree or disagree with the '710 patent's
15 statement that an LED is a solid state lamp?

16 MR. MASSAND: Objection to form.

17 A. I gave you my answer. My answer is --
18 is I don't think -- I personally would not refer
19 to an LED as a lamp. You know, there's nothing
20 in my declaration that discusses this so you're
21 beyond the scope.

22 Q. So sitting here today you do not
23 disagree with the '710 patent's statement that an
24 LED is a solid state lamp?

25 MR. MASSAND: Objection to form.

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1 A. So for probably the tenth time, I said
2 that I would not call an LED a solid state lamp.
3 I think that's a misnomer. I would not do that
4 personally. An LED -- using the word LED, using
5 the name LED, using the three letters, LED is
6 sufficient, light-emitting diode.

7 Q. So you'd agree that the '710 patent
8 refers to an LED as a solid state lamp, correct?

9 A. I'm not agreeing with you.

10 Q. I'm asking do you agree with the '710
11 patent. The '710 patent states, solid state
12 lamps such as LEDs, correct?

13 A. I think it's a misnomer.

14 Q. I'm not asking for your opinion. I'm
15 asking did I read that correctly. The '710
16 patent says, solid state lamps such as LEDs,
17 correct?

18 MR. MASSAND: Objection to form.

19 A. So I'm not agreeing with you. I don't
20 like the way you say the sentence and then put
21 correct at the end and want agreement. I would
22 not use the word lamp in association with an LED,
23 but I did not write the patent.

24 Q. And the named inventors did use the
25 term lamp in describing an LED, correct?

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1 MR. MASSAND: Objection to form.

2 A. So there's nothing in my opinion or
3 declaration on this terminology. There's nothing
4 in my declaration that goes beyond -- that even
5 discusses those three words, solid state lamps.
6 I think it's a misnomer. I think using the word
7 LED -- or the three letters LED in capital for
8 light-emitting diode are sufficient.

9 Q. The full sentence at Column 2, Line 8
10 states that solid state lamps, such as LEDs, are
11 current-controlled devices in the sense that the
12 intensity of the light emitted from an LED is
13 related to the amount of current driven through
14 the LED, correct?

15 (This is a draft.)

16 A. So you read that sentence correctly.

17 Q. How is it that the intensity of the
18 light emitted from an LED is related to the
19 amount of current driven through the LED?

20 A. What do you mean in you're looking for
21 the basic physical principles of light-emitting
22 diodes?

23 Q. Sure. I'm just trying to understand
24 the relationship as stated in the '710 patent in
25 the background between the intensity of light

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1 from an LED in relation to the amount of current
2 driven through the LED.

3 MR. MASSAND: I'm going to object to
4 form.

5 A. That's how these work. It's simple. I
6 don't understand your question.

7 Q. That -- it's your testimony that it's
8 just how LEDs work, that the intensity of the
9 light emitted from an LED is related to the
10 amount of current driven through the LED?

11 A. So I don't understand your question.

12 Q. Prior to the May 8th, 2007 date a
13 person of skilled in the art would understand
14 that the intensity of light emitted from an LED
15 is related to the amount of current driven
16 through the LED?

17 A. I think a person of ordinary skill in
18 the art knows how LEDs work and knows how to
19 drive them so this stuff is pretty well known.
20 LEDs have been around for quite a while.

21 Q. Un- -- understood. Let me just be
22 specific with my question.

23 Prior to May 8th, 2007, you would agree
24 that a person of skill in the art would know that
25 the intensity of light emitted from an LED is

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1 related to the amount of current driven through
2 the LED, correct?

3 A. It's also relative to the voltage. You
4 know, we -- we get into basically ohms law, E
5 equals IR , and the power of the lamp and the
6 power that's -- of the current -- electricity
7 that's flowing through there. So everybody knows
8 how LEDs work. I don't understand your question
9 beyond that.

10 Q. So prior to May 8, 2007, a person of
11 skill in the art would understand and know that
12 the intensity of light emitted from an LED is
13 related to the amount of current driven through
14 the LED, correct?

15 MR. MASSAND: Objection to form.

16 A. So I don't have any further description
17 or analysis of this in my declaration so you're
18 outside the scope. I don't have an opinion
19 beyond what's in my declaration and I don't think
20 there's anything in my declaration that talks
21 about, you know, beyond, you know, basic
22 understanding of LEDs that talks about how they
23 work physically, what is the purpose.

24 Q. So sitting here today you cannot tell
25 me one way or the other as to whether a person of

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1 skill in the art as of May 8, 2007, would
2 understand that the intensity of light emitted
3 from an LED is related to the amount of current
4 driven through the LED?

5 MR. MASSAND: Objection to form.

6 A. I've answered this about ten times.
7 You keep trying it. I don't know where you're
8 going. I don't know what you want. I have
9 answered that question.

10 Q. Re- -- respectfully, if you have, I've
11 missed it so I want to understand.

12 A. Then read back the -- the deposition
13 for the last half hour. You'll see that I've
14 answered it over and over and over.

15 Q. Well, Mr. Bohannon, let me ask my
16 question to make sure we're in agreement then.
17 Prior to May 8th, 2007, you agree that a person
18 of skill in the art would understand and know
19 that the intensity of the light emitted from an
20 LED is related to the amount of current driven
21 through the LED?

22 MR. MASSAND: Objection to form.

23 A. So the '710 patent says that LEDs are
24 current-controlled devices in the sense that the
25 intensity of the light emitted from the LED is

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1 related to the amount of current driven through
2 the LED.

3 Q. And you agree a person of skill in the
4 art would know and understand that prior to May
5 8, 2007, correct?

6 MR. MASSAND: Objection to form.

7 A. One of the big problems I have with
8 your questions besides your -- keep asking it
9 over and over and over and over and over again is
10 you say prior to 2007. So what are you talking
11 about, 1985? Are you talking about 1900? Are
12 you talking about the date when LEDs were
13 invented? I mean, LEDs and -- and lasers were
14 invented a long time ago. Solid state lasers
15 have been around for quite a while. They're
16 related to LEDs. So, you know, your prior to
17 question is too broad. Besides --

18 Q. Sure.

19 A. -- none of this is in my declaration.

20 Q. Let me clarify then. As of May 7th,
21 2007, you agree that a person with skill in the
22 art would understand and know that the intensity
23 of light emitted from an LED is related to the
24 amount of current driven through the LED?

25 MR. MASSAND: Objection to form.

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1 A. So there is nothing in my declaration
2 that dis- -- that discusses this or describes
3 this. It's not part of my opinion.

4 Q. Mr. Bohannon, you agree that in the
5 background section of the 17 patent -- of the
6 '710 patent, the patent states, solid state
7 lamps, such as LEDs, are current-controlled
8 devices in the sense that the intensity of the
9 light emitted from an LED is related to the
10 amount of current driven through the LED,
11 correct?

12 A. So I'm not willing to say correct to a
13 statement that I've not covered in my
14 declaration. You want to point to a part of my
15 declaration where I discuss this sentence, please
16 do so.

17 Q. Mr. Bohannon, you read and reviewed the
18 '710 patent in your declaration, correct?

19 A. You've asked that question about ten
20 times before and I've answered it ten times
21 before so you're starting to badger me.

22 Q. Would a person of skill in the art as
23 of May 7th, 2007, know that the intensity of
24 light emitted from an LED is related to the
25 amount of current driven through an LED?

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1 MR. MASSAND: Objection to form.

2 A. You've asked that question at least a
3 dozen times before and I've answered it the way I
4 want to answer it. You haven't pointed to a part
5 of my declaration where I discuss the background
6 of wills and their development and their
7 operation, have you? I mean, I thought we wanted
8 to talk about the declaration, not just go over
9 and over and over and over some sentence in the
10 '710 patent.

11 Q. I'm trying to understand your
12 understanding of the '710 patent.

13 A. I don't think you are.

14 Q. Re- -- respectfully, Mr. Bohannon, I
15 am, and that's why I have questions for you today
16 in light of your declaration.

17 A. Well, I've answered those questions
18 over and over and it's the same question so I
19 don't think you are interested in my opinion.
20 You just want to badger me until I give up.

21 Q. How about we take a break. How about a
22 ten-minute break, Mr. Bohannon.

23 A. That would be fine.

24 MR. LEE: Neal, does that work for you?

25 MR. MASSAND: Sure. That's fine.

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1 (Whereupon, there was a recess in the
2 proceedings from 2:54 p.m. to 3:06 p.m.)

3 BY MR. LEE:

4 Q. Welcome back, Mr. Bohannon.

5 A. Thank you.

6 Q. Did you -- did you speak with anyone
7 during the break?

8 A. I did not.

9 Q. Mr. Bohannon, I would like to turn to
10 Column 2, Line 11 of Exhibit 1001, the '710
11 patent. As a fundamental matter, do you agree
12 that Column 2, Line 11 is still within the
13 background section of the '710 patent?

14 A. It appears to be so.

15 Q. And at Line 11, Column 2 states, One
16 common method for controlling the current driven
17 through the solid state lamps to achieve desired
18 intensity and color mixing is a Pulse Width
19 Modulation (PWM) scheme.

20 Do you see that?

21 A. You seem to have read that correctly.

22 Q. Would you agree that as of May 7th,
23 2007, a person of skill in the art would
24 understand and know that a common method for
25 controlling current driven through an LED is a

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1 PWM scheme?

2 A. I just want to bring one thing to your
3 attention, that in my declaration Page 7 a person
4 of ordinary skill in the art -- so Paragraph 21,
5 I understand that the claims of the patent are
6 reviewed from the point of view of a hypothetical
7 person of ordinary skill in the art, POSITA, at
8 the time of filing the patent. So not before the
9 patent was filed but at the time of filing.

10 Q. Okay. Let me -- let me reask my
11 question. At the time of filing the '710 patent,
12 would you agree that a person of skill in the art
13 would understand and know that a common method
14 for controlling the current driven through an LED
15 is a PWM scheme?

16 A. One common method for controlling the
17 current driven through the solid state LED to
18 achieve desired intensity and color mixing is a
19 pulse width modulation scheme.

20 Q. So you agree at the time of filing of
21 the '710 patent a person of skill in the art
22 would know and understand that one common method
23 for controlling the current driven through an LED
24 is a PWM scheme?

25 MR. MASSAND: Objection to form.

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1 A. That's what -- that's what's said in
2 that sentence. It's not in my declaration I
3 don't think. I don't have an opinion on this.

4 Q. What is a PWM scheme?

5 A. Pulse width modulation.

6 Q. What is pulse width modulation?

7 A. It's where the current is -- is turned
8 on and off for a certain amount of time to -- to
9 make the pulse -- the on pulse wider or narrower
10 and, therefore, affect the overall current
11 flowing through the LED.

12 Q. Does that also affect the light emitted
13 from the LED?

14 A. It affects the light. It affects the
15 intensity and it will affect the color to some
16 degree depending upon the LEDs.

17 Q. And, in fact, the '710 patent at Column
18 2, Line 14 states, PWM schemes pulse the solid
19 state lamps alternately to a full current "ON"
20 state followed by a zero current "OFF" state?

21 A. You have read that.

22 Q. And that's consistent with your
23 testimony moments ago regarding a PWM scheme?

24 A. It appears to be so.

25 Q. All right. I want to turn to Column

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1 10, Line 22 of the '710 patent, Exhibit 1001.

2 Do you see that on your screen?

3 A. I do.

4 Q. And it states, Reference is now made to
5 figure 8 which is a block diagram illustrating
6 systems and/or methods for controlling a solid
7 state lighting panel in accordance with some
8 embodiments of the invention.

9 Do you see that?

10 A. I see that sentence.

11 Q. You would agree that this portion of
12 the specification is now talking about the
13 invention of the '710 patent as opposed to the
14 background, correct?

15 A. Well, only because it says in
16 accordance with some embodiments of this
17 invention.

18 Q. And later in that same column beginning
19 at Line 44 -- Column 10, Line 44 the '710 patent
20 states, One common method for controlling the
21 current driven through the strings is a Pulse
22 Width Modulation (PWM) scheme.

23 Do you see that?

24 A. So you're talking about Line 44 and 45?

25 Q. And 46, yes.

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1 A. Yes, I see that sentence.

2 Q. Did I read that correctly?

3 A. Apparently.

4 Q. And it continues on Line 46, PWM
5 schemes pulse the solid state lamps alternately
6 to a full current "ON" state followed by a zero
7 current "OFF" state, correct?

8 A. Your reading seems to be correct.

9 Q. Is the common method describes in
10 Column 10, Lines 44 through 46 the same common
11 method described in Column 2, Lines 11 through
12 13?

13 A. Well, one --

14 MR. MASSAND: Objection to form.

15 A. -- thing you're kind of leaving off is
16 you're calling it the common method and these
17 sentences are saying one common method because
18 there are other methods of driving LEDs.

19 Q. Fair. Let me reask my question.

20 Is the one common method for
21 controlling the current drive through the strings
22 discussed in Column 10, Line 44 through 46 a
23 pulse width modulation, PWM, scheme, the same,
24 one common method for controlling the current
25 driven through solid state lamps described in

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1 Column 2, Line 11 through 13?

2 MR. MASSAND: Objection to form.

3 A. So there's no indication that they're
4 talking about the same -- precisely the same
5 method in there. This just says one common
6 method. It doesn't say the one common method.
7 It just says, one common method implying a common
8 method amongst many common methods for
9 controlling the current.

10 Q. So in -- in Column 2 in the background
11 section of the '710 patent it describes one
12 common method for controlling current driven
13 through solid state lamps as a pulse width
14 modulation, PWM, scheme, correct?

15 A. One common method for controlling the
16 current driven through the solid state lamp which
17 should be LEDs, to achieve desired intensity and
18 color mixing and -- is a pulsed width modulation
19 scheme. So I still take issue with the word lamp
20 because that's a misnomer.

21 Q. I understand your position on -- on
22 lamp. My question is, in the background section
23 of the '710 patent, the patent describes that one
24 common method for controlling the current driven
25 through solid state lamps is a PWM scheme,

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1 correct?

2 A. I take issue with the word lamps. It's
3 solid state LEDs or should be LEDs.

4 Q. Okay.

5 A. There's --

6 Q. So shall did shall did?

7 A. You don't use -- I guess you could use
8 a pulse width scheme on some kind of light bulb,
9 but that's not how they work.

10 Q. Okay. So as of the filing date of the
11 '710 patent, you agree that one common method for
12 controlling the current driven through an LED is
13 a pulse width modulation scheme, correct?

14 A. So one common -- one method amongst
15 many methods. There's lots of ways to drive
16 LEDs.

17 Q. And as of the filing date of the '710
18 patent, a person of skill in the art would
19 understand and know that one of those many
20 methods for controlling the current driven to an
21 LED is a PWM scheme, correct?

22 A. Well, the -- to control the desired
23 in- -- light intensity and color mixing is a PWM
24 scheme.

25 Q. And in Column 10 when the '710 patent

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1 is describing its invention, it identifies one
2 common method for controlling the current driven
3 through strings is a PWM scheme, correct?

4 A. You have read the sentence correctly.

5 Q. And in discussing that PWM scheme in
6 Column 10, the patent states beginning at Line
7 48, The output of the string may be controlled by
8 varying the duty cycle, which is the percent of
9 the cycle that the string is placed in an "ON"
10 state, correct?

11 A. You have read that -- those words
12 correctly.

13 Q. How is the output of the string
14 controlled by the duty cycle?

15 A. I don't understand what you asked. You
16 want to know how LEDs work in general?

17 Q. Sure.

18 A. That's not in my declaration. I'll
19 have to write something up and send it to you.
20 You can have your own expert school you on how
21 LEDs work.

22 Q. Sitting here today you can't articulate
23 for me how LEDs work?

24 MR. MASSAND: Objection to form.

25 A. I can articulate them to a great

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1 extent, but it's not in my declaration. I don't
2 have a history of LEDs and their development
3 in -- in -- beyond what I've described in my -- I
4 think I described something in the technology
5 overview of -- of my declaration.

6 Q. Sitting here today, can you explain for
7 me how the output of a string may be controlled
8 by varying the duty cycle?

9 MR. MASSAND: Objection to form.

10 A. Looking for my declaration. Technology
11 overview is on Page 10, Paragraph 29. The
12 relevant field for the '710 patent is that of
13 solid state lighting systems, more particularly
14 to adjusting the light output in solid state
15 lighting. Generally, the field re- -- relates to
16 employing solid state lighting devices (e.g.,
17 LEDs) to illuminate a liquid crystal panel. This
18 may be accomplished through several structures
19 and layers, et cetera, surfaces. And I want to
20 see if I have something that answers your
21 question here in my laboriously put together
22 declaration. All right. It says in Paragraph
23 31, '710 patent teaches additional embodiments
24 which improve upon current control methods to the
25 LED. By way of example, it states, A control

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1 system 800 selectively provides control signals
2 to a current driver or other type of electrical
3 power supply circuit that responsively drives
4 multiple solid state lighting devices in a solid
5 state lighting panel, can include firing logic
6 802 that can determine a firing order for
7 multiple strings. Firing order may determine the
8 order in which individual strings are lit -- and
9 further, such methods can employ supplying a
10 pulsed drive currents to the strings in that
11 non-spatially-sequential firing order for -- I'm
12 referring back to Column 3, 38 to 40 in the '710
13 patent. So that's part of the technology
14 overview that gets into the pulse drive method,
15 pulse drive currents so that's in my declaration.

16 Q. Mr. Bohannon, do you agree that the
17 output of a solid state lighting device may be
18 controlled by varying the duty cycle in a PWM
19 scheme?

20 MR. MASSAND: Objection to form.

21 A. So I started to search through my
22 declaration to try and get to the point where in
23 my declaration I actually discuss that and I
24 don't think I discuss it. So I see it here in
25 the '710 patent, but I -- beyond that, I don't

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1 think I have much of a discussion unless you can
2 find it.

3 Q. So sitting here today you cannot opine
4 as to how the output of a solid state lighting
5 device may be controlled by varying the duty
6 cycle in a PWM scheme?

7 MR. MASSAND: Objection to form.

8 A. Oh, back in late 2- -- 2023 when I
9 wrote my opinion is the time that we're -- the
10 time that should be under discussion, not making
11 up stuff on the fly today. But back when I wrote
12 my declaration at the end of 2023 and signed it
13 in January of 2024, that's what we should be
14 discussing and I don't think the answer to your
15 question is in my declaration so it's outside the
16 scope unless you can show me otherwise.

17 Q. So sitting here today you're unwilling
18 to provide an opinion as to how the output of a
19 solid state lighting device may be controlled by
20 varying the duty cycle in a PWM scheme?

21 MR. MASSAND: Objection to form.

22 A. So sitting here today you want me to
23 come up with a new opinion outside the scope of
24 my existing opinion.

25 Q. The '710 patent expressly states the

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1 output of the string may be controlled by varying
2 the duty cycle which is the percent of the cycle
3 that the string placed in an on state, correct?

4 A. You have read that sentence correctly.

5 Q. Do you agree with that sentence?

6 A. Whether I agree with it or not, it's
7 not in my -- an analysis of that sentence is not
8 in my opinion as expressed in the declaration
9 that was signed in January 2024.

10 Q. In a PWM scheme, does varying the duty
11 cycle control the intensity of the light emitted
12 from the LED?

13 A. So haven't we gone around and around on
14 this before?

15 Q. I'll -- I don't believe that answers my
16 question. I'm happy to ask it again,
17 Mr. Bohannon.

18 In your opinion, in a PWM scheme, does
19 varying the duty cycle control the intensity of
20 the light emitted from an LED?

21 A. So you just asked in my opinion. When
22 you ask me in my opinion, I'm thinking that you
23 mean in the opinion that I submitted which is
24 Exhibit 2001/2003 which was signed in January of
25 2024. So in my opinion, the paper I'm holding,

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1 the thing you -- you're not discussing, I don't
2 think it has an opinion on the words that you
3 kept -- keep reading over and over again. So
4 you're outside the scope of my opinion. You want
5 me to come up with some new opinion on the fly to
6 satisfy your own requirements. I'm not going to
7 do that.

8 Q. Mr. Bohannon, in light of your over 30
9 years of commercial industrial echo -- electronic
10 experience, do you have an opinion as to whether
11 varying the duty cycle in a PWM scheme controls
12 the intensity of light emitted by an LED?

13 MR. MASSAND: Objection to form.

14 A. So are you asking me is that in my
15 opinion that I submitted for this procedure --
16 for this IPR? I don't think it is. That's the
17 opinion that matters today. It's supposed to be
18 a cross-examination on the opinion that I
19 submitted, not making up new opinions on the fly.

20 Q. So you have no opinion as to whether
21 varying the duty cycle in a PWM scheme controls
22 the intensity of light emitted from an LED?

23 MR. MASSAND: Objection to form.

24 A. So you're asking me is that in my
25 opinion, the opinion that I wrote and signed for

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1 this IPR, Exhibit 2001/2003. You don't --
2 haven't been able to point that out so I don't
3 know what to do to help you.

4 Q. So sitting here today you cannot
5 articulate an opinion one way or the other as to
6 whether varying the duty cycle in a PWM scheme
7 controls the intensity of light emitted from an
8 LED?

9 MR. MASSAND: Objection to form.

10 A. Of course I can provide an opinion but
11 I wasn't asked to provide an opinion on that
12 sentence. You may want me to provide an opinion
13 on that sentence sitting here today, but I don't
14 have to do it because it's not in my opinion that
15 was published for this -- the support of this
16 IPR.

17 Q. Sir, I want to understand your
18 testimony. Your testimony is that you can
19 provide an opinion regarding my question but that
20 you're refusing to do so; is that correct?

21 A. It's not in my declaration.

22 MR. MASSAND: Objection to form.

23 BY MR. LEE:

24 Q. And because it's --

25 A. Can you --

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1 Q. -- not in your --

2 A. Can you --

3 Q. -- declaration --

4 A. Can you show me where in my declaration
5 is that opinion?

6 Q. Mr. Bohannon, you have a copy of your
7 declaration. You can consult it any time you
8 like. I'm asking you, in your opinion does
9 varying the duty cycle in a PWM scheme control
10 the intensity of light emitted from an LED?

11 MR. MASSAND: Objection to form.

12 A. So you want me to go through my opinion
13 and search.

14 Q. Mr. Bohannon, I'm asking for your
15 opinion. If you can provide --

16 A. My opinion --

17 Q. -- me an opinion, please do. If you
18 cannot, you can say you cannot.

19 A. Well, I told you, is it in my opinion?
20 My opinion is in my declaration so I'll look
21 through my declaration and see if there's an
22 opinion for you.

23 Q. Okay.

24 A. No, I don't find it. I can't find it
25 with a simple search. I can't find it in my

*** UNCERTIFIED ROUGH DRAFT ***

1 opinion so it's outside the scope of my
2 declaration and we should move on and ask another
3 question.

4 Q. So sitting here today you have no
5 opinion as to whether varying the duty cycle in a
6 PWM scheme controls the intensity of light
7 emitted from an LED?

8 MR. MASSAND: Objection to form.

9 A. So sitting here today and looking at my
10 opinion which was submitted for this case marked
11 and entered as Exhibit 2001/2003, there is
12 nothing in that opinion that answers your
13 question so that's the issue. You're outside the
14 scope of my declaration.

15 Q. And -- and because of that, you are
16 unwilling to provide any opinion today as to
17 whether varying the duty cycle in a PWM scheme
18 controls the intensity of light emitted from an
19 LED?

20 A. I don't have to make up opinions on the
21 fly for you. You should get your own expert to
22 do that.

23 Q. All right. Let's take a look at your
24 declaration, Mr. Bohannon. And I want to turn to
25 Section 6 of your declaration which begins at

*** UNCERTIFIED ROUGH DRAFT ***

1 Paragraph 36 and ends at Paragraph 40.

2 Do you see that?

3 A. It's too small to read. What page is
4 that, 13?

5 Q. You have a copy -- you have a physical
6 copy of your declaration. You're --

7 A. I do have that.

8 Q. -- and you're welcome to look at that.
9 I'm -- I'm displaying a copy on the screen for
10 your convenience.

11 A. So this is --

12 Q. And I'm referring to Section 6 that
13 begins at Paragraph 36 and extends through
14 Paragraph 40.

15 A. Okay. So I'm looking at the claim
16 construction section.

17 Q. Correct. And in Paragraph 36 you state
18 that an in an IPR proceeding claim terms should
19 be construed as having their ordinary and
20 customary meaning to a person of ordinary skill
21 in the art at the time of the invention, correct?

22 A. So it says, for IPR pet- -- petitions
23 filed after November 13th, 2018, I understand
24 the -- the board construes claim terms as having
25 their ordinary and customary meaning to a person

*** UNCERTIFIED ROUGH DRAFT ***

1 of ordinary skill in the art at the time of the
2 invention, the same standard used in District
3 Court.

4 Q. And that's the standard you applied in
5 rendering your opinions in this --

6 A. It is.

7 Q. -- in this declaration?

8 A. It is.

9 Q. And in Section 6 of your declaration,
10 you do not identify any specific construction or
11 definition you applied as to any claim term of
12 the '710 patent aside from the plain and ordinary
13 meaning of those terms, correct?

14 A. So that Paragraph 36 continues to read,
15 I have applied this standard in rendering my
16 opinions on claim construction. In addition, I
17 have been asked to assume the claims are not
18 indefinite. Paragraph 37 reads, claim terms are
19 generally given their plain and ordinary meaning,
20 which is the meaning that the term would have to
21 a person of ordinary skill in the art in question
22 at the time of the invention.

23 Q. So my question, Mr. Bohannon, is in
24 Section VI of your declaration entitled, Claim
25 Construction, you do not identify any specific

*** UNCERTIFIED ROUGH DRAFT ***

1 construction or definition that -- of any claim
2 term in the '710 patent, correct?

3 A. So I say in Paragraph 37, claim terms
4 are generally given their plain and ordinary
5 meaning, which is the meaning the term would have
6 to a person of ordinary skill in the art in
7 question at the time of the invention. When the
8 words in the context of the surrounding claim
9 language make ordinary meaning readily apparent,
10 claim construction involves little more than the
11 application of widely accepted meaning of
12 commonly understood words. Claims must be read
13 in the light of the -- must be read in view of
14 the specification from which they are a part.
15 Specification is the best source for
16 understanding a technical term. And then
17 Paragraph 38 ends with, the construction that
18 stays true to the claim language and most
19 naturally aligns with the patent's description of
20 the invention will be the correct construction.

21 Q. And in Section 6 of your declaration,
22 you did not identify any specific constructions
23 or definitions that you apply to any claim term
24 of the '710 patent aside from whatever their
25 plain and ordinary meaning is --

*** UNCERTIFIED ROUGH DRAFT ***

1 MR. MASSAND: Objection.

2 BY MR. LEE:

3 Q. -- correct?

4 A. That's not in my declaration. I don't
5 have to do that.

6 Q. What's not in your declaration?

7 A. What you just asked.

8 Q. So in rendering your opinions, you just
9 applied the plain and ordinary meaning of each
10 claim term in the '710 patent, correct?

11 A. I said in Paragraph 39, although terms
12 may be construed in light of the specification,
13 it is improper to import a limitation from that
14 specification into the claims. Courts must
15 capture the scope of the actual invention, rather
16 than strictly limit the scope of claims to
17 disclosed embodiments or allow the claim language
18 to become divorced from what the specification
19 conveys in the invention. That was Paragraph 39.

20 Q. So in rendering your opinions in your
21 declaration, you applied the plain and ordinary
22 meaning of each claim term in the '710 patent as
23 understood by a person of skill in the art,
24 correct?

25 A. So I say in Paragraph 36, I have

*** UNCERTIFIED ROUGH DRAFT ***

1 applied this standard -- this standard of plain
2 and ordinary meaning in rendering my opinions on
3 claim construction.

4 Q. All right. Mr. Bohannon, let's return
5 to Exhibit 1001, the '710 patent. And let's
6 examine Claim 1. And Claim 1 of the '710
7 patent -- can you see that on your screen?

8 A. I can.

9 Q. In Claim 1 of the '710 patent states, A
10 lighting system, comprise: A plurality of
11 strings of solid state lighting devices arranged
12 in a first direction and positioned at intervals
13 in at least one second direction.

14 Do you see that?

15 A. I do.

16 Q. Did I read that correctly?

17 A. Apparently.

18 Q. What plain and ordinary meaning of the
19 term intervals did you apply in rendering the
20 opinions set forth in your declaration?

21 A. I did not call out a particular
22 definition in my declaration.

23 Q. Well, at the time of filing of the '710
24 patent, how would a person of skill in the art
25 have understood the term intervals?

*** UNCERTIFIED ROUGH DRAFT ***

1 A. Probably the same way they understood
2 the term strings.

3 Q. What's your basis for that opinion?

4 A. Well, it says, a lighting system
5 comprising a plurality of strings of solid state
6 lighting devices arranged in a first direction
7 and positioned at intervals in at least one
8 second direction. So I think there's some
9 figures in the patent that illustrate this. Can
10 we go to the figures?

11 Q. Sure. Let's take a look at Figure 2.

12 A. There you go.

13 Q. In your opinion, are the solid state
14 lighting devices 206 extending in a first
15 direction left to right?

16 A. They appear to be. I think -- so I
17 think there's -- 204 -- I'll have to do a search.
18 I think 204 implies a string. I'm not sure.

19 Q. I believe the '710 patent does refer to
20 reference numeral 204 as strings.

21 So is it -- is it your understanding
22 that strings 204 of solid state lighting devices
23 206 extend in a first direction in Figure 2?

24 A. It looks like it.

25 Q. And that first direction being left to

*** UNCERTIFIED ROUGH DRAFT ***

1 right in the figure?

2 A. Or horizontally. I think 214 is --
3 points to a descriptor of one of those
4 directions. I'll have to look it up.

5 Q. That's fair.

6 In your opinion, are strings 204 of
7 solid state lighting devices 206 positioned at
8 intervals along a second direction, 216?

9 A. Yeah. So if you look at Column 8 of
10 the '710 patent, in about Line 33 or so where it
11 describes Figure 2. It says, there -- the
12 strings 204 can be generally arranged to extend
13 across the panel 200 in a first direction 214
14 from a first edge 210 to a second edge 211 [sic].
15 The strings 204 can be positioned at intervals
16 along a second direction 216.

17 So you can see 216 and 214 in Figure 2
18 and you also can understand what intervals mean.
19 So I think that answers all --

20 Q. A person of --

21 A. -- of your questions.

22 Q. Sorry. So at the time of filing of the
23 '710 patent how would a person with skill in the
24 art know whether strings of solid state lighting
25 devices are positioned at intervals relative to

*** UNCERTIFIED ROUGH DRAFT ***

1 one another?

2 A. I just read that sentence to you. '710
3 describes it. So it's -- so it says there --
4 those strings 204 could be positioned at
5 intervals along a second direction 216. In some
6 embodiments the strings 204 could be positioned
7 substantially parallel to one another. And some
8 other embodiments the first direction 214 could
9 be substantially or orthogonal to the second
10 direction 216.

11 So everything you need to know --
12 everything a person of ordinary skill in the art
13 needs to know about intervals and the
14 arrangements in the first direction or the second
15 direction are right there in Column 8, Line 33 on
16 is a description of Figure 2.

17 Q. In order for strings to be positioned
18 at intervals relative to one another, must they
19 be positioned substantially parallel to one
20 another?

21 A. It says in some embodiments so the
22 operative word is some which hopefully we don't
23 have to argue about too much. Some means not all
24 embodiments the springs 204 can be positioned
25 substantially parallel to one another. In some

*** UNCERTIFIED ROUGH DRAFT ***

1 other embodiments where the word some means not
2 all but some, other embodiments the first
3 direction can be substantially orthogonal to the
4 second direction 216. So I think that answers
5 your question.

6 Q. So in your opinion strings can be
7 positioned at intervals to one another without
8 being positioned substantially parallel to one
9 another, correct?

10 A. Well, you read that sentence again in
11 some other embodiments, the first direction can
12 be substantially orthogonal to the second
13 direction.

14 Q. That didn't answer my question,
15 Mr. Bohannon. In your opinion --

16 A. I'm sorry.

17 Q. -- can strings be positioned at
18 intervals to one another without being positioned
19 substantially parallel to one another?

20 MR. MASSAND: Objection to form.

21 A. Well, you asked the question in my
22 opinion and as far as I know, there is nothing in
23 my opinion or in my declaration marked Exhibit
24 2001 or 2003. There is no discussion of
25 intervals so I don't have an opinion on intervals

*** UNCERTIFIED ROUGH DRAFT ***

1 beyond what I just read to you out of the '710
2 patent description which I think should be
3 sufficient.

4 Q. So you haven't offered any testimony in
5 this case regarding intervals; is that correct?

6 MR. MASSAND: Objection to form.

7 A. Well, that's -- that's my
8 understanding. I could do another search on my
9 declaration and see --

10 Q. Sure. Go ahead.

11 A. -- if there is an opinion on interval.
12 There is some discussion of the claim language,
13 but there is no opinion as to what the word
14 interval means in my declaration.

15 Q. So in your declaration you have not
16 offered any opinions as to whether any prior art
17 reference discloses positioning strings of solid
18 state lighting devices at intervals, correct?

19 A. Right. That's what I said.

20 Q. What opinions have you offered
21 regarding whether the prior art references
22 disclose positioning solid state lighting devices
23 at intervals to one another?

24 A. Well, let me go there and tell you. So
25 I'm not sure but I think the first time I discuss

*** UNCERTIFIED ROUGH DRAFT ***

1 intervals where I say on Page 23 of my
2 declaration, Subheading B, the combination of
3 Shteynberg and Arai fails to disclose or render
4 obvious Claim 1A: A plurality of strings of
5 solid state lighting devices positioned at
6 intervals in at least one second direction.

7 So there's that. And I describe what
8 Shtenyberg -- Shtenyberg does or doesn't do.

9 Q. Do you offer any opinions as to whether
10 the any reference discloses positioning strings
11 of solid state lighting devices at intervals to
12 one another?

13 (This is a draft.)

14 A. So I say in Paragraph 58, In the
15 following passage, Arai is comparing the benefits
16 of LEDs over CCFLs as backlighting units. And I
17 have a quotation from them in which a large
18 number are two dimensionally raise point at the
19 back page. Such LED backlight -- nothing in
20 there about intervals. So there's really not
21 much in my declaration on intervals other than
22 pointing out the claim language and that the
23 property you -- you brought forward doesn't show
24 it.

25 Q. Can you specifically articulate where

*** UNCERTIFIED ROUGH DRAFT ***

1 for me in Paragraph 58 you render an opinion that
2 Arai does not disclose strings of solid state
3 lighting devices positioned at intervals?

4 A. So Arai doesn't really describe the
5 arrangements of the LEDs in -- in my opinion and
6 talks about two dimensionally arranged. Doesn't
7 say anything about strings or intervals. I
8 think -- my declaration doesn't have much in
9 there about intervals other than the fact that
10 the property doesn't show it.

11 Q. Mr. Bohannon, would now be a good time
12 for a break?

13 A. I'm willing to take a break whenever
14 you are.

15 Q. Yeah. Sure. Let's do it.

16 MR. LEE: Neal, that work for you?

17 MR. MASSAND: Sure.

18 MR. LEE: Take ten minutes.

19 (Whereupon, there was a recess in the
20 proceedings from 3:49 p.m. to 4:00 p.m.)

21 BY MR. LEE:

22 Q. Welcome back, Mr. Bohannon.

23 A. Thank you.

24 Q. Did you speak with anyone on the break?

25 A. I spoke to my wife about her schedule

*** UNCERTIFIED ROUGH DRAFT ***

1 this afternoon.

2 Q. Did you speak to anyone else aside from
3 your wife?

4 A. No.

5 Q. Thank you. I'd like to return to Claim
6 1 of the '710 patent, Exhibit 1001. Do you see
7 that on your screen?

8 A. I do.

9 Q. Do you see the closing clause of Claim
10 1 recites, the control system further including
11 firing logic configured to determine a firing
12 order of the plurality of strings? Do you see
13 that?

14 A. I do.

15 Q. Did I read that correctly?

16 A. I think you did.

17 Q. What plain and ordinary meaning of
18 firing logic did you apply in rendering the
19 opinions set forth in your declaration?

20 A. I'm not sure what I used there. I
21 think we need to look at the patent description
22 to see where it discusses firing logic.

23 Q. Well, let's take a look at -- let's
24 take a look at your declaration.

25 A. Okay.

*** UNCERTIFIED ROUGH DRAFT ***

1 Q. And I'll put a copy of that on the
2 screen. So I'm referring to Exhibit 2003. And
3 at Paragraph 66 you state, The '710 Patent
4 discloses firing logic as follows.

5 Do you see that?

6 A. I'm seeing it as you scroll through it.

7 Q. Well, and you've got a copy of your
8 declaration with you, correct?

9 A. I do.

10 Q. Feel free to consult that as well. So
11 you state in Paragraph 66, The '710 Patent
12 discloses firing logic as follows. And then it
13 appears that you quote Line -- Column 10, Lines
14 22 through 33 of the '710 patent.

15 Is that accurate?

16 A. Give me a minute to check. Yes. And
17 then further Figure 8 illustrates. But then
18 Paragraph 33 says, further, Figure 8 of the '710
19 Patent illustrates that the firing logic is
20 passed to the current driver which supplies
21 current signals to panel 810 according to the
22 firing logic. So --

23 Q. Okay. I want to refer to the excerpt
24 that you include in Paragraph 66 from Column 10,
25 Lines 22 through 23 of the '710 patent which you

*** UNCERTIFIED ROUGH DRAFT ***

1 say discloses firing logic.

2 A. Yeah.

3 Q. Do you see that in Paragraph 66 of your
4 declaration and on the screen now?

5 A. Control system 800. Yes, I do.

6 Q. And in that excerpt the phrase firing
7 logic only appears one time, correct? Excuse me.
8 Two times.

9 A. Firing logic -- control system can
10 include firing logic which -- if you look at the
11 '710 patent, firing logic is described as a
12 rule-based system that can determine a -- so
13 firing logic is used twice. It can determine a
14 firing order for the multiple strings. A firing
15 order may determine an order in which individual
16 strings or groups of strings are supplied
17 current.

18 Q. So --

19 A. Firing logic terminology includes this
20 rule-based logic stuff which is also in '710 and
21 I don't -- I know I quote it somewhere.

22 Q. So I want to ask about your Paragraph
23 66.

24 A. All right.

25 Q. You say, '710 Patent discloses firing

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1 logic as follows, A control system 800
2 selectively provides control signals to a current
3 driver 808 or other type of electrical power
4 supply circuit that responsively drives multiple
5 solid state lighting devices in a solid state
6 lighting panel 801. The control system 800 can
7 include firing logic 802 that can determine a
8 firing logic 802 that can determine a firing
9 order for the multiple strings. A firing order
10 may determine an order in which individual
11 strings of solid state lighting devices and/or
12 groups of strings of solid state lighting state
13 devices are supplied current.

14 Did I read that correctly?

15 A. I think you did.

16 Q. So based on your testimony in Paragraph
17 66, how does firing logic 802 determine a firing
18 logic 802 that can determine a firing order for
19 the multiple strings?

20 A. I think it's coming from the rule-based
21 logic.

22 Q. There's no reference to rule-based
23 logic in your Paragraph 66, correct?

24 A. Yeah, but I think it's implied.

25 Q. So what do you mean by rule-based

*** UNCERTIFIED ROUGH DRAFT ***

1 logic?

2 A. So if you were on that Column 10 in the
3 patent -- the '710 patent, if you go down to Line
4 51 it says, In some embodiments, the firing logic
5 802 can include rule-based logic that can
6 generate a non-spatially-sequential firing order.
7 For example, the rule-based logic may include a
8 rule that a second string fired after a first
9 string is not adjacent to the first string in the
10 panel 810. In some embodiments, the rule may be
11 that the first and second strings can be fired
12 simultaneously and are not adjacent one another.
13 And then it goes on it talk about other
14 embodiments or in some embodiments the panel
15 includes multiple bars, et cetera, et cetera. So
16 that -- that's the rule-based logic.

17 Q. What is rule-based logic?

18 A. I just read it to you.

19 Q. Is it a tangible thing?

20 A. So I don't have an opinion on
21 tangibility or whatever you're talking about.
22 I'm reading to you from the '710 patent, Column
23 10, Line 51. In some embodiments, the firing
24 logic can include rule-based logic that can
25 generate a non-spatially-sequential firing order.

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1 And then it gives other examples there and other
2 embodiments. So, I mean, when you want to know
3 what a term means or what something means, you
4 need to look to the patent description and read
5 it in light of the -- what's being claimed.

6 Q. And I'm trying to arrive at that
7 understanding from a person of skill in the art.

8 At the time of filing the '710 patent,
9 what would a person of skill in the art
10 understand rule-based logic to be?

11 A. Well, I didn't really expand upon my
12 opinion of rule-based logic other than knowing
13 that it's a part of the firing order. Let's see
14 if I go into it on my declaration. So my
15 declaration on Page 53, Paragraph 101 just goes
16 on and explains -- or explains in quotes that
17 Column 10, Line 51 through 57. You see that,
18 50- -- on Page 53 and 54 and I go on to say that
19 this demonstrates -- this is a couple lines down
20 on Page 54. This demonstrates that the '710
21 Patent describes more than just a simple
22 sequential firing of lighting elements as shown
23 in Kawabata. The '710 patent also describes
24 multiple other types of firing order that may be
25 used stating some embodiments can use firing

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1 logic to determine a firing order in a
2 deterministic fashion. Other embodiments may
3 contain a sequence generator that generates a
4 firing sequence. Other em- -- some embodiments
5 can include a polyphase power supply configured
6 to provide power to a emit- -- emitter strings in
7 a temporally distributed manner. And some
8 embodiments may include receiving a synchronizing
9 system from a display controller. Again, this is
10 quoting from Column 8, Line 5 through 16. So --

11 Q. So at the time of filing the '710
12 patent, what would a person with skill in the art
13 understand firing logic to be?

14 A. Well, firing -- I just read all that
15 stuff to you. You -- do I need to read it all
16 over again? I mean, it's quite clear in the
17 patent description.

18 Q. The patent describes what firing logic
19 does. My question to you is what would a person
20 of skill in the art understand firing logic to
21 be?

22 A. So the '710 -- this is in my Paragraph
23 101. '710 patent states as follows, in some
24 embodiments the firing logic can include
25 rule-based logic that can generate

*** UNCERTIFIED ROUGH DRAFT ***

1 non-spatially-sequential firing order. For
2 example, the rule-based logic may include a rule
3 that a second string is fired after a first
4 string is not adjacent to a first string in a
5 panel. So I don't know how to help you if you
6 can't understand that simple sentence.

7 Q. So in your opinion a person skill in
8 the art would understand firing logic to be a
9 rule?

10 A. I said a rule-based logic.

11 Q. At the time of filing the '710 patent
12 what would a person of skill in the art
13 understand rule-based logic to be?

14 A. I mean, that's -- that's incredibly
15 simple. I don't understand what your question
16 is.

17 Q. Well, explain it to me if it's so
18 simple. I'm sorry. I don't understand. What --
19 what would a person of skill in the art
20 understand rule-based logic to be?

21 A. So I -- I'll read that second sentence
22 since it's so clear. For example, the rule-based
23 logic may include a rule that a second string
24 fired after a first string is not adjacent to the
25 first string. So that's simple logic, kind of

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1 logic you could build into a gateway or
2 something. I mean, it's --

3 Q. Build into a what?

4 A. You could build into a -- some kind of
5 controller. You could program your controller to
6 have the rule. I mean, it's just simple logic
7 that would be easily put anywhere on a circuit.

8 Q. So it's your opinion that a person with
9 skill in the art would understand the rule-based
10 logic is a rule that can be input on a circuit?

11 MR. MASSAND: Objection to form.

12 A. That's not my -- that's not in my
13 declaration. I said the rule base -- rule-based
14 logic may include a rule -- a logical rule that
15 the second string is fired after the first string
16 not adjacent to the first -- first string. So,
17 you know, you've got a very simple logical terms
18 here that you could put anywhere in a system that
19 you are building. I don't understand what the
20 difficulty is.

21 Q. Can the firing logic be something other
22 than rule-based logic?

23 A. I -- so it says here, some embodiments
24 can use firing logic to determine a firing order
25 in a deterministic manner. Again, some

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1 deterministic manners are, like, rules, you know,
2 probably easier for you to understand perhaps.
3 Other embodiments can include a sequence
4 generator that generates a firing sequence. Some
5 embodiments can use a polyphase power supply
6 configured to provide power to strings in a
7 temporally distributed manner. Hopefully you
8 know what that means. Some embodiments may
9 include receiving a synchronizing signal from a
10 display controller. Moreover, in some
11 embodiments the subsequent firing of a string can
12 be determined by the location and/or dominant
13 wavelength of the previous fired string which is
14 kind of similar to that example they use in the
15 paragraph I read to you previously. I mean, all
16 this stuff is from '710 patent, Column 8, 5
17 through 16.

18 Q. So in that portion of the specification
19 the patent states that some embodiments can use
20 firing logic to determine a firing order while
21 other embodiments can use a sequence generator
22 that generates a firing sequence, correct?

23 A. Where did you read specifically?

24 Q. I read that from your declaration, Page
25 54.

*** UNCERTIFIED ROUGH DRAFT ***

1 A. Oh, there you go. Some embodiments
2 with include a sequence generator that generates
3 a firing sequence. Yeah.

4 Q. So firing logic is not the same as a
5 sequence generator, correct?

6 A. So some embodiments use a firing logic
7 to determine a firing order in a deterministic
8 fashion. A sequence generator that generates a
9 firing sequence. Poly phase power supply. So
10 there's all kinds of embodiments that use all
11 kinds of different logic. But rule-based logic
12 is one of them.

13 Q. Well, no I want to make sure I
14 understand this. You say, some embodiments can
15 use firing logic to determine a firing order in a
16 deterministic manner. Then you say, other
17 embodiments can include a sequence generator
18 to --

19 A. So the --

20 Q. -- that generates a firing sequence,
21 correct?

22 A. I'm quoting from the '710 patent at
23 Column 8, Lines 5 through 16.

24 Q. Understood.

25 So according to the '710 patent some

*** UNCERTIFIED ROUGH DRAFT ***

1 embodiments use firing logic while other
2 embodiments use a sequence generator, correct?

3 A. And in some embodiments the firing
4 logic can include rule-based logic, also as seen
5 in Column 10, Line 51 to 57.

6 Q. I -- I understand about that other
7 portion specification, and we'll discuss that
8 further. I'm referring to Column 8, Line 5
9 through 16 which you've reproduced in your
10 declaration where you state, some embodiments can
11 use firing logic while other embodiments can use
12 a sequence generator, correct?

13 A. Other embodiments can include a
14 sequence generator. It doesn't say use
15 exclusively.

16 Q. Is a sequence generator different from
17 firing logic?

18 A. So let me look at the claim again. So
19 which claim were you reading from?

20 Q. I'm reading from your Page 54 in your
21 declaration.

22 A. I know you are. This is all related to
23 the firing logic claim. You're trying to gin up
24 some kind of limitation on something. I can't
25 get it to spring to mind. Oh, firing logic,

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1 Claim 1(d).

2 So what was your question again?

3 Q. My question is referring to your Page
4 54 in your declaration wherein you state, some
5 embodiments can use firing logic to determine a
6 firing order while other embodiments can use a
7 sequence generator that generates a firing
8 sequence.

9 My question is, is firing logic
10 different than a sequence generator?

11 A. I think that firing logic -- the word
12 firing logic contains all of those things that
13 were described that were being argued about.

14 Q. So in your opinion firing logic
15 includes a sequence generator?

16 A. It includes a rule-based logic, it
17 includes a polyphase generator or whatever the --
18 whatever the exact words were. It's pretty
19 broad.

20 Q. What is a sequence generator?

21 A. I think that's a plain and ordinary
22 meaning easily understood.

23 Q. What is it?

24 A. I think it speaks for itself.

25 Q. Explain it to me.

*** UNCERTIFIED ROUGH DRAFT ***

1 A. Generates a sequence. I mean...

2 Q. What is it? That's what it does. What
3 is it?

4 A. Some part of a circuit or something in
5 a controller. I mean, there's -- I don't go into
6 any great detail the implementation of -- of
7 these -- of this technology. I don't give a
8 design review. I don't do a proposed design for
9 it. I read --

10 Q. So your opinion that --

11 A. -- the patent descript- --

12 (Reporter asks to repeat.)

13 A. I read the claims and I read the patent
14 description and try to understand what the claims
15 mean. I'm not building a system in my garage.

16 Q. So it's your opinion that firing logic
17 as used in the '710 patent can be any part of a
18 see -- a circuit that generates a firing
19 sequence?

20 A. I wouldn't call it a circuit per se. I
21 wouldn't limit it to that. I think the '710
22 patent calls it a part of the controller. I
23 mean, if you look at Figure 8, it says, control
24 system 800 and then that control system 800 has a
25 box 802 that says, firing logic. So it's, like,

*** UNCERTIFIED ROUGH DRAFT ***

1 a simple block diagram with a box inside a box
2 that then connects to the current driver and then
3 which connects to the array of LEDs so Figure
4 8 --

5 Q. So in --

6 A. -- kind of --

7 Q. In your -- are you finished?

8 A. I'll stop.

9 Q. In your opinion, firing logic in the
10 '710 patent refers to any part of a circuit or a
11 control system that can generate a firing
12 sequence?

13 A. Well, it has the rule-based logic and
14 all the other stuff in there. I mean, look at
15 Figure 8. It's a box inside a box. It's pretty
16 simple. It's described simply. It's depicted
17 simply. It's a -- it's a box inside a box so you
18 have to use your imagination if you want to know
19 how it's implemented.

20 Q. So a person of skill in the art would
21 have to use their imagination to understand what
22 firing logic in the '710 patent refers to?

23 A. Well, go to Figure 8. Can you scroll
24 to Figure 8? I mean, it's in my declaration on
25 Page 51. There you go. So you can see, control

*** UNCERTIFIED ROUGH DRAFT ***

1 system, which is called out with an 800 has a
2 box. There's no indication as to what control
3 system consists of. And the box within that
4 control system box says, firing logic, called out
5 802. So that's -- that's about it in terms of a
6 block diagram for what that is. And then there's
7 all the descriptions in Columns 8 through 10 that
8 describe firing logic and all the sequence
9 generators and rule-based logic, et cetera,
10 et cetera, polyphase generates and all that
11 stuff.

12 Q. So a person of skill in the art at the
13 time of filing the '710 patent would understand
14 that firing logic includes rule-based logic as
15 part of a circuit or control system that
16 generates a firing sequence?

17 A. We're basically reading from Paragraph
18 51, right. No, It's not 51. It's -- I forget
19 where we were.

20 Q. Was that a yes or no, Mr. Bohannon?

21 MR. MASSAND: Objection to form.

22 A. I --

23 Q. I'm happy to repeat the question if
24 that would be helpful.

25 A. That would be helpful.

*** UNCERTIFIED ROUGH DRAFT ***

1 Q. So at the time of filing the '710
2 patent a person of skill in the art would
3 understand that firing logic includes a
4 rule-based logic in a circuit or control system
5 that generates a firing sequence?

6 A. Well, I want to see exactly how that's
7 described in the -- I can't scroll around on
8 that. I can only search manually through my own
9 thing here so I can answer you precisely.

10 Q. Well, explain to me. What would a
11 person of skill in the art understand firing
12 logic to be at the time of the filing of the '710
13 pat- -- '710 patent?

14 A. Let me find the part again. So we have
15 this stuff on Column 10 if I'm looking at my
16 declaration Page 53 and 54 where the seven Patent
17 states as follows: In some embodiments, the
18 firing logic can include rule-based logic. Then
19 it explains what the rules are and also describes
20 multiple other times of firing logic that may be
21 used including firing logic to determine a firing
22 order in a deterministic manner. Other
23 embodiments can include a sequence generator.
24 Some embodiments can include polyphase power
25 supply configured to provide power to emitter

*** UNCERTIFIED ROUGH DRAFT ***

1 strings in a temporally distributed manner. And
2 some embodiments can include receiving a
3 synchronizing signal from a display controller.
4 Moreover, some embodiments, the subsequent firing
5 of a string can be determined by the location
6 and/or dominant wavelength of a previously fired
7 string. So there's a whole bunch of stuff that
8 goes into firing logic.

9 Q. And it's your opinion that a person
10 with skill in the art would understand that
11 firing logic includes all of that stuff that you
12 identify in Paragraph 101 of your declaration?

13 A. Well, it can include or it may include.
14 It doesn't say that -- that everything has to
15 have everything. It says can and may. Can use,
16 can include, can be determined. So it's not like
17 everything has to have everything or it all
18 doesn't have -- firing logic doesn't have to have
19 every bit of everything in there.

20 Q. So in your opinion, firing logic -- one
21 example of firing logic could be a polyphase
22 power supply?

23 MR. MASSAND: Objection to form.

24 A. So some embodiments can include a
25 polyphase power supply configured to provide

*** UNCERTIFIED ROUGH DRAFT ***

1 power to emitter strings in a temporally
2 distributed manner. I'm not quite sure -- clear
3 if that's a part of the firing order box or a
4 separate box by itself. I mean, that's --

5 Q. So you're --

6 A. Include receiving a synchronizing
7 signal from a display controller is not -- this
8 is something different from firing logic but it's
9 not clear. But all in all, I think it is clear
10 that the firing logic can include a whole bunch
11 of stuff.

12 Q. Is there any requirement on what that
13 stuff must be or must do in order for it to be
14 firing logic?

15 A. There is no limitation.

16 Q. I want to go to Paragraph 66 of your
17 declaration where you state -- do you see
18 Paragraph 66 on the screen here on Page 32 of
19 your declaration?

20 A. Yeah. I see that.

21 Q. And you state, Figure 8 of the '710
22 Patent illustrates that the firing logic is
23 passed to the current driver 808. And you've got
24 a cop- -- a figure -- a copy of Figure 8 in your
25 declaration?

*** UNCERTIFIED ROUGH DRAFT ***

1 A. I see that.

2 Q. How is the firing logic 802 passed from
3 control system 800 to current driver 808?

4 A. You -- which paragraph are you reading
5 the passed from?

6 Q. Immediately above in Paragraph 66 you
7 state, Figure 8 of the '710 Patent illustrates
8 that the firing logic is passed to the current
9 driver 808.

10 And my question to you is, how is the
11 firing logic passed from control system 800 to
12 current driver 808?

13 A. Well, it doesn't show. You know, these
14 are very simple block diagrams so like I said
15 before, you wanted to know how the firing logic,
16 that little box inside a box, contains all the
17 other stuff, you're going to have to use your
18 imagination. I didn't build one of these in my
19 garage to see how it's done, but it's clear that,
20 you know, the firing logic impacts the current
21 driver so there's got to be some connection
22 somewhere. It's just not shown.

23 Q. Well, respectfully, Mr. Bohannon, you
24 state, Figure 8 --

25 A. Yeah, I know.

*** UNCERTIFIED ROUGH DRAFT ***

1 Q. -- of the '710 Patent illustrates that
2 the firing logic is passed to the current driver
3 808.

4 So I'm asking you, how does Figure 8
5 illustrates that the firing logic is passed to
6 current driver 808?

7 A. So see that arrow that goes from
8 control system 800 down to current driver?

9 Q. Yes.

10 A. That's how it's passed.

11 Q. So it's your understanding that
12 firing -- firing logic 802 physically or
13 electronically leaves the control system and
14 travels or is transmitted to the current driver
15 808, correct?

16 A. Completely wrong. What Figure 8 shows
17 is that firing logic is a part of the control
18 system. It's a part of the control system and
19 the control system when it needs to control the
20 current driver, there is a -- a connection
21 between the control system to the current driver.
22 That's how that's passed. So the firing logic is
23 a part of the control system. That's what this
24 is showing and that's what --

25 Q. So --

*** UNCERTIFIED ROUGH DRAFT ***

1 A. -- is in the patent.

2 Q. So how is the firing logic passed to
3 the current driver?

4 A. I said that. I already answered that,
5 through that arrow. You see the arrow between
6 the control system to the current driver. That's
7 how it's passed.

8 Q. So the rule-based logic is passed to
9 the current driver 808?

10 A. The rule-based logic is used to
11 determine the firing order, right.

12 Q. You -- you --

13 A. It's clear.

14 Q. -- testified -- you opine that firing
15 logic is passed between a control system 800 and
16 current driver 808. And I want to understand
17 what is the tangible thing that is being passed
18 between control system 800 and current driver 808
19 in your opinion?

20 A. I'm looking for it again. We keep
21 bouncing back and forth from page to page so -- I
22 have it picked out. So the rule-based logic --
23 the firing logic, you know, too, can include the
24 rule-based logic that can generate
25 un-spatially-sequential firing order. That's

*** UNCERTIFIED ROUGH DRAFT ***

1 from Line 53 or 50- -- 53 in Column 10 of the
2 '710 patent. So that firing order information is
3 passed from the 800, the control system, to the
4 current driver.

5 Q. What is that? Is that code that's
6 being passed? Is that bits of data that's being
7 passed? Is that an algorithm that's being paced?
8 What's being passed?

9 A. I couldn't understand the words you
10 were shouting.

11 Q. What is actually being passed? Is it
12 software code? Is it an algorithm? Is it bits
13 of data? What is -- what is being passed between
14 the control system and the current driver?

15 (This is a draft.)

16 A. So let me try and help you out here.
17 So it says on Line 25 in Column 10, control
18 system 800 selectively provides control signals
19 to a current driver or other type of electrical
20 power supply circuit that responsibly drives
21 multiple solid state -- any devices in a solid
22 state lighting panel 810. So the control system
23 selectively provides control signals so that's
24 what's on that arrow that you see in that Figure
25 8 that goes from the control system 800 to the

*** UNCERTIFIED ROUGH DRAFT ***

1 current driver 808. Contained within 800 -- this
2 is Line -- read- -- reading from Line 28 or so.
3 The control system 800 can include firing logic
4 802 that can determine firing order for multiple
5 strings, and goes on to that whole big discussion
6 that we've been having on firing order,
7 rule-based logic, et cetera, et cetera,
8 et cetera. But your big hot question for what's
9 being passed is control signals. Control system
10 800 selectively provides control signals and I
11 don't think --

12 Q. So --

13 A. -- it's a mystery.

14 Q. I agree, Mr. Bohannon. I think the
15 '710 patent is very clear that control signals
16 are being passed between control system 800 and
17 current driver 808. However, in your
18 declaration, you state that firing logic is
19 passed to the current driver 808. So I'm trying
20 to understand based on your testimony in addition
21 to control signals what is being passed from
22 control system 800 to current driver 808. Is it
23 a rule? Is it an algorithm? Is it software
24 code? What is it?

25 A. The control system provides control

*** UNCERTIFIED ROUGH DRAFT ***

1 signals. Contained within a control system is
2 firing logic that can determine a firing order.
3 That's what's going to be in those control
4 systems are the control signals. So where --
5 which paragraph is the one that's got the passed
6 to -- on it?

7 Q. I'm referring to your Paragraph 66,
8 Figure 8 of the '710 Patent illustrates that the
9 firing logic is passed to the current driver 808.

10 A. Which page is that on?

11 Q. That's on Page 32 of your declaration.

12 A. So Figure 8 of the '710 patent
13 illustrates that the firing logic is passed to
14 the current controller [sic]. Yeah. Which
15 provides current signals to the panel. So
16 it's -- it's clear. It's absolutely clear. I
17 don't understand what your confusion is.

18 Q. I'm trying to understand what is
19 passed --

20 A. I told you --

21 Q. -- to the current driver.

22 A. -- ten times. Sorry.

23 Q. I'm trying to figure out what is passed
24 by this firing logic. Is it software code? Is
25 it bits of data? Is it an algorithm? Is it a

*** UNCERTIFIED ROUGH DRAFT ***

1 rule? What -- what is this firing logic that is
2 being passed to the current driver in your
3 opinion?

4 MR. MASSAND: Objection to form.

5 A. Control signals.

6 Q. So the firing logic is a control
7 signal?

8 MR. MASSAND: Objection to form. Is
9 there a question pending?

10 BY MR. LEE:

11 Q. Do you need me to repeat my question?

12 A. I don't know what question you've got.

13 Q. So it's your testimony that the firing
14 logic that is being passed to current driver 808
15 in Figure 8 of the '710 patent is control
16 signals?

17 MR. MASSAND: Objection to form.

18 A. So I think I've answered that question.

19 Q. Respectfully I don't believe you have.
20 Mr. Bohannon, is it your opinion that the firing
21 logic that you testified as being passed to the
22 current driver 808 in Figure 8 of the '710 patent
23 is control signals --

24 MR. MASSAND: Objection to form.

25 BY MR. LEE:

*** UNCERTIFIED ROUGH DRAFT ***

1 Q. -- correct?

2 A. So the '710 patent describes the arrow
3 that goes from the controller to the drivers --
4 current drivers as control signals. The firing
5 logic is a part of the controller. So there is
6 no information other than what's in -- contained
7 in the '710 and I'm not making stuff up just to
8 please you.

9 Q. Well, I'm confused. You've testified
10 that the firing logic is part of the controller
11 but you've also testified --

12 A. Yes.

13 Q. -- expressly that Figure 8 of the '710
14 patent illustrates that the firing logic in the
15 controller is passed to the current driver.

16 So I'm trying to understand what firing
17 logic in your opinion is being passed to the
18 current driver.

19 A. So I told you that in my opinion as
20 described in my declaration that the controller
21 passes control signals to the -- what's described
22 as the current driver.

23 Q. So in your opinion, the firing logic
24 passed to the control -- current driver 808 is in
25 the form of control signals?

*** UNCERTIFIED ROUGH DRAFT ***

1 MR. MASSAND: Objection to form.

2 A. So that comes straight out of the '710
3 patent.

4 MR. LEE: Okay. I've got no further
5 questions at this time, Mr. Bohannon.

6 MR. MASSAND: We have no questions at
7 this time and, Lisa, we do not need a transcript
8 but we will read and sign so for whatever version
9 of that is free.

10 (End at 4:47 p.m.)

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