

In the Matter Of:

Jesco Lighting Group, LLC, vs

AGS Lighting Management, LLC

DR. THOMAS KATONA

July 02, 2026



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

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JESCO LIGHTING GROUP, LLC,

Petitioner,

VS.

Case No. IPR2025-01328
Patent No. 11,751,302

AGS LIGHTING MANAGEMENT LLC,

Patent Owner.

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REMOTE DEPOSITION

OF

DR. THOMAS KATONA

Thursday, July 2, 2026

Reported by:

AYLETTE GONZALEZ, RPR, CLR, CCR
JOB NO. 2026-1029083

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DATE: July 2, 2026

TIME: 10:00 a.m.

Remote deposition of DR. THOMAS
KATONA, pursuant to NOTICE, before AYLETTE
GONZALEZ, a Registered Professional
Reporter, Certified LiveNote Reporter,
Certified Court Reporter and Notary Public
of the States of New York, New Jersey,
Pennsylvania, Delaware and Texas.

1 R E M O T E A P P E A R A N C E S:

2

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4 Counsel for JESCO LIGHTING GROUP, LLC

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10

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13 5373 W Alabama Street

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15 BY: BRADLEY S. BOWLING, ESQ.

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17

18

19 ALSO PRESENT:

20 KIMBERLY VILLALOBOS, Doc Tech

21

22

23

24

25

1 DR. KATONA (7/2/2026)

2 T H O M A S K A T O N A ,

3 called as a witness, having been duly sworn

4 by a Notary Public, was examined and

5 testified as follows:

6 EXAMINATION

7 BY MR. WASSERMAN:

8 Q. Thank you, Dr. Katona. I know
9 it's early on the West Coast.

10 So I am going to just start by
11 putting in two -- well, firstly actually,
12 Dr. Katona, can you tell me where you're
13 located right now?

14 A. I'm in San Luis Obispo,
15 California.

16 Q. Okay. Do you have any
17 materials with you physically in front of
18 you?

19 A. I have a copy of both of my
20 declarations.

21 Q. Okay. And I'm assuming you're
22 doing this Zoom on a computer. Do you have
23 anything else open on your computer other
24 than the Zoom?

25 A. So I have -- well, I have my

1 DR. KATONA (7/2/2026)

2 email open because I needed to get to the
3 link. I can close that now.

4 Q. Yeah, I'd appreciate that.

5 A. And then I have one copy of the
6 corrections to my declaration that were
7 sent to you, I believe, yesterday at some
8 point, which I could also close.

9 Q. If you close your email, you
10 can leave the other documents open if you'd
11 like.

12 A. Okay. Yes. The email is
13 closed.

14 Q. Okay. Do you have a cellphone
15 or any other type of communication device
16 out?

17 A. No. My phone is turned off.

18 Q. All right. Thank you,
19 Dr. Katona.

20 Is it true you've submitted two
21 declarations in this proceeding; your
22 original declaration marked Exhibit 2018
23 and a supplemental declaration marked 2025?

24 Why don't I put those in the
25 chat rather than make you recall them from

1 DR. KATONA (7/2/2026)

2 memory.

3 MR. BOWLING: Yeah. He may not
4 know the PTAB exhibit numbers from
5 memory.

6 MR. WASSERMAN: Okay.

7 Q. So I've put in the chat
8 Exhibits 2018 and 2025. Can you open these
9 and confirm that these are your
10 declarations?

11 A. So Exhibit 2018, correct. And
12 yes, the Exhibit 2025 also looks correct.

13 Q. Sitting here today, are there
14 any corrections or changes you'd like to
15 make to either declaration?

16 A. Changes beyond the ones that
17 were sent yesterday or including those?

18 Q. I guess --

19 MR. BOWLING: I only sent over
20 the picture, Dr. Katona. I haven't
21 sent over the textual ones we talked
22 about.

23 THE WITNESS: I see. Okay.

24 A. So yes, there are four
25 corrections.

1 DR. KATONA (7/2/2026)

2 Q. Okay. Can you tell me what
3 those are?

4 A. Yes. In Exhibit 2018.

5 Q. Okay.

6 A. On paragraph nine, there's
7 wording of -- it says "'047 patent," which
8 should have said '302 patent.

9 Q. Okay. Can I ask you -- let me
10 ask you about that. Have you previously
11 opined on an '047 patent?

12 A. I don't recall. I mean I've
13 opined on a number of patents. I don't
14 remember if there was an '047.

15 Q. Okay. Do you think that that
16 reference to the '047 patent came from
17 counsel?

18 A. I'm really not sure.

19 Q. Okay.

20 A. And then -- sorry.

21 Q. Sorry, please go ahead.

22 A. In paragraph 12, it says,
23 "October 2013," and should have said
24 June 2020.

25 Q. Okay.

1 DR. KATONA (7/2/2026)

2 A. On paragraph 158, are you
3 there?

4 Q. Yes.

5 A. Okay. On paragraph 158 where
6 it says, "two different sized LEDs," should
7 have said two different sized lighting
8 apparatuses.

9 And then in Exhibit 2025, on
10 paragraph 67, where it says, "700 Kelvin,"
11 it should have said 2700 Kelvin.

12 Q. Okay. Were that any other
13 changes to your declarations?

14 A. Just the correction to the
15 figure that Mr. Bowling, I believe, sent
16 you.

17 Q. Who prepared the first draft of
18 each -- starting with Exhibit 2018, who
19 prepared the first draft of that
20 declaration?

21 A. So I prepared the report with
22 the assistance of counsel and all the
23 opinions in it are my opinions.

24 Q. Right. Who prepared the first
25 draft though?

1 DR. KATONA (7/2/2026)

2 A. I prepared the report with my
3 counsel and all the opinions in it are my
4 opinions.

5 Q. Okay. Were there multiple
6 drafts prepared in the course of preparing
7 this report?

8 A. There were different sections
9 sent back and forth, and yeah, a number of
10 different versions sent around in preparing
11 this.

12 Q. Okay. How many hours did you
13 spend preparing these two declarations?

14 A. I don't know the exact hours.
15 I would estimate the first declaration,
16 probably maybe somewhere between 40 to 60
17 hours, something like that. Yeah, I don't
18 remember the numbers. And the second one
19 was maybe like 30 to 40, yeah.

20 Q. What was your hourly rate for
21 that work?

22 A. My hourly rate was \$450 per
23 hour.

24 Q. All right. I'd like to talk a
25 little bit about your background,

1 DR. KATONA (7/2/2026)

2 Dr. Katona.

3 Let's start with your
4 education. Did you go to college for an
5 undergraduate degree?

6 A. Yes.

7 Q. Where did you go to college?

8 A. I studied at Westmont College,
9 which is in Santa Barbara, California, and
10 I studied physics, engineering physics.

11 Q. Did you earn a degree in
12 physics?

13 A. I did.

14 Q. After you received that
15 undergraduate degree, what did you do next?

16 A. I went to work.

17 Q. Okay. Where did you work?

18 A. I worked for Hughes Aircraft
19 which later became Raytheon, we were
20 acquired by Raytheon.

21 Q. How long were you at Hughes
22 Aircraft?

23 A. Let's see, I started in January
24 of '97, and I think I finally -- I think I
25 left around '99 or 2000.

1 DR. KATONA (7/2/2026)

2 Q. And after you left Hughes
3 Aircraft, what did you do?

4 A. I went to graduate school.

5 Q. Okay. Where did you go to
6 graduate school?

7 A. I had been going to UC --
8 University of California, Santa Barbara
9 actually part-time while I was working, and
10 so I continued on in my graduate program
11 there. So I was already -- I had already
12 started my master's program before leaving
13 Hughes Aircraft.

14 Q. And in paragraph four, you say
15 that your graduate work -- I'm referring to
16 paragraph four of Exhibit 2018. You wrote
17 that your graduate work included work
18 developing, characterizing, and testing
19 optical semiconductors including LEDs and
20 lasers. Can you describe that work?

21 A. Beyond that description?

22 Q. Beyond that description.

23 A. So it included what's called
24 metalorganic chemical vapor deposition
25 growth of light emitting diodes and laser

1 DR. KATONA (7/2/2026)

2 diodes. And then after you grow a
3 semiconductor optical emitter, you have to
4 process it in a clean room, so
5 nanofabrication work, and then you
6 typically characterize these things with
7 microscopy equipment. So I learned various
8 microscopic techniques for analyzing LEDs
9 and lasers.

10 After that you have to test the
11 devices so there's electrical and optical
12 test equipment that you have to use, so I
13 learned how to do that. And then
14 eventually you typically package these
15 devices, and while that wasn't our bread
16 and butter, we worked with some corporate
17 partners that would package devices and
18 supply those backs, so we had end devices
19 for, again, optical and electrical testing.

20 Q. And when you say "end devices,"
21 can you give me a sense of what an end
22 device would be?

23 A. In the context of my graduate
24 work, it was typically a packaged light
25 emitting diode. Sometimes we would make

1 DR. KATONA (7/2/2026)

2 mockup sort of systems with those and then
3 we -- as an example, we took some of those
4 and made some lighting systems for our
5 marine biology department that was doing
6 some studies on ocean life response to
7 light, and so those were taken out to
8 Marea, taken down in the water and used.

9 Q. Got it.

10 So when you finished your
11 graduate work, what did you do?

12 A. I took a job.

13 Q. Okay. And where was that job?

14 A. Sensor Electronic Technology.

15 Q. Okay. And what were your
16 positions there?

17 A. It was the research and
18 development program manager. I don't
19 remember if that was my exact title, but I
20 believe that it was the title. My CV is
21 not in front of me. And yeah.

22 Q. I'd like to talk to you about
23 your time at Soraa. You described Soraa as
24 a vertically integrated lighting company.
25 What does "vertically integrated" mean?

1 DR. KATONA (7/2/2026)

2 A. It means that we did
3 everything. We designed and built
4 everything internally, so we had everything
5 from substrate development and
6 manufacturing, which is the -- when I was
7 describing the metalorganic chemical vapor
8 deposition growth, you grow that material
9 on a substrate. In graduate school, we
10 would buy the substrates. At Soraa, we
11 actually made the substrates.

12 And then we did all of the
13 processes that I previously described to
14 make LED, packaged LEDs, but in addition to
15 that, we designed -- our actual product was
16 a lighting product that then integrated the
17 LEDs that we made into that product. So I
18 guess --

19 Q. Sorry, please go ahead.

20 A. Just so to answer your question
21 about vertically integrated, most companies
22 only do one or two parts of that. It's
23 unusual to do all of it.

24 Q. So can you tell me a little bit
25 more about the fixtures that Soraa made?

1 DR. KATONA (7/2/2026)

2 Were they a particular type of fixture?

3 A. The initial one that we made
4 was called an MR16, and so it's a -- the
5 type of light that you would typically find
6 or most commonly find in retail locations,
7 restaurants, hotel lobbies, those types of
8 places.

9 Q. So on paragraph six, you say
10 that Soraa internally developed and
11 manufactured LED chips and white light LED
12 packages.

13 Can you explain to me what a
14 "white light LED package" is?

15 A. You said paragraph six?

16 Q. Yes. This would be Exhibit
17 2018.

18 A. Yeah. So it's -- I mean what
19 we made at Soraa that was a white light LED
20 package was an array -- ours was an array
21 of chips. It doesn't have to be an array,
22 but ours were. An array of chips on a
23 packaging material.

24 The chips are coated by a
25 phosphor material as the encapsulation or

1 DR. KATONA (7/2/2026)

2 actually the phosphor is embedded in the
3 encapsulation. And when you turn the LED
4 on, it emits white light.

5 Q. And can you explain to me a
6 little bit about how the phosphor works or
7 what the purpose of the phosphor is?

8 A. The phosphor absorbs some of
9 the light emitted by the LED die or LED
10 chips, and then converts that light to a
11 different wavelength, a longer wavelength,
12 and the combined spectrum of the LED die or
13 chips with those spectrum from the
14 phosphors appears white to the observer.

15 Q. How many people worked at Soraa
16 while you were there?

17 A. When I started there, I think
18 we had about ten people and when I left
19 there, we had -- we were somewhere between
20 150 to 200.

21 Q. Okay. How many people at Soraa
22 were -- I don't know -- I guess how many
23 would you describe as being engineers?

24 A. I mean this is going to be a
25 very loose answer because --

1 DR. KATONA (7/2/2026)

2 Q. Sure.

3 A. -- I wasn't in charge of HR.

4 Q. Of course.

5 A. I would estimate -- well when I
6 started there, you know, probably 85
7 percent and when I left there, it was
8 probably 65 percent.

9 Q. Did the engineers at Soraa
10 typically have undergraduate degrees in a
11 science or engineering field?

12 A. Many of them did.

13 Q. Would you say most did?

14 A. Yeah. I mean so we hired
15 heavily out of the program that I came out
16 of, so yeah.

17 Q. Okay. In paragraph six, you
18 said you were involved in the development
19 of LED die, packages, and the lighting
20 products and their transitioning to
21 manufacturing.

22 Can you tell me a little bit
23 more about what that entailed?

24 A. So the LED die, similar
25 processes to what I described for the -- my

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2 grad work, which is you've got
3 semiconductor growth, MOCVD growth. We had
4 a -- we built a fabrication facility, so we
5 did all of the microfabrication in-house.

6 And then had the same types of
7 characterization tools as what we had at UC
8 Santa Barbara. Although when I joined, we
9 did all of our -- we contracted with UCSB
10 to use their clean room and
11 characterization facilities because we
12 didn't have the money to buy those pieces
13 of equipment yet.

14 And then the packaging, we did
15 the design in-house and contracted with a
16 manufacturer to actually do the assembly.
17 So we would make prototypes, but we didn't
18 have the production facilities for that.

19 Q. Okay. Did all of Soraa's
20 products have the phosphor embedded in the
21 package?

22 A. Yes.

23 Q. Okay. So have you heard the
24 term spatial uniformity in the context of
25 LED fixture design?

1 DR. KATONA (7/2/2026)

2 A. I mean I've heard of people
3 talk about spatial uniformity in many
4 contexts.

5 Q. Have you heard about it in the
6 context of a lighting fixture design?

7 A. Probably also in many contexts
8 within that, I would assume. It's a pretty
9 broad -- those are two pretty broad terms.

10 Q. So, say, I have a -- we were
11 talking before about an MR16 fixture. How
12 many LEDs would be in a typical MR16
13 fixture?

14 MR. BOWLING: Objection. Form.

15 A. There isn't a set number.

16 Q. Okay. How many would be in the
17 ones that you made at Soraa?

18 A. Packaged white LEDs?

19 Q. Yes.

20 A. One.

21 Q. One.

22 How many individual LED chips
23 would be in the MR16 that you sold?

24 A. Well we sold a couple different
25 versions. I think we had on the order of

1 DR. KATONA (7/2/2026)

2 36 chips.

3 Q. So if someone were viewing one
4 of those MR16 lights, would they see a
5 bunch of small tiny lights or would it
6 appear as a single light source?

7 A. Well the light has a lens and a
8 diffuser on it, so I mean they just --
9 anyone looking at a light sees a light.
10 You don't see -- you don't see the package.

11 I mean you also don't see the
12 driver electronics. You don't see a lot of
13 stuff.

14 Q. So tell me about the lens.
15 Tell me about what the lens and the
16 diffuser do?

17 MR. BOWLING: Objection. Form.

18 A. So specifically in the Soraa
19 product --

20 Q. Right.

21 A. -- the lens was designed to
22 provide different beam angles.

23 Q. Okay. And what about the
24 diffuser?

25 A. In -- specifically again in the

1 DR. KATONA (7/2/2026)

2 Sora products, the diffuser when used,
3 which it wasn't always, was typically done
4 to try to reduce glare.

5 Q. All right. When you say
6 "reduce glare," what does that mean?

7 A. If a person stares at a really
8 bright light, it can be uncomfortable, so
9 glare is just reducing that effect, making
10 it washed out a bit.

11 Q. Okay. So when we spoke earlier
12 though, I asked if someone would say -- if
13 someone looking at that light would see a
14 bunch of smaller lights from all the
15 individual LED chips and you said that
16 there was a lens and a diffuser, so they
17 would see a single light source.

18 And so I'd like you to just
19 kind of explain to me what the lens and the
20 diffuser do such that people see a single
21 light source?

22 MR. BOWLING: Objection. Form.

23 A. Well, I mean, I think you've
24 mischaracterized a little bit in that if I
25 took the lens off, you also would see a

1 DR. KATONA (7/2/2026)

2 single light source, because as I did say
3 earlier, a product only had one LED.

4 Q. Right. But if you took the
5 diffuser off, would you still see a single
6 light source or would you see many
7 different light sources?

8 A. We made our products with one
9 white LED.

10 Q. Right. But would you see
11 lights from the individual LED chips that
12 there's no diffuser?

13 A. One white LED looks like one
14 white light.

15 Q. Okay. So clarify for me, was
16 the diffuser part of the package or was
17 that something external to the package?

18 A. The optic is not part of the
19 white LED.

20 Q. Okay. So the individual white
21 LED has the -- as you said, had a lot of
22 smaller LED chips. What is it that causes
23 it to appear as a single white source as
24 opposed to many smaller LED chips?

25 MR. BOWLING: Objection. Form.

1 DR. KATONA (7/2/2026)

2 A. The package itself brings all
3 the sort of encapsulation, phosphor, and
4 chips together to make a single white LED.

5 Q. Okay. Did Soraal sell any
6 products that were capable of multiple
7 color temperature settings?

8 A. Not while I was there.

9 Q. So in paragraph six, you said
10 you were responsible for competitive
11 analysis of both LED and lighting products,
12 which included tear-down analysis and
13 product testing.

14 Can you tell me a little bit
15 more about what that task involved?

16 A. So at the time I was traveling
17 to Japan quarterly roughly and they were
18 releasing LED lighting products, I would
19 say, faster than they were in the U.S., so
20 I would typically bring products back and
21 we would -- yeah, I would take them apart,
22 do an analysis, put together a report on
23 what types of products people were bringing
24 out, what LEDs they were using within
25 those, how they were combining them,

1 DR. KATONA (7/2/2026)

2 benchmark performance of both the LEDs and
3 the lighting products so that we were aware
4 of what was going on in the industry.

5 Q. Did any of those products
6 include multiple LED packages?

7 A. I would say the majority of
8 them did.

9 Q. Okay. If a viewer were using
10 one of those products, would they see the
11 individual LED packages as white sources or
12 would they see a single light source?

13 MR. BOWLING: Objection. Form.

14 A. Depending on the product, it
15 could be either.

16 Q. So for the products where they
17 would see a single light source, how was
18 that affect achieved?

19 A. It could have been achieved in
20 a couple different ways, yeah.

21 Q. Could you tell me some of those
22 ways?

23 A. Putting plastic sheets that are
24 foggy or fuzzy over top of the sources.

25 Q. Are there other ways that they

1 DR. KATONA (7/2/2026)

2 could have done that?

3 A. I'm sure there are other ways.

4 Q. Are there any others that you
5 recall?

6 A. Moving the sources further away
7 from or recessing them into the lighting
8 product if there's space, so that they
9 appear close together from someone -- by
10 somebody far away.

11 Q. Are there any other solutions
12 you can recall?

13 A. Not that I recall.

14 Q. Okay. For the products that
15 you developed at Soraa, was thermal
16 management a concern?

17 A. Yes, thermal management was a
18 concern.

19 Q. What kinds of solutions did you
20 use for thermal management?

21 A. Material selection, heat
22 syncing.

23 Q. Would you say that those were
24 typical approaches for thermal management?

25 MR. BOWLING: Objection. Form.

1 DR. KATONA (7/2/2026)

2 A. I don't know about typical.
3 People were trying a lot of different
4 things for thermal management.

5 Q. Okay. And the product you tore
6 down, did some of them have heat syncs?

7 A. There were various designs to
8 the products that I tore down.

9 Q. Okay. Did some of them have
10 heat syncs?

11 A. I'm sure some of the products
12 had heat syncs.

13 Q. Did some of them have materials
14 that were designed to dissipate heat?

15 A. There were many different
16 materials used in the products.

17 Q. Do you think some of them were
18 selected to dissipate heat?

19 MR. BOWLING: Objection. Form.

20 A. I don't want to speculate on
21 products I didn't design, but it's
22 probable.

23 Q. So going back to these products
24 that you tore down, did any of these
25 products include functionality over

1 DR. KATONA (7/2/2026)

2 multiple color temperatures?

3 A. I don't recall. I don't
4 believe so, but I don't recall.

5 Q. Okay. Do you recall if any of
6 these products had phosphors that were
7 located outside the package?

8 MR. BOWLING: Objection. Form.

9 A. I don't believe so.

10 Q. Okay. All right. After Soraa,
11 where did you go?

12 A. I'm sorry, yes, there was one
13 product that had a phosphor located
14 outside.

15 Q. Okay. How many products was
16 that though? Do you have any sense? Was
17 it 20 products that you tore down, 50, 10?

18 A. Probably between 25 to 50.

19 Q. So after Soraa, where did you
20 go?

21 A. NEXT Lighting.

22 Q. What kinds of products did NEXT
23 Lighting sell?

24 A. Our primary product was a
25 linear fluorescent replacement lamp.

1 DR. KATONA (7/2/2026)

2 Q. Okay.

3 A. Using LEDs.

4 Q. And so you said your work
5 involved LED components and vendor
6 selection integration, what did that
7 entail?

8 A. So differently than -- you
9 know, different than Soraa, we -- at NEXT,
10 we designed the lights, but we didn't make
11 the LEDs. We just bought those from
12 vendors and so we had to look at different
13 components that were available and select
14 which ones would work in our product.

15 Q. Okay. Yeah. Actually, you
16 know, I just realized that there was some
17 beginning stuff that I intended to do that
18 we skipped, so I'm going to pause briefly.

19 Can you give me your current
20 address, Dr. Katona?

21 A. Where I'm physically at or my
22 home address?

23 Q. Just for identification
24 purposes -- well, this is a public thing so
25 you don't have to put your home address.

1 DR. KATONA (7/2/2026)

2 Can you give me your work address?

3 A. It's 1 Grand Avenue, San Luis
4 Obispo, California 93407.

5 Q. Okay. And are there any
6 reasons or any reason you can't give
7 accurate testimony today?

8 A. Not that I'm aware of.

9 Q. All right. Going back to NEXT
10 Lighting. So you said that your work
11 included LED component and vendor selection
12 integration. Can you tell me a little bit
13 more about what that involved?

14 MR. BOWLING: Objection. Form.

15 A. So we -- as I -- as I said, we
16 purchased commercially available LEDs and
17 integrated them into our lighting product.
18 So I would meet with vendors, analyze spec
19 sheets, look at how LEDs would fit and work
20 within our designs and then make final
21 selections on which components we were
22 going to purchase.

23 Q. Right. And did the LEDs that
24 you purchased, did they have the phosphors
25 on the package?

1 DR. KATONA (7/2/2026)

2 MR. BOWLING: Objection. Form.

3 A. They had the phosphors in the
4 package.

5 Q. In the package.

6 So can you just tell me, you
7 said that these were designed to be -- and
8 I want to -- replacements for linear
9 phosphor lights, is that a fair
10 characterization?

11 I don't want to put words in
12 your mouth. I want to make sure I'm using
13 the right terms.

14 MR. BOWLING: Objection. Form.

15 A. Yes, I think what I said was
16 linear fluorescent lights.

17 Q. Linear fluorescent lights, yes.

18 So can you just give me for one
19 of these replacement lights, can you
20 describe the overall structure for me?

21 A. Roughly four feet in length.

22 Q. Right.

23 A. About a little over an inch
24 wide, contained LEDs and would go into a
25 standard fluorescent fixture that you see

1 DR. KATONA (7/2/2026)

2 in most office buildings.

3 Q. Was there a diffuser in these
4 products?

5 MR. BOWLING: Objection. Form.

6 A. The whole body -- so the whole
7 body of the product was designed as a --
8 was designed to have diffusing and
9 reflecting capability, so it was an
10 indirect light, yeah.

11 Q. Okay. And would you say how
12 many LEDs were in a typical fixture?

13 MR. BOWLING: Objection.

14 Q. Say for a fixture that was four
15 feet long?

16 MR. BOWLING: Objection. Form.

17 A. We made a couple different
18 versions and I don't -- the exact number, I
19 don't remember, but it ranked from high 60s
20 to up to a little over a hundred depending
21 on the version.

22 Q. But these individual LEDs,
23 would they appear as 60 different light
24 sources to the viewer or would they appear
25 as a sort of single light source?

1 DR. KATONA (7/2/2026)

2 A. So in our products, they
3 appeared as a single light source. And our
4 competitors' products, many of them, they
5 appeared as individual LEDs.

6 Q. And what was in our products
7 such that they appeared as a single source?

8 A. As I said, our product was an
9 indirect light source, so we did not shine
10 the LEDs directly in the direction of the
11 light. They shined away from the observer.

12 Q. Were there thermal management
13 concerns with these products?

14 A. There were.

15 Q. Okay. How did you manage those
16 concerns?

17 A. We used -- well we used
18 multiple techniques in different iterations
19 of the product.

20 Q. Okay. Could you tell me some
21 of those techniques?

22 MR. BOWLING: Objection. Form.

23 A. Well there's -- we had IP
24 around a -- what's called a thermal
25 chimney, so that was one technique.

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2 There's, you know, different material
3 selection considerations, and sort of the
4 whole assembly process had to be
5 considered.

6 Q. Did the products have heat
7 syncs?

8 A. Not -- not in the way -- not a
9 conventional heat sync, no.

10 Q. When you say "not a
11 conventional heat sync," what do you mean
12 by that?

13 A. I think many people, when they
14 say heat sync, think of a big slug of
15 metal.

16 Q. Okay. Well was there a heat
17 sync in some other form in these products?

18 A. Not really.

19 Q. Okay. So in paragraph seven,
20 you say you "worked with LED driver
21 manufacturers who fabricated custom LED
22 drivers to meet our internal
23 specifications, including dimming and
24 step-dimming functions."

25 Can you describe that work?

1 DR. KATONA (7/2/2026)

2 A. So we didn't make our own
3 drivers.

4 Q. Right.

5 A. So put together the
6 specifications for what we needed and then
7 worked with external driver manufacturers
8 to get the products produced that we needed
9 for our products, to integrate with our
10 products and then did the testing to make
11 sure everything was meeting our
12 specifications.

13 Q. So can you tell me what the
14 difference is between dimming and
15 step-dimming?

16 A. In the context of what I've
17 written here, what I mean by the difference
18 is sort of continuous dimming and dimming
19 in discrete intervals.

20 Q. Right. Why would someone want
21 to have dimming in discrete intervals?

22 MR. BOWLING: Objection. Form.

23 A. I'm sure there are many reasons
24 why someone might want that in different
25 applications.

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2 Q. Well what were the reasons you
3 were thinking of when you had those
4 features in your products?

5 A. So in our product specifically,
6 one of the reasons we did it was for
7 applications like parking garages that
8 wanted a setting that reduced the light a
9 certain amount, but never turned off when
10 people weren't there, because people don't
11 like walking into a dark parking garage.

12 Q. Right. Are there other
13 applications where someone might want reset
14 dimming levels?

15 A. People ask for all sorts of
16 things.

17 Q. Well, are you aware of any
18 other applications where someone would want
19 reset dimming levels?

20 A. There are -- there are some
21 codes that don't allow stairwells to be
22 dark.

23 Q. Okay. So in paragraph seven,
24 you said you added "optical based occupancy
25 and energy saving sensors that were

1 DR. KATONA (7/2/2026)

2 designed to integrate with our lights and
3 drivers to adjust the light output."

4 Can you tell me a little bit
5 about that?

6 A. Yeah. So we worked with
7 occupancy sensor manufacturer. We actually
8 white labeled their products. So we had to
9 make sure that essentially our drivers were
10 set up to integrate with those occupancy
11 sensors and have the functionality back to
12 the driver and into the end light that was
13 needed for different applications.

14 Q. Right. So, you know, the
15 products that had optical based occupancy
16 and energy saving sensors that controlled
17 the light output, did they have other
18 mechanisms for controlling the light output
19 too?

20 A. I don't think I understand the
21 question.

22 Q. Sure. So, say, I guess you
23 alluded to it earlier that you may, for
24 example, want a light that turns off or
25 dims when someone is not in the room, would

1 DR. KATONA (7/2/2026)

2 that be a fair characterization of that
3 functionality or if not, you know, tell me,
4 help me understand?

5 MR. BOWLING: Objection to
6 form.

7 A. I think I said specifically in
8 parking garages, that, you know, people
9 didn't want the light -- most parking
10 garage owners like under a building don't
11 want their parking garage to go completely
12 dark because it can make people feel
13 uncomfortable.

14 Q. Right. So I guess give me a
15 use case where you would -- these optical
16 based occupancy sensors would be used?

17 A. So in the parking garage case,
18 you would have occupancy sensors in
19 different locations in the parking garage.
20 The light would turn down some percentage
21 when no one is around to save energy and
22 then when it picks up movement, it would
23 turn up to full brightness.

24 Q. Would these lights be also able
25 to be controlled in other ways? Could

1 DR. KATONA (7/2/2026)

2 someone go and turn them on and turn them
3 off through a switch or other controls?

4 A. So someone could in that
5 application, usually that's reserved for
6 like a building manager or the head of the,
7 you know, maintenance staff because people
8 who own high-rise buildings don't want
9 random people going and flipping switches
10 on and off.

11 Q. But someone like that could
12 also control those lights through a switch
13 presumably?

14 MR. BOWLING: Objection. Form.

15 A. There's -- I think most lights
16 have the ability to be turned on and off.

17 Q. But yours, for example, would
18 they be able to be turned on and off
19 separate from these optical sensors?

20 A. I mean I can't speak to every
21 installation, but it's a general property
22 that many lights can be turned on and off.

23 Q. Were you aware of installations
24 where these optical sensors -- where these
25 lights with the optical sensors could be

1 DR. KATONA (7/2/2026)

2 turned on and off manually?

3 A. I know that we had customers
4 who could turn our lights off.

5 Q. Okay. So what is your current
6 position?

7 A. I'm a professor at California
8 Polytechnic State University in San Luis
9 Obispo.

10 Q. And what does your role
11 involve?

12 A. Teaching.

13 Q. Do you have any other
14 responsibilities other than teaching?

15 A. Research.

16 Q. What does your research
17 involve?

18 A. I have a couple areas of
19 research. So I'm currently looking into
20 the physiological effects of lighting on
21 people. So there's a lot of interest in
22 the effect of blue and infrared and other
23 wavelength, the lights on human health, so
24 that's one area of work that I'm involved
25 in.

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2 And then I also do work with
3 our entrepreneurship centers, so I have a
4 line of research on innovation.

5 Q. Okay. So tell me a little bit
6 about your work with the entrepreneurship
7 -- I'm sorry, was it entrepreneurship
8 center?

9 A. Yeah.

10 MR. BOWLING: Objection. Form.

11 A. I'm the academic director for
12 entrepreneurship center.

13 Q. Okay. And so what does that
14 job entail?

15 A. I run numerous programs for --
16 that occur outside the class to try to help
17 the young entrepreneurs get businesses
18 started.

19 Q. Okay. And are those
20 entrepreneurs in particular fields?

21 A. No, we're -- as I said, we're a
22 Polytechnic University and the businesses
23 tend to reflect that pretty well and come
24 from all over different disciplines in our
25 university.

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2 Q. Got it.

3 Actually, I'm just going to
4 pause for one quick second and go off the
5 record.

6 (Recess taken at 10:59 a.m.)

7 BY MR. WASSERMAN:

8 Q. When was the last time that you
9 designed a commercial LED product?

10 A. I mean the last one would have
11 been at NEXT Lighting before I became a
12 professor.

13 Q. Got it.
14 So that would be roughly 2014?

15 A. That's correct.

16 Q. In your career, have you ever
17 worked professionally on a LED product that
18 incorporated LEDs having different color
19 temperatures?

20 A. We never -- so I definitely
21 worked on things that had different color
22 temperatures. We -- you said on a product.
23 None of those, at least during my time,
24 became products.

25 Q. Okay. So when you say you

1 DR. KATONA (7/2/2026)

2 worked on things that had different color
3 temperatures, can you tell me what that
4 entailed?

5 MR. BOWLING: Objection. Form.

6 A. So at NEXT Lighting, we built a
7 couple of fixtures that had numerous LEDs
8 that could -- had color changing
9 capability, the fixture had color changing
10 capability.

11 Q. And did those LEDs have their
12 phosphors on the packaging or in the
13 packaging or did they have a remote
14 phosphor?

15 A. In that specific application --
16 in that specific application we actually
17 had multiple -- multiple LED colored
18 temperatures with phosphors integrated into
19 the white LED packages and we had
20 additional LEDs, non-white LEDs.

21 Q. Okay. So when you said you had
22 additional non-white LEDs, what would that
23 -- what was the purpose of those?

24 MR. BOWLING: Objection. Form.

25 A. To make light of the color of

1 DR. KATONA (7/2/2026)

2 the LED.

3 Q. So did those LEDs have
4 phosphors in their packages or were they
5 actual non-white colored -- colored LEDs?
6 I'm trying to understand.

7 A. They were actually non-white
8 colored LEDs.

9 Q. And how would those products
10 generate light of different colored
11 temperatures?

12 MR. BOWLING: Objection. Form.

13 A. So for those prototypes, we
14 actually had a fairly complex control
15 circuitry to power all the different
16 channels and colors.

17 Q. Have you ever designed an LED
18 fixture that had network controls?

19 A. So we had -- so we had -- at
20 NEXT Lighting, we had a partnership with at
21 least one, maybe two other companies that
22 had network drivers that we checked with --
23 checked would work with our product and
24 made available to customers if they wanted
25 sort of the suite of products that we

1 DR. KATONA (7/2/2026)

2 offered with our partners.

3 So we did have a version of the
4 driver that was network capable. We didn't
5 sell that ourselves, but we allowed -- you
6 know, we basically validated our product
7 with it and then would allow the partner to
8 sell our products with their -- with their
9 driver system.

10 Q. So with those products that
11 were network capable, were they capable of
12 being -- so let me go back.

13 When you say "network capable,"
14 presumably there was some kind of Ethernet
15 or wireless connection that would connect
16 to the driver and then would allow it to be
17 controlled over the network; is that a fair
18 characterization?

19 MR. BOWLING: Objection. Form.

20 A. The driver -- the drivers had
21 different connection protocols, but yeah,
22 wireless or Zigbee or there were different
23 -- a few different protocols that companies
24 were working with, and yeah, that could be
25 accessed over the Internet or wirelessly.

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2 Q. Okay. Could those products --

3 MR. BOWLING: I need to step
4 away for one second, Mr. Wasserman.
5 I'll be right back if you don't mind.

6 MR. WASSERMAN: No problem.
7 Why don't we take a five-minute
8 break. We'll wait for Brad to come
9 back.

10 (Recess taken at 11:09 a.m.).

11 BY MR. WASSERMAN:

12 Q. Dr. Katona, we were talking
13 about I think you mentioned that some of
14 your -- some of the products at NEXT
15 Lighting were designed to be worked -- some
16 of the drivers were designed to work with
17 network controls; is that -- am I
18 characterizing that correctly?

19 MR. BOWLING: Objection. Form.

20 A. I think what I said is we
21 worked with other companies that had
22 network capable drivers and our products
23 could work with those and so we coupled
24 them together.

25 Q. Got it.

1 DR. KATONA (7/2/2026)

2 In those installations, would
3 the lights be able to be turned off
4 manually?

5 A. I don't believe so.

6 Q. Dr. Katona, when were you first
7 retained in this matter?

8 A. I believe -- I believe counsel
9 contacted me in -- I believe it was in
10 early 2025.

11 Q. And who were you contacted by?

12 A. I believe it was Lisa Thomas.

13 Q. So I think you gave me some
14 estimates of how much time you spent on
15 each declaration.

16 Do you have any idea how many
17 hours you've spent on this engagement in
18 total, inclusive of the declarations, but
19 in the other work you might have done?

20 MR. BOWLING: You can answer
21 with an estimate of time.

22 A. Yeah, I -- I don't know. I
23 mean so I did give you estimates on the
24 declarations and, again, I said I don't
25 really know. I'm not looking at all of the

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2 -- all of the records of that, but my --
3 although they contacted me in early 2025,
4 my work really started in, I think, end of
5 summer, early fall 2025.

6 And yeah, I worked for a period
7 of time leading up to the first declaration
8 and then, yeah, maybe -- I don't know in
9 total. I really don't know.

10 Q. Okay. So we've all written a
11 lot about correlated color temperatures in
12 this matter. Can you tell me what you
13 understand -- let me say if I use "CCT,"
14 will you understand the term "CCT," will
15 you understand that to refer to correlated
16 color temperature?

17 A. Yes.

18 Q. Okay. So what is the CCT of a
19 light?

20 A. I don't think I specifically
21 put an opinion in generally about what the
22 CCT of a light is.

23 Q. Okay. But what is your
24 understanding of it?

25 A. It's the color temperature.

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2 Q. And what is color temperature?

3 MR. BOWLING: Objection. Form.

4 A. Again, I don't think I provided
5 a definition for you.

6 Q. I didn't ask you to provide a
7 definition. I'm asking you what color
8 temperature is?

9 A. So I think you're asking me to
10 provide a definition.

11 Q. You can provide a definition.
12 I'm just asking you what your understanding
13 of color temperature is?

14 A. So in paragraph 55 of my
15 report, I said, A POSITA would understand
16 that a color temperature is a property of a
17 white light emitting diode, but not of a
18 non-white light emitting diode.

19 Q. Is that the entirety of your
20 understanding of what a color temperature
21 is?

22 A. I go on to describe how color
23 temperature is defined by the CIE.

24 Q. Okay. Based on your experience
25 in the industry, do customers sometimes

1 DR. KATONA (7/2/2026)

2 prefer different color temperatures for
3 different applications?

4 A. People have all sorts of
5 different preferences.

6 Q. And would you say generally in
7 the industry one would try to accommodate
8 those customer's preferences?

9 A. I mean if possible, people like
10 to make their customers happy.

11 Q. And so there might be different
12 color temperatures preferred by different
13 customers?

14 MR. BOWLING: Objection to
15 form.

16 A. As I said, people prefer all
17 sorts of different things.

18 Q. Okay. Could I ask you to
19 describe a, say, color temperature of
20 3000K, how would you describe that
21 individually?

22 A. Well, so in paragraph 55 of my
23 report, I say color temperature is defined
24 as the thermodynamic temperature of a
25 Planckian radiator. So it would be roughly

1 DR. KATONA (7/2/2026)

2 the color of a Planckian radiator at 3000
3 Kelvin.

4 Q. Okay. What would that look
5 like to an observer?

6 A. It would look a shade of white.

7 Q. In what way would it differ
8 from, say, a higher color temperature such
9 as 5000K?

10 A. It would be more orange-ish.

11 Q. Okay. Are there particular
12 applications where a lower color
13 temperature is preferred?

14 MR. BOWLING: Objection. Form.

15 A. I mean as I said, people have
16 all sorts of different preferences.

17 Q. Can you name applications, any
18 applications in which a 3000 Kelvin color
19 temperature would be preferred?

20 A. Preferred compared to what?

21 Q. Preferred as compared to a
22 higher color temperature.

23 A. Well I -- so I have landscape
24 lighting and I personally prefer lower
25 color temperatures, but people sell high

1 DR. KATONA (7/2/2026)

2 color temperature landscape lights also
3 because apparently people prefer that.

4 Q. Are there any particular
5 applications for which lower color
6 temperature lights are preferred?

7 MR. BOWLING: Objection. Form.

8 A. I mean it -- so it's not even
9 application, Mr. Wasserman, because even
10 different regions tend to prefer different
11 color temperatures.

12 Q. So when you say "different
13 regions," give me an example?

14 A. If you travel in Asia, you'll
15 find more -- you'll tend to find more
16 higher color temperature lights than lower
17 color temperature compared to, say, Europe.

18 Q. And in Europe, would you say
19 that lower color temperature -- the lower
20 temperature lighting is more common in home
21 use?

22 MR. BOWLING: Objection. Form.

23 A. I can speak to my home, it's
24 more common in my home.

25 Q. Why is it more common in your

1 DR. KATONA (7/2/2026)

2 home?

3 A. I just told you I tend to
4 prefer it. That's why I changed my
5 landscape lights.

6 Q. Say I wanted something that
7 looked more like an traditional
8 incandescent light, what type of color
9 temperature would I choose?

10 A. For an incandescent light, you
11 would probably choose 2700 Kelvin.

12 Q. And would you say that there is
13 some commercial demand for LED lights that
14 look like incandescent lights?

15 MR. BOWLING: Objection. Form.

16 A. I think if you go into the
17 store, you'll find plenty of 2700 Kelvin
18 lights in addition to other color
19 temperatures.

20 Q. Do you think that that reflects
21 a commercial demand for lights that look
22 like incandescent lights?

23 MR. BOWLING: Objection. Form.

24 A. I mean I don't want to
25 speculate on what's in people's mind, but

1 DR. KATONA (7/2/2026)

2 there's a familiarity with incandescent
3 lights.

4 Q. Would it be safe to say that
5 the predominant form of way to generate
6 white light from an LED is to have the
7 phosphor in the package?

8 A. Yeah, there are -- there's
9 multiple ways to create white light.
10 Phosphor in the package is one of them.
11 You can also combine LEDs of different
12 colors. I think it's probably accurate
13 that there are more phosphor integrated
14 white LEDs for white lighting products.

15 Q. And you say that's true even
16 today?

17 A. I mean I haven't looked through
18 the market data in the last year or two,
19 but I would -- I would guess that's likely
20 true.

21 Q. I would like to talk to you
22 about heat management. I think we referred
23 to it a little bit before.

24 What are some of the approaches
25 for heat management in LED fixtures?

1 DR. KATONA (7/2/2026)

2 A. I mean there have been tons of
3 approaches. People, you know, select
4 materials. There's the way that you do
5 assembly or design of the integration of
6 the products. I mentioned that we use the
7 thermal chimney at NEXT. I've seen people
8 use liquids, fans, all sorts of things.

9 Q. Do they sometimes control
10 managed heat by spacing the LEDs along the
11 array to reduce -- to manage the heat?

12 A. I mean I think -- I don't know
13 what you mean by spacing the LEDs along the
14 array. What array are we talking about?

15 Q. Along the fixture, for example.
16 So, say, we have a bunch of LED packages in
17 a fixture, would the spacing of the LEDs
18 affect of thermal management?

19 A. The heat load per area effects
20 thermal management as a general statement.

21 Q. So we've talked a little bit
22 about controlling color temperature. Is
23 one approach to controlling the color
24 temperature of an LED fixture to have
25 multiple groups of LEDs with different

1 DR. KATONA (7/2/2026)

2 color temperatures in a single fixture?

3 MR. BOWLING: Objection. Form.

4 A. I think just having the LEDs of
5 different color temperatures wouldn't
6 control the color temperature.

7 Q. Right. Is one approach having
8 that type of arrangement and sending
9 varying degrees of current to each set of
10 LEDs?

11 MR. BOWLING: Objection. Form.

12 A. So if you have different color
13 LEDs and you can control current, you -- to
14 the different LEDs, you can change color,
15 color temperature.

16 Q. Are you familiar with any
17 commercial products that use this approach?

18 MR. BOWLING: Objection. Form.

19 A. I mean there are -- at this
20 point in time, there are commercial
21 products that change color.

22 Q. Do these products have the
23 phosphors for the LEDs in the packages or
24 do they have remote phosphors, the ones
25 that you're aware of?

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2 A. Is there a specific product
3 that you're asking?

4 Q. No, I'm just trying to get your
5 -- you're a smart guy, you know a lot about
6 the industry. We talked about your
7 experience. I'm just trying to get a sense
8 of the products you're aware of.

9 A. Yeah, I'm aware of a lot of
10 different products.

11 Q. Okay. Would you say that the
12 majority of them have the phosphors in the
13 packages?

14 A. Yeah, I'm not going to speak to
15 every product that's commercially
16 available, but I know of products that are
17 available that have the -- that use white
18 LEDs in the package white LEDs in the
19 products.

20 Q. Would you say it's at least a
21 significant percentage of them?

22 MR. BOWLING: Objection. Form.

23 A. Yeah, I haven't done a market
24 study on tunable white LED sources.

25 Q. Okay. So I am going to put

1 DR. KATONA (7/2/2026)

2 into the chat Exhibit 1005, which is
3 U.S. Patent Number 9,995,440 B2 Edwards.

4 Okay. Let me know when you've
5 had a chance to open up Edwards.

6 A. Okay, I have it.

7 Q. Great.

8 So in Edwards, how is color
9 temperature controlled in Edwards?

10 MR. BOWLING: Objection. Form.

11 A. Sorry, I'm just looking for
12 where this is.

13 Q. Sure. Take your time.

14 A. Yes. I think Edwards says it's
15 through the control circuit 217. This is
16 in paragraph 73 of my report. So there's a
17 variable resistor 31 for controlling the
18 relative drive currents IA and IB to the
19 first and second LED arrays.

20 And it later states those
21 relative drive currents IA and IB to
22 achieve a selected correlated color
23 temperature.

24 Q. Can one of the arrays of LEDs
25 be turned off entirely in Edwards?

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2 A. It's my understanding they
3 cannot.

4 Q. They cannot.

5 So I'd like to refer you to
6 column 12 of Edwards, where it says thus
7 the column 12, line seven to 11?

8 A. Okay column 12, seven to 11 you
9 said?

10 Q. Yes. So it says, "Thus, the
11 CCT emission product may grow closer to a
12 warm yellowish color as the second array of
13 LEDs corresponding to the second region of
14 the first wavelength conversion are turned
15 off"?

16 A. Okay. I see that.

17 Q. So do you agree that it does
18 say those components can be -- those arrays
19 can be turned off?

20 A. I don't see anywhere that that
21 statement is connected to Figure 5.

22 Q. I'm just asking you if it says
23 that those can be turned off?

24 MR. BOWLING: Objection. Form.

25 A. But you're asking in the

1 DR. KATONA (7/2/2026)
2 context of Figure 5, and so if you're
3 taking language from one part that's not
4 talking about Figure 5 and then asking me
5 if Figure 5's resistor 31 can turn it off,
6 I don't -- I don't see how that's
7 appropriate.

8 Q. Okay. Well, so what do you
9 understand it to be saying when it says
10 that they can be turned off?

11 MR. BOWLING: Objection. Form.

12 A. I mean I see the statement that
13 says they can be turned off. But you asked
14 me the question whether they can be turned
15 off in Figure 5 with the variable resistor.

16 Q. Well, so doesn't it say the
17 combination -- so going back up to Figure
18 12 -- column 12, one to -- lines one to
19 seven -- one to, I guess, five, six, seven,
20 eight, it says, "the combination of the
21 emission product may be modified by
22 altering the drive currents of the LED
23 arrays"?

24 A. Yeah, I see those words.

25 Q. Okay. And, but you agree that

1 DR. KATONA (7/2/2026)

2 it does later say that one of the arrays
3 can be turned off?

4 MR. BOWLING: Objection. Form.

5 A. I see that it says, "second
6 array of LEDs corresponding to the second
7 region of the wavelength conversion
8 component are turned off while the first
9 set of LEDs corresponding to the first set
10 of region remain on."

11 Q. If those LEDs are turned off,
12 are they receiving any current?

13 MR. BOWLING: Objection.

14 A. Presumably not.

15 Q. And so I'd like to go to a
16 little bit farther down where it talks
17 about the -- I guess the other set of
18 arrays, where it says -- this is at lines
19 -- column 12, lines 17 to 20. It then
20 refers to the LEDs of the second region
21 being turned off.

22 Is it fair to say that those
23 are not receiving current if they're turned
24 off?

25 MR. BOWLING: Objection. Form.

1 DR. KATONA (7/2/2026)

2 A. I'm sorry, can you repoint me
3 to where you're reading now.

4 Q. This is column 12, lines 17 to
5 20.

6 A. Yes. So I see that and it also
7 says again in some embodiments and looking
8 at Figure 5, I would disagree that that's
9 an embodiment that can do that.

10 Q. Okay. I understand what you're
11 saying. But you agree if they are turned
12 off, they're not receiving current?

13 MR. BOWLING: Objection. Form.

14 A. Presumably if they're turned
15 off, they're not receiving current, which
16 the embodiment in Figure 5 doesn't allow.

17 I guess the only caveat is -- I
18 mean I don't know what they meant by off
19 and on, if it's visual, but LEDs typically
20 at very low current don't light up.

21 Q. Okay. I'd like you to refer to
22 -- I'm going to put in Exhibit 1006 to
23 Sadwick. Let me know when you've had a
24 chance to read that.

25 A. I have it.

1 DR. KATONA (7/2/2026)

2 Q. Sir, are you familiar with --
3 I'd like you to refer to paragraph 194 of
4 Sadwick. It should be on page 18.

5 A. You said paragraph 194?

6 Q. 194.

7 A. Okay.

8 Q. What do you understand to be
9 described in paragraph 194?

10 MR. BOWLING: Objection. Form.

11 A. It starts out talking about
12 Figure 35.

13 Q. Okay. And so I'd like you to
14 go down to the second half of the
15 paragraph. I guess starting -- you don't
16 have line numbers unfortunately, where it
17 says, "By rapid switching of current
18 between the two banks"?

19 A. You're looking at the part that
20 says, "By rapid switching a current between
21 the two banks 820 and 822"?

22 Q. That's correct.

23 A. Okay.

24 Q. So are you familiar with the
25 approach described in Sadwick for sending

1 DR. KATONA (7/2/2026)

2 current over a duty cycle? Is this
3 something -- is this an approach you've
4 seen elsewhere?

5 MR. BOWLING: Objection. Form.

6 A. I don't know how to send
7 current over a duty cycle.

8 Q. Okay. Where it says, "By
9 rapidly switching current between the two
10 banks and balancing the duty cycle that
11 apportions current between the two banks,
12 an apparent color temperature can be
13 produced anywhere between the 2200K warm
14 light and 6500K cool white that can be free
15 of flicker."

16 What do you understand Sadwick
17 to be describing there?

18 MR. BOWLING: Objection. Form.

19 A. Rapidly switching current
20 between two banks of LEDs to create
21 different appearances.

22 Q. Okay. Is that something you've
23 seen in commercial products?

24 A. I'm familiar with the
25 technique. I don't know that I can say

1 DR. KATONA (7/2/2026)

2 I've seen it firsthand in commercial
3 products.

4 Q. So you see where it says that
5 it can be free of flicker, how fast would
6 the current have to be switched between the
7 two banks to avoid flicker?

8 MR. BOWLING: Objection to
9 form.

10 A. I don't think I have provided
11 any opinions on that. People's eyes are
12 more or less sensitive to flicker.

13 Q. Okay. But have you ever in any
14 of your work previously tried to avoid
15 flicker?

16 A. If I'm aware of flicker and I'm
17 aware that people tend to not like to see
18 lights strobing.

19 Q. Okay. Do you think if the
20 light were varied, say, every half second,
21 half second on and off, that would have
22 visible flicker?

23 MR. BOWLING: Objection.

24 A. I can only speak for myself. I
25 probably would notice that.

1 DR. KATONA (7/2/2026)

2 Q. If it were a tenth of a second
3 between the two, would you notice that?

4 A. Likely.

5 Q. Okay. If it were 1/100th of a
6 second between the two, would you notice
7 that?

8 A. I mean I don't -- I'm not
9 positive.

10 Q. Right. So in order to avoid
11 flicker at least for you, there would have
12 to be switching a current between the
13 lights at least ten times a second; is that
14 fair to say?

15 A. Again I don't have an exact
16 answer for when people stop seeing flicker.

17 Q. Right. But you said you
18 yourself would notice a flicker if it was
19 less than ten times a second; is that
20 correct?

21 A. Yeah, I mean I'm guessing. If
22 you want to start shining lights at me, I
23 can tell you when I stop seeing it.

24 Q. But at least going based on
25 that estimate, if it were less than ten

1 DR. KATONA (7/2/2026)

2 times a second, you think you would likely
3 notice some flicker?

4 A. Yes. I mean, again, I haven't
5 given any opinions on flicker because it's
6 not the subject of any of the claims that
7 I'm aware of.

8 Q. Right. I'm just asking based
9 on you've been in this industry for a long
10 time, you've looked at a lot of lights I'm
11 sure, and I'm just saying based on that
12 estimate that you gave me that you would
13 notice flicker if it was less than ten
14 times a second, is that a fair
15 characterization?

16 A. Again, I don't know the exact
17 threshold by which I would stop noticing
18 flicker.

19 Q. Okay. Okay. I'm going to put
20 into the chat Exhibit 1008, which is U.S.
21 Patent Publication 2019/0041009, which to
22 May, assuming I can get into the chat.

23 A. Okay.

24 Q. Right. So I'd like you to
25 refer to paragraph 222. So there's a

1 DR. KATONA (7/2/2026)

2 reference to the control module 1132.

3 What do you understand the
4 control module to do?

5 MR. BOWLING: Objection to
6 form.

7 A. Well it says, "Control module
8 may include circuitry to isolate power and
9 data delivered via a network cable."

10 Q. Okay. And so it says, "The
11 power is converted to a voltage sufficient
12 to drive the LED emitters, and the power
13 directed to individual strings of LED
14 emitters is governed by one or more
15 parallel driver subcircuits of the control
16 module."

17 Do you see that?

18 A. Yes, I see that.

19 Q. Okay. Is it fair to say that
20 the control module receives current from an
21 external source?

22 A. It looks like it presumably,
23 yeah, should be receiving power from some
24 source.

25 Q. And it then provides power --

1 DR. KATONA (7/2/2026)

2 it then converts that power and provides it
3 to individual strings of the LED emitters;
4 is that correct?

5 MR. BOWLING: Objection. Form.

6 A. It provides it to subcircuits.

7 Q. Are the subcircuits part of the
8 control module or are they separate
9 structures?

10 So let me refer you to the
11 fourth line of that. It says, "The power
12 directed to individual strings of LEDs
13 emitters is governed by one or more
14 parallel driver subcircuits of the control
15 module."

16 Do you see that?

17 A. Yes, I see that.

18 Q. Do you agree that the
19 subcircuits are part of the control module?

20 MR. BOWLING: Objection. Form.

21 A. It says, yeah, parallel driver
22 subcircuits of the control module.

23 Q. Do you understand that to mean
24 that the driver circuits are part of the
25 control module?

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2 A. I mean it says that they're
3 parallel driver subcircuits of the control
4 module.

5 Q. Okay. I'd like you to refer to
6 paragraph 231, and I'd like you to go down
7 to the first, second, third, fourth, sixth
8 line.

9 A. Okay.

10 Q. So it says, "Control module
11 1132 may include dedicated driver
12 subcircuits to independently control the
13 magnitude of DC current provided to each
14 string of emitters."

15 Do you see that?

16 A. Okay.

17 Q. Do you agree then that the
18 control module includes the driver
19 subcircuits?

20 A. It says it may include
21 dedicated driver subcircuits.

22 Q. Okay. I'd like you to go a
23 little bit farther down to where it says,
24 "Thus, if a drive current is provided only
25 to the second emitter string of each board,

1 DR. KATONA (7/2/2026)

2 the lamp will produce light of a CCT of
3 about 6500K."

4 A. I'm sorry, where are you
5 looking, Mr. Wasserman?

6 Q. Sorry. So we are at the
7 paragraph 231, and we are fourth line from
8 the bottom.

9 A. Okay.

10 Q. It says, "Thus, if a drive
11 current is provided only to the second
12 emitter string of each board, the lamp will
13 produce light of a CCT of about 6500K."

14 A. Okay.

15 Q. Do you agree that the control
16 module of May can provide current to only
17 one -- to only one to -- can be configured
18 to provide current to just one of the
19 emitter strings?

20 A. Yeah. Each -- so each of the
21 subcircuits in May, which provide current
22 to one string, yeah, each subcircuit
23 provides current to only one string is my
24 understanding.

25 Q. Right. But you understand --

1 DR. KATONA (7/2/2026)

2 you agree that in May, it can be configured
3 such that only one of the subcircuits is
4 providing to one of the strings and no
5 current is provided to the other string?

6 A. Yeah. The subcircuits can't
7 provide power to more than one string,
8 yeah.

9 Q. Right. But you agree that
10 there's a set -- it may be -- device in May
11 can be set such that at any one particular
12 time, a drive current is provided to only
13 one of the strings?

14 MR. BOWLING: Objection. Form.

15 A. The subcircuits that provide
16 current to a single LED string can
17 apparently be turned off.

18 Q. And can they both operate
19 together and provide current with each of
20 them operating and providing current to the
21 same string?

22 I'm sorry, can they operate
23 such that both of them are providing --
24 both of the subcircuits of the control
25 module are providing current at the same

1 DR. KATONA (7/2/2026)

2 time?

3 A. Yeah. The subcircuits I think
4 can be turned on, multiple subcircuits at
5 each control one set of LEDs can be turned
6 on.

7 MR. WASSERMAN: Okay. I think
8 we have reached the -- I've reached
9 the end. I'm just going to take a
10 few minutes and take a look at my
11 notes and I think we may be done and
12 you may have your day free.

13 So let me break for a few
14 minutes and then we'll come back.

15 (Recess taken at 12:14 p.m.)

16 MR. WASSERMAN: So I think I am
17 done with my questioning.

18 Counsel, did you have any
19 redirect?

20 MR. BOWLING: None today.

21 MR. WASSERMAN: Okay. Thank
22 you, Dr. Katona, for you time.

23 (Time noted: 12:20 p.m.)

24

25

J U R A T

I, DR. THOMAS KATONA, do hereby
certify under penalty of perjury that
I have read the foregoing transcript
of my deposition taken on July 2,
2026; that I have made such
corrections as appear noted herein in
ink, initialed by me; that my
testimony as contained herein, as
corrected, is true and correct.

DR. THOMAS KATONA

Subscribed and sworn to before me

This _____ day of _____, 2026.

NOTARY PUBLIC

1 -----I N D E X-----

2 WITNESS: DR. THOMAS KATONA

3 EXAMINATION BY PAGE

4 MR. WASSERMAN 4

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9 -----E X H I B I T S-----

10 EXHIBIT FOR I.D.

11

12

13 (None marked.)

14

15

16 ***All quotations from exhibits are

17 reflected in the manner in which they were

18 read into the record and do not necessarily

19 indicate an exact quote from a document.***

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C E R T I F I C A T E

STATE OF NEW YORK)
 : SS.:
COUNTY OF RICHMOND)

I, AYLETTE GONZALEZ, a Notary
Public for and within the State of
New York, do hereby certify:

That the witness, DR. THOMAS
KATONA, whose examination is hereinbefore
set forth was duly sworn and that such
examination is a true record of the
testimony given by that witness.

I further certify that I am not
related to any of the parties to this
action by blood or by marriage and that I
am in no way interested in the outcome of
this matter.

IN WITNESS WHEREOF, I have
hereunto set my hand this 9th day of July,
2026.



AYLETTE GONZALEZ

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