

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 LUMINEX INTERNATIONAL COMPANY, LTD.,

6 Petitioner

7 V.

8 SIGNIFY HOLDINGS B.V.,

9 Patent Owner.

10
11 Case IPR2024-00101

12 U.S. Patent No. 10,299,336

13
14
15
16 DEPOSITION OF:

17 MICHAEL KRAMES, PH.D.

18 THURSDAY, MARCH 13, 2025

19 9:00 A.M.

20
21
22
23
24 Reported by: GINA M. CLOUD

25 CSR No. 6315

Deposition of MICHAEL KRAMES, Ph.D., the
witness, taken on behalf of the Petitioner, on
Thursday, March 13, 2025, at 9:00 a.m., via Virtual
Zoom, pursuant to NOTICE.

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I N D E X

WITNESS

MICHAEL KRAMES, Ph.D.

PAGE

Examination by Mr. Messing

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Examination by Mr. Dorsky

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EXHIBITS

NUMBER

DESCRIPTION

PAGE

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Exhibit 2 Appendix D-1 60

Exhibit 3 Photograph Bates numbered
SIGNIFYMNRD0018750 72Exhibit 4 United States Patent Application
Publication, Krames, et al., U.S.
2010/0289044 A1 91

Exhibit 5 U.S. Patent Number 8,933,644 B2 125

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Exhibit 8 9/14/09 Switchcraft specification 154

Exhibit 9 Philips Lighting Catalogue 2015/16 177

Exhibit 10 CNET web page "A bigger, brighter
Lightstrip makes its Philips Hue debut" 179Exhibit 11 CNET web page "Osram Lightify Starter
Kit review: Osram's smart lights dial in
on quality" 180

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EXHIBITS		
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Exhibit 12	PC Mag web page "LIFX White 800 LED Light Bulb Review"	182
Exhibit 13	Advanced Lighting Technologies 2015/2016 LED Lighting Catalog, International	184

INTRODUCED BUT NOT MARKED

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MERIDIAN, IDAHO, THURSDAY, FEBRUARY 13, 2025

9:00 A.M.

MICHAEL KRAMES, Ph.D.

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

EXAMINATION

BY MR. MESSING:

Q. Good morning, Dr. Krames. Could you please
state your name for the record.

A. It's Michael Krames.

Q. What is your home address?

A. 161 Rancheria Road, Kentfield, California
94904.

Q. What is your work address?

A. 2625 Middlefield Road, number 687, Palo
Alto, California 94306.

Q. Have you ever been deposed before?

A. I have.

Q. Approximately how many times have you been
deposed in the past?

A. It's listed in my C.V. I want to say ten
times or so.

Q. When was the last time that you were

1 deposed?

2 A. It was recently. I can check if you want.
3 I think it was in February or late January.

4 Q. An approximation is okay, but to clarify,
5 February or January of this year, 2025?

6 A. That's right.

7 Q. Were all of your past depositions related
8 to patent cases?

9 A. For the most part. One was a trade dispute
10 so it was more a commercial dispute, and I have been
11 deposed in civil litigation one time.

12 Q. You understand that the testimony that you
13 are providing today is under oath, correct?

14 A. I do.

15 Q. Is there anything today that would prevent
16 you from giving truthful, accurate and complete
17 testimony?

18 A. No.

19 Q. I understand that you've done this several
20 times before, so you might not need this refresher,
21 but I just would like to walk through some of the
22 grounds rules to be sure everyone is on the same
23 page.

24 I will be asking questions of you and the
25 court reporter will be taking down everything that

1 is said. To make the court reporter's job a little
2 easier, I ask that we try not to talk over one
3 another. I ask that you please wait to begin
4 answering a question until after I finish, and I
5 will do the same.

6 Does that sound fair?

7 A. Of course.

8 Q. I'm sure I'll mess that up at some point
9 but I'll do my best.

10 If I ask you a question and you do not
11 understand it, will you please let me know?

12 A. Of course.

13 Q. If you answer a question, I will assume you
14 understood my question as phrased. Is that fair?

15 A. That's fair.

16 Q. We will be sharing the exhibits. I will be
17 sharing them remotely for us all to view in the
18 screen share. We will be able to guide and follow
19 along with him to know what we're all looking at.

20 Do you understand that?

21 A. Sure.

22 Q. If you ever have issues seeing an exhibit,
23 please let me know.

24 A. Will do.

25 Q. And then we'll also be sharing the exhibits

1 through the Veritext application where you'll be
2 able to download and separately look through other
3 portions if you would like.

4 Does that sound fair?

5 A. Yes.

6 Q. I understand you have a binder with you
7 today; is that right?

8 A. I do.

9 Q. What is in the binder?

10 A. The binder includes clean hard copies of a
11 few of the exhibits. I can list them out for you.
12 The first one is Exhibit 2031, which is my
13 declaration.

14 The next one is Exhibit 1001, which is the
15 '336 patent. The next is 1008, which is the '424
16 provisional. And the next is Exhibit 1003, which is
17 Chaimberg.

18 The next is Exhibit 1012 which is Halliwell.

19 The next is Exhibit 1013, which is Reiff.

20 And the last one is Exhibit 1011, which is
21 either Roberge or Roberge, not sure how you say that
22 so maybe you can let me know.

23 Q. I've been referring to it as Roberge. I
24 could be wrong as well.

25 A. I think that's what I defaulted to so let's

1 stick with that if that's okay.

2 That's it in the binder.

3 Q. Just to confirm, you said those are clean
4 copies, so there are no notes or markups in any of
5 those?

6 A. That's right, they're completely clean hard
7 copies.

8 Q. We'll be taking breaks approximately every
9 hour or so and then a longer break around your
10 lunchtime, but if you need a break before or after
11 that, will you please let me know?

12 A. Sure.

13 Q. I ask if there is a question pending before
14 a break that we just finish up that question and
15 answer. Does that sound fair?

16 A. That's fine.

17 Q. Your counsel will likely object to my
18 questions from time to time. These objections can
19 sometimes make the conversation feel awkward, but
20 you still must answer my question unless instructed
21 not to.

22 Do you understand?

23 A. I understand.

24 Q. Where are you currently?

25 A. I'm currently at my home office at the

1 address that I gave you in Kentfield.

2 Q. Is there anyone else in the room with you
3 today?

4 A. No.

5 Q. Do you have any electronics with you that
6 are accessible, other than the computer that you're
7 using for this deposition?

8 A. I have my phone here. The ringer is on
9 silent.

10 Q. I'll ask that you place your phone out of
11 reach just for the purposes of the deposition, if
12 that's okay.

13 A. Okay. Done.

14 Q. Thank you. Other than this Zoom link, the
15 Veritext application for downloading exhibits, do
16 you have any other applications open in your
17 computer?

18 A. I have a browser window for accessing this
19 calendar invite on Zoom that has a few tabs, other
20 tabs, open. I have a tab open from my personal
21 e-mail which I have logged out of. I have a finder
22 window open that includes the electronic versions of
23 the clean copies of the hard copy documents I have in
24 my binder, and then I have the Zoom window through
25 which I'm viewing you.

1 Q. I just ask you to close out of the windows
2 that are not being used for this deposition.
3 Obviously have the Zoom open, the exhibit download,
4 your clean copies -- clean electronic copies.

5 A. Can I keep Exhibit Share Veritext window
6 open?

7 Q. Yes, keep that open, please.

8 A. Okay, that's done.

9 Q. Thank you. And just to confirm, the finder
10 copies of the exhibits that you previously listed,
11 are those copies that you're looking at on your
12 computer clean copies; no highlights, notes,
13 etcetera?

14 A. Yes, the folder that I have open are clean
15 versions. I can close that too because I don't think
16 we'll need it if you're going to drop exhibits into
17 Veritext, and I have the hard copies here.

18 Q. Let's go ahead and close that so we're sure
19 it's the correct version. I know I've absolutely
20 had versions with highlights that aren't supposed to
21 be there, so better safe than sorry.

22 A. Okay, that's done as well.

23 Q. Did you do anything to prepare for today's
24 deposition?

25 A. I read through my declaration and some of

1 the exhibits prior to today.

2 Q. Did you meet with your counsel to prepare
3 for today's deposition?

4 A. I did have a couple of calls with counsel
5 prior to today.

6 Q. I'm not asking for any substance of these
7 calls, just general description; who was there, what
8 happened. So to be clear, I'm not asking for any
9 substance when I ask these next couple of questions.
10 Which counsel did you meet with?

11 A. Primarily Jason Dorsky.

12 Q. Did you meet with anyone else other than
13 Mr. Dorsky?

14 A. I think in a couple of the calls there were
15 other people and I don't recall all their names.

16 Q. Do you recall if there were other attorneys
17 who were colleagues of Mr. Dorsky at his law firm?

18 A. I think that will have been the case.

19 Q. Approximately how many calls did you have
20 with Mr. Dorsky and his colleagues to prepare for
21 today's deposition?

22 A. Two or three.

23 Q. Approximately how long did those calls
24 last?

25 A. I think the two longer calls were on the

1 order of an hour and a half, towards a couple of
2 hours, and then there was a shorter call about
3 logistics.

4 Q. Do you recall approximately when those
5 conversations occurred?

6 A. I can check my calendar if you like. I have
7 to get my phone to do that.

8 Q. That's okay, I don't need exact dates.
9 Last month, last week?

10 A. We had the first call -- because I had
11 traveled, so that was maybe a week and a half or a
12 couple weeks ago, and then we had another call a
13 couple days ago, and then a call this morning about
14 logistics.

15 Q. You mentioned that you reviewed your
16 declaration and some exhibits from the IPR; is that
17 right?

18 A. That's right.

19 Q. Did you review any documents in preparation
20 that were not either exhibits to the IPR or response
21 or your declaration?

22 A. Not for this proceeding, no.

23 Q. Ben, can we please pull up tab "A" and mark
24 that as Exhibit 1.

25 VERITEXT CONCIERGE: Yes, marking

1 Exhibit 1.

2 (The document referred to was marked as
3 Exhibit 1 for identification and is attached
4 hereto.)

5 BY MR. MESSING:

6 Q. Dr. Krames, we've marked Krames Exhibit 1.
7 This is a copy of your C.V. submitted with your
8 declaration in this IPR proceeding.

9 Do you recognize the document I shared with
10 you?

11 A. I recognize the face page on the Zoom
12 window. I don't see anything in the Exhibit Share
13 folder.

14 VERITEXT CONCIERGE: Sometimes it may take
15 a refresh of the page, if you know how to do that.
16 It's at the top of your browser window but it should
17 be appearing on there.

18 THE WITNESS: I see it there.

19 BY MR. MESSING:

20 Q. Is this document, Krames Exhibit 1, an
21 accurate copy of your C.V.?

22 A. Shall I download it to check?

23 Q. Yes, you can download to check or --

24 Ben, can we scroll through the live
25 exhibit?

1 VERITEXT CONCIERGE: I can switch
2 presentation software real quickly and then I
3 believe that is possible, if that is all right.
4 Otherwise, in Exhibit Share I don't think it will
5 allow a download, but you can open it up on the
6 screen and scroll down it.

7 THE WITNESS: I clicked on the download
8 button and it allowed me to do that.

9 MR. MESSING: We'll stick with that.

10 THE WITNESS: Yes, that is an accurate copy
11 of my resume status at the time of the submission of
12 the declaration.

13 BY MR. MESSING:

14 Q. I believe you said there was a deposition
15 that you sat for in January or February which would
16 not be listed here. Are you aware of anything else
17 that is missing from Claimant's Exhibit 1?

18 A. I will add I'm happy to say I was elected to
19 the National Academy of Engineering for 2025, and
20 that announcement, which was a welcome surprise, came
21 out in February, and I'll certainly be adding that to
22 my C.V.

23 Q. Congratulations.

24 A. Thank you.

25 MR. MESSING: Ben, can we please go to page

1 2 of Exhibit 1. And if we can zoom in on the second
2 entry, Philips Lumileds.

3 BY MR. MESSING:

4 Q. Dr. Krames, you worked for Philips from
5 1999 through 2009; is that correct?

6 A. No, that's not correct. It's a little more
7 complicated than that.

8 Q. Can you please explain.

9 A. Sure. So I started -- if you look down
10 below, I joined Hewlett-Packard Optoelectronics
11 division in 1995. In 1999 -- we formed that division
12 became part of a joint venture with Philips. And
13 that joint venture was a 50/50 joint venture, and
14 that was named Lumileds or Lumileds Lighting.

15 Then in 2005 or 2006, Philips bought out the
16 other half of the JV and it became a Philips entity.
17 So I effectively worked for Philips, and again I
18 can't remember if that was 2005 or 2006, from then
19 until I left in 2009 by virtue of an acquisition.

20 Q. For those first several years, '99 to 2005
21 or '6, you were working for both Philips and HP as
22 an overseeing entity for Lumileds; is that a fair
23 summary?

24 A. No, I don't think that's quite accurate. On
25 purpose, the government structure was exactly 50/50,

1 which gave the Lumileds CEO the tie-breaking vote on
2 governance which was good to have. So Lumileds was
3 quite autonomous, and the culture was very much that
4 of Hewlett Packard, I have to say.

5 We were very -- we were called rock heads,
6 semiconductor guys, so I think Lumileds absolutely
7 did its own thing to build its business and during
8 those years was very successful in doing so which I
9 think led to Philips' decision to acquire the entity
10 in 2005 or 2006.

11 Q. You understand that Philips Lighting is now
12 Signify?

13 A. Yes, they changed their name a few years
14 ago, to my surprise.

15 Q. And the fifth bullet point down here, under
16 the Lumileds entry, says: "Produced a strong
17 intellectual property portfolio of groundbreaking
18 innovations." Do you see that?

19 A. Yes.

20 Q. What do you mean by this entry here?

21 A. Well, I ran the group; we called it Advanced
22 Laboratories, in fact. I built that from the ground
23 up starting in 1999. And we had a very interesting
24 charter, so there was also a product development
25 group. And the product development group was --

1 their job was to develop products and transfer them
2 to manufacturing so they could be scaled, and their
3 time frame for entry into manufacturing was kind of
4 the zero- to two-year time frame.

5 And our CTO at the time, George Crawford,
6 realized we need a longer view to make sure we were
7 on top of the strategic research and development
8 because when we became part of the joint venture we
9 lost our connection to Hewlett Packard Laboratories
10 where our longer-term research was normally done in
11 contract mode with the optoelectronics division.

12 So that went away, and he realized we needed
13 an R&D group, so he commissioned this new group and
14 was looking in 1999 for somebody to lead that, and I
15 raised my hand and was very happy to be selected to
16 do that and was quite young at the time.

17 But in our job and our charter, it was to
18 focus on technology that would be commercialized in
19 the two- to five-year time frame, so we got to work
20 on more advanced concepts. So intellectual property
21 was a huge part of my focus as a part of that group.

22 So we had -- all of the scientists knew
23 that. We set up a system to source invention
24 disclosures from anybody within the group who wanted
25 to raise an idea. We had a system for vetting those

1 on a regular basis and filing patent applications and
2 thinking about -- in those days, LEDs, we were moving
3 really fast and not knowing where all of the LEDs
4 might go and all the different applications. So it
5 was a wide scope, and it was important to file a lot
6 of IP on the core technology and also on the
7 applications.

8 And so this was a big focus for the entire
9 time I was there from 1999 until I left ten years
10 later, and collectively we filed a lot and personally
11 I was an inventor on numerous patent applications
12 from that time frame.

13 Q. Do you recall, like -- not say an actual --
14 exact number -- you said there was a lot of patents
15 filed. Do you recall an estimate of how many would
16 have been filed when you were head of the R&D group?

17 A. I don't have the number off the top of my
18 head. If you look at my C.V., I think there's 170 or
19 so issued U.S. patents. Which is the U.S. versions,
20 and there's almost always a U.S. family member.

21 I was certainly more prolific during those
22 years than in recent years just by nature of being
23 more or less independent and filing a little less
24 more frequently.

25 It would be sizeable. I don't know if it

1 would be 100 by the time I left, but it would
2 certainly -- I would guess 50 to 100 issued patents
3 by 2009. I think that's safe. And I think it's
4 possible to go check that. If we want to take time,
5 I can do it, but otherwise it's just a rough
6 estimate.

7 Q. We don't need --

8 THE REPORTER: Jeff, your audio is
9 problematic. Maybe we can go off the record and try
10 to fix it.

11 (Brief recess.)

12 BY MR. MESSING:

13 Q. Dr. Krames, the 50 to 100 patents, was that
14 referring to the patents on which you were a named
15 inventor?

16 A. Yes.

17 Q. Do you know if there were any other patents
18 filed by Luminex that you were not listed as a named
19 inventor?

20 A. Of course there were. It was a large
21 organization.

22 Q. Do you know approximately similar estimate
23 range how many were filed with other inventors
24 during your time as head of the R&D group?

25 A. No, I don't have that number on hand.

1 Q. Would it be more than 100?

2 A. Can you ask the question again and make sure
3 I understand exactly what you're asking.

4 Q. So during your time as the head of R&D at
5 Luminex --

6 (Cross talk.)

7 THE WITNESS: Just to be clear about that
8 because the head of R&D is not a title that I had.
9 I was manager of Advanced Laboratories.

10 You're saying from 1999 to 2009, that ten-
11 year period? Is that what you're talking about?

12 BY MR. MESSING:

13 Q. That's right. Approximately how many
14 patent applications were filed in total by Luminex?

15 A. Between 1999 and 2009?

16 Q. That's right, during the '99 to '09 time
17 frame.

18 A. I'm not trying to be nitpicky, but just to
19 be clear because things were changing. So up until
20 1999 we were filing in the name of Hewlett Packard
21 right before the joint venture -- I don't know if you
22 recall, you're certainly younger than me, but there
23 was a split between -- within Hewlett Packard between
24 the more software-oriented, computer-oriented start
25 of the business, which retained the name Hewlett

1 Packard, and the more hardware components and test
2 business of Hewlett Packard which became Agilent.
3 Okay? So for a few months I was an Agilent employee,
4 which was too confusing to bother here in this C.V.
5 even.

6 So there was a time where applications would
7 have been assigned to Agilent. Then the joint
8 venture happened. And it was actually Agilent and
9 Philips, the joint venture. In which case we were
10 Lumileds, Lumileds Lighting, and the applications
11 would have been filed in the name of Lumileds
12 Lighting up until 2005 or 2006, after the acquisition
13 by Philips, and then they would have been filed in
14 the name of Philips Lumileds, which was the name of
15 that subsidiary, basically, at Philips at that time.
16 So the assignee would have changed as I just
17 described throughout that time period.

18 So are you asking for the total number of
19 patent applications filed from inventors from within
20 those entities out of our, I guess, our headquarters
21 in San Jose between 1999 and 2009? Did I rephrase
22 the question properly?

23 Q. Yes, you did. Thank you for providing that
24 background context. That seems quite messy.

25 Yes, that total time frame across the three

1 different assignees.

2 A. Yes, business is always messy. But at the
3 end of the day -- let's see. It will have been
4 hundreds for sure. I don't know if it would have --
5 I don't know if it would have made thousands; it
6 would have been hundreds for sure.

7 And again, this is something that one can do
8 a Google search exercise and probably come up with a
9 number fairly quickly which we can do if you want,
10 but other than that, I mean that's kind of the best
11 number that I can give.

12 Q. Thank you, that number is good.

13 Did you or your group ever design LED
14 lighting devices or luminaires while you were
15 working at Lumileds?

16 A. Throughout that entire ten-year period?

17 Q. Yes.

18 A. Yes, we would have filed applications,
19 patent applications, on applications including
20 luminaires, designs for backlighting, automotive
21 forward lighting, digital imaging, retrofit lamps.

22 In fact, interestingly enough, bullet 3, I'm
23 noticing in that heading under the heading Philips
24 Lumileds on my C.V., it says exactly that. We were
25 involved in things like general illumination, digital

1 imaging, also designs for backlighting for the iMac,
2 the first one, and the iPhone flash.

3 Q. That last item, general illumination, would
4 that include the topics you mentioned like
5 luminaires, retrofit lamps, backlighting I think you
6 said?

7 A. Yes, general illumination would include
8 broadly typically light fixtures which we refer to as
9 luminaires, and retrofit lamps which are the screw-in
10 type replacement bulbs that we're all familiar with.

11 Q. Have you ever designed any lighting devices
12 or luminaires after your work at Lumileds?

13 A. Yes. After I left in 2009, I joined Soraa,
14 which would be, I guess, higher up on the C.V. That
15 was a startup, another California-based startup, and
16 one of the inventors was -- the founder, one of the
17 founders, was Shugi Nakamura. Eventually he won the
18 Nobel Prize along with two other inventors for the
19 blue LED; the Nobel Prize in physics in 2014. So he
20 was one of the founders of Soraa.

21 So I joined Soraa as chief technology
22 officer in 2009, and at Soraa we developed a new
23 class of LEDs based on bulk gallium nitride. We
24 called it GaN-on-GaN. It was a new technology for
25 very high power density, full spectrum light sources,

1 and we used those to build general light products
2 focusing on the professional lighting sector.

3 So those included especially directional
4 lamps like MR16s, PAR30, PAR38s, these types of lamps
5 and related fixtures.

6 Q. Can we please go back to the first page of
7 Exhibit 1, and if you can please zoom in on that
8 bolded first paragraph. I want to ask a question
9 about that.

10 So the fourth line, the last sentence --
11 second to last sentence of this paragraph states:
12 "Worked with major companies in the LED market
13 including Philips and innovative startups."

14 What sort of work do you do with these
15 companies?

16 A. The work -- the language here is a little
17 bit funny, but what's meant to be said is I worked in
18 major companies in the LED market such as Philips for
19 that short period of time and innovative startups;
20 which I would characterize, frankly, Lumileds that
21 way as well as Sora.

22 Q. So after leaving Philips Lumileds in 2009,
23 have you performed any consulting work for Philips
24 or Signify?

25 A. The only work I have done for Philips or

1 Signify would have been in the context of expert
2 witness work, which is listed in my C.V. on page 2 --
3 probably not 2; 3 or 4.

4 MR. MESSING: Ben, can you please go to
5 page 3.

6 THE WITNESS: Yes.

7 BY MR. MESSING:

8 Q. I see here one entry for Signify in a
9 District of Nevada case; is that right?

10 A. Yes.

11 Q. You've also been retained by Signify in
12 this IPR proceeding; is that right?

13 A. That's right.

14 Q. And you were retained by Signify in a
15 related district court case, Menard versus Signify;
16 I believe the docket number is 22-CV-706?

17 A. I would have to confirm the docket number,
18 but yes, that's correct.

19 Q. Is it okay if that comes up today if I
20 refer to that as the district court litigation or
21 the Menard litigation for short?

22 A. Sure.

23 Q. Have you performed any expert witness work
24 for Signify other than the District of Nevada case,
25 this IPR or the Menard litigation?

1 A. There has been some work that has started,
2 but then where cases have settled, so it never got to
3 the point of testimony. A couple of cases like that
4 that I can think of off the top of my head.

5 Q. Do you recall if any of those cases related
6 to LED luminaires?

7 A. Yes, I think all of them probably related to
8 LED lighting, either luminaires or lamps.

9 Q. In those cases, I guess more generally, is
10 the technology similar between LED luminaires and
11 LED lamps?

12 MR. DORSKY: Object to form.

13 THE WITNESS: There are some similarities
14 and some differences that can be important.

15 BY MR. MESSING:

16 Q. What are the similarities generally between
17 lamps and luminaires?

18 A. Some similarities are that they both use
19 light-emitting diodes as the primary light generation
20 source.

21 Q. Do you recall if you provided expert
22 reports in any of those cases?

23 A. Probably.

24 Q. Do you recall approximately when those
25 cases -- when you worked on those cases, approximate

1 time frame?

2 A. It would have been within the last three or
3 four years.

4 MR. MESSING: Ben, we can put Exhibit 1
5 away and can we please pull up Exhibit 1003.

6 BY MR. MESSING:

7 Q. Dr. Krames, I believe this is an exhibit
8 that you have in your hard copy as well. This is
9 the Chaimberg reference.

10 A. Yes.

11 Q. You're familiar with the Chaimberg
12 reference; is that right?

13 A. I am.

14 Q. If I refer to this reference as Chaimberg,
15 you'll understand that I'm referring to U.S. patent
16 10,234,091?

17 A. Yes.

18 Q. Have you read the entirety of this patent?

19 A. I have.

20 Q. You understand that this patent was filed
21 in the U.S. in April of 2018; is that right?

22 A. Yes. Actually April 27, 2018.

23 Q. And Chaimberg claims priority to a Canadian
24 application that was filed on March 26, 2018?

25 A. We can double-check that by looking at the

1 document.

2 Q. Item 30 directly under the April 27, 2018
3 date.

4 A. The Canadian application, yes, March 26,
5 2018.

6 Q. Dr. Krames, do you agree that Chaimberg
7 discloses an LED luminaire?

8 MR. DORSKY: Object to form.

9 THE WITNESS: Yes, I would agree. It
10 discloses an LED light fixture. We often use the
11 term "luminaire" to describe LED light or light
12 fixture.

13 MR. MESSING: Ben, could we please go to
14 page 2 of the PDF. If you could please zoom in on
15 figure 1.

16 BY MR. MESSING:

17 Q. Chaimberg's light fixture or luminaire as
18 shown in figure 1 includes a few key components,
19 including the light fixture, the driver housing, the
20 CCT switch and a cable. Is that right?

21 MR. DORSKY: Object to form.

22 THE WITNESS: No, that's not correct.

23 BY MR. MESSING:

24 Q. Would you agree that Chaimberg figure 1
25 shows a light fixture housing?

1 A. It does show a light fixture housing, yes.

2 Q. Would you agree that Chaimberg shows a
3 driver housing, number 16?

4 A. Yes, it does.

5 Q. And you agree that Chaimberg shows a CCT
6 switch, 18?

7 A. It shows a switch 18.

8 Q. And you would agree that Chaimberg
9 discloses that the switch 18 is used to adjust the
10 CCT output of the lighting device?

11 MR. DORSKY: Object to form.

12 THE WITNESS: Yes, the switch button is
13 used to select one or both of two sets of LEDs to
14 generate different color temperatures which would --
15 could be correlated color temperatures or CCTs.

16 BY MR. MESSING:

17 Q. For the record, the passage we were reading
18 was from I think column 2, approximately 40 to 45.
19 Does that sound right?

20 A. I was referring to the last couple of
21 sentences in the abstract.

22 Q. You would also agree that Chaimberg
23 includes a cable 15 connecting the light fixture to
24 the driver housing?

25 A. There is a cable 15 that the entire length

1 of which is between the light fixture and the driver
2 housing 16.

3 Q. You would agree that Chaimberg's light
4 fixture includes at least two sets of different CCT
5 LEDs?

6 A. It includes two sets of LEDs.

7 Q. The two sets in Chaimberg's embodiment have
8 different CCT values; is that correct?

9 A. Yes, the two sets of LEDs described in
10 Chaimberg each have different color temperatures.

11 Q. The two sets of LEDs described in Chaimberg
12 are mounted in Chaimberg's light fixture housing; is
13 that right?

14 A. Yes. It's not described very clearly, but
15 in this figure, I believe the enumerated feature 11
16 is trying to indicate where the LEDs are placed in
17 the luminaire.

18 It does not make it clear which of those
19 LEDs are of one set and which are of another, whether
20 they're interspersed or positioned in a particular
21 way, so the description is a bit lacking there, but
22 we have to -- going by this figure, we have to -- we
23 would interpret that the LEDs are, again, indicated
24 by number 11 here in the head of the light fixture.

25 Q. And you would agree that the specification

1 of Chaimberg states that the light fixture housing
2 has mounted therein two sets of different colored
3 light emitting diodes, LEDs?

4 A. Yes, let's go to where you're reading that.

5 Q. Yes, we can go to the end of column 2 which
6 is page 4 of the PDF, and it goes onto column 3
7 flipped over on the next page, so they picked a bad
8 spot for us to break here.

9 A. Yes. So as I was saying, in the top of
10 column 3, Chaimberg writes: "Mounted therein two
11 sets of different color LED" -- light emitting
12 diodes, LED 11, shown in phantom lines."

13 So the two sets of LEDs are shown by one
14 number in the figure and so it doesn't make it very
15 clear which of those features are one color and what
16 are another color.

17 Q. Can we please go to column 1 and zoom in on
18 what is the first paragraph there, and we see here
19 in column 1, approximately lines 10 to 13, Chaimberg
20 discloses that a selector switch is mounted in a
21 cable secured to the LED light fixture.

22 Do you see that?

23 A. Yes, I do.

24 Q. You would agree that Chaimberg 's switch 18
25 is mounted in the cable 15?

1 A. I would agree here that Chaimberg says a
2 selector switch is mounted in a cable.

3 MR. MESSING: Ben, can we please go to
4 column 5. I think that will be the last page --
5 yes, I think the last page of the PDF. We don't
6 need figure 1 on the other side, just column 5.
7 BY MR. MESSING:

8 Q. I would like to call your attention to
9 Claim 1, in particular if you look around line 35,
10 here is where Chaimberg provides another description
11 of an LED light fixture, and it states starting on
12 line 34:

13 "A selector switch mounted in said cable to
14 permit selective activation of either one of said at
15 least two sets of LEDs or both sets of LEDs
16 simultaneously to cause said LED fixtures to
17 generate light at a selected desired correlated
18 color temperature."

19 Do you see that?

20 A. Yes, I see that.

21 Q. Do you agree that Chaimberg discloses that
22 a selector switch mounted in said cable to prevent
23 activation of either one of said at least two sets
24 of LEDs?

25 MR. DORSKY: Object to form.

1 THE WITNESS: I agree that what we are
2 reading here, Chaimberg writes the lines that you
3 just read, "selector switch mounted in said cable to
4 permit selective activation of either one of said at
5 least two sets of LEDs," etcetera.

6 BY MR. MESSING:

7 Q. Would you agree, Dr. Krames, that Chaimberg
8 discloses that, at least as of its filing date,
9 March or April 2018, that LED luminaires with
10 switches for adjusting CCT mounted on the junction
11 box were known in the art?

12 MR. DORSKY: Object to form.

13 THE WITNESS: I believe there is a
14 discussion about that in the background. Maybe we
15 can go to that page.

16 MR. MESSING: Ben, can we please pull up --
17 I believe it's line 1 -- column 1, around line 45.
18 Sorry, I was leading us astray here. Column 3, line
19 29 is what I was looking for.

20 BY MR. MESSING:

21 Q. Here Chaimberg says that usually a selector
22 switch is mounted on the driver housing 16 to select
23 a desired color temperature to be emitted by the
24 light fixture.

25 Do you see that?

1 A. Yes, I see that.

2 Q. You would agree that Chaimberg disclosed
3 that as of April 2018 usually a selector switch is
4 mounted on the driver housing 16 to select a desired
5 color temperature to be emitted by the light
6 fixture?

7 MR. DORSKY: Object to form.

8 THE WITNESS: Actually, if you look at the
9 background, which is where I've asked to go, you'll
10 see that purpose of Chaimberg is to not have a
11 selector switch at the driver housing because of
12 several issues, practical issues including safety
13 issues, with respect to including a switch in the
14 driver housing. So, in fact, this is something that
15 he is arguing should not be done.

16 BY MR. MESSING:

17 Q. But Chaimberg discloses that it was usually
18 done that way, mounting it on the driver box; is
19 that correct?

20 MR. DORSKY: Object to form.

21 THE WITNESS: Chaimberg, it says here,
22 which you just read, usually a selector switch is
23 mounted on the driver housing.

24 I don't know where he comes up with that.
25 He doesn't provide background on that and I don't

1 think -- my purpose here is of course to respond to
2 the arguments in the petition and arguments made by
3 Dr. Eden in his declaration.

4 And so while this sentence is clearly here,
5 in Chaimberg, I'm not sure about the support for it,
6 and I'm not sure that there was any support provided
7 by Dr. Eden with respect to this statement.

8 BY MR. MESSING:

9 Q. Do you agree that when Chaimberg was filed,
10 Chaimberg disclosed that usually a selector switch
11 is mounted on the driver housing to select a desired
12 CCT? Is that right?

13 MR. DORSKY: Object to form.

14 THE WITNESS: Again, what I can agree to is
15 Chaimberg states in this background, or column 3
16 here, lines 29 through I guess 31, usually a
17 selector switch is mounted on a driver housing 16 to
18 select the desired color temperature.

19 But he does not -- other than this single
20 statement without support, he does not give examples
21 for that being the case. I haven't seen any other
22 references included in this petition that show that
23 that was the case at the time of the filing, and
24 Dr. Eden also did not back up this statement from
25 Chaimberg.

1 BY MR. MESSING:

2 Q. Earlier you mentioned -- sorry, just a
3 second here.

4 The background section, if we can please go
5 there back to column 1, lines 44 to 50.

6 Here, starting line 44, Chaimberg states:
7 "Some LED light fixtures with two or more sets of
8 color LEDs, for installation in ceilings, are
9 provided with a driver housing which is usually
10 positioned resting on the rear surface of the
11 ceiling sheeting with a long feed wire loose over
12 the rear surface of the sheeting material. A switch
13 is mounted on the driver housing to select a desired
14 color temperature of the LED light fixture."

15 Did I read that correctly?

16 A. I believe so.

17 MR. MESSING: We've been going a little
18 over an hour, I think we're at a good spot to take a
19 ten-minute break if that's okay with you,
20 Dr. Krames.

21 THE WITNESS: Sure, that's fine.

22 (Recess taken.)

23 MR. MESSING: Back on the record.

24 BY MR. MESSING:

25 Q. Dr. Krames, before the break we were

1 discussing the Chaimberg reference. A few more
2 questions on that reference.

3 You would agree that Chaimberg's driver
4 housing 16 is located remotely from the light
5 fixture housing; is that right?

6 MR. DORSKY: Object to form.

7 THE WITNESS: The driver housing in
8 Chaimberg's figures 1 and 2, driver housing 16, is
9 located remote from the fixture itself.

10 BY MR. MESSING:

11 Q. Chaimberg's lighting device as shown in
12 figures 1 and 2 had a switch mounted on the driver
13 housing 16. You would agree that that switch would
14 be remote from the lighting device housing; is that
15 right?

16 MR. DORSKY: Object to form.

17 THE WITNESS: Yes, could you repeat the
18 question, sorry.

19 BY MR. MESSING:

20 Q. Yes, if there were a switch located on
21 driver housing 16 in Chaimberg, that switch would be
22 remote from the light fixture housing 10; is that
23 right?

24 MR. DORSKY: Object to form.

25 THE WITNESS: Yes. If the switch is on

1 driver housing 16 as shown in figures 1 and 2 of
2 Chaimberg, that switch would be remote from the
3 light fixture because the driver housing 16 is
4 remote from Chaimberg's light fixture.

5 BY MR. MESSING:

6 Q. Referring to figure 1 of Chaimberg, figure
7 1 in Chaimberg shows the lighting device where the
8 driver housing is installed in the ceiling but the
9 light fixture housing is withdrawn from the mounting
10 hole; is that right?

11 MR. DORSKY: Object to form.

12 THE WITNESS: Figure 1 appears to show the
13 light fixture either during installation or during
14 deinstallation, so the light fixture is not in its
15 final location for operation.

16 BY MR. MESSING:

17 Q. You would agree that at least in figure 1,
18 is switch 18 located remotely from the housing; is
19 that fair?

20 MR. DORSKY: Object to form.

21 THE WITNESS: No, I don't think that is
22 fair. When we think about the context of this case,
23 what's relevant is the proximity or position of
24 switch 18 with respect to the light fixture as
25 installed, which is what's shown in figure 2.

1 BY MR. MESSING:

2 Q. I understand that, but my question was a
3 little bit different.

4 When the light fixture is in the process of
5 being installed as shown in figure 1, do you agree
6 that at that time the switch 18 is remote from the
7 housing in 10?

8 MR. DORSKY: Objection to form.

9 THE WITNESS: I don't know that I would say
10 that. As we know, these figures are not drawn to
11 scale in general. Chaimberg maybe even says that
12 somewhere. Often inventors indicate that in the
13 specification.

14 I think it's too far to say that switch 18
15 is remote from the light fixture in any situation.
16 In fact, in the specification Chaimberg insists on
17 close proximity of the switch to the light fixture,
18 which is kind of the whole point of Chaimberg is
19 that he wants to have this switch be available when
20 the light fixture is removed from the ceiling, so it
21 must be in or very close to the light fixture at all
22 times, even during maintenance, for example.

23 BY MR. MESSING:

24 Q. How far away would switch 18 need to be
25 from housing 10 to be considered remote in your

1 opinion?

2 MR. DORSKY: Object to form.

3 THE WITNESS: Well, we can -- maybe a
4 related question is where is switch 18 in figure 2
5 in final installation?

6 In that case, it's not clearly called out
7 in the figure, although all the other details of the
8 light fixture are, as I point out in my declaration,
9 so it seems quite evident that switch 18 is inside
10 the light fixture housing in installation, in figure
11 2.

12 BY MR. MESSING:

13 Q. I'm talking about when the light fixture is
14 in the process of being installed, so in figure 1,
15 would you agree that in figure 1 there is a gap
16 between switch 18 and the housing 10?

17 MR. DORSKY: Object to form.

18 THE WITNESS: I don't see a gap. There is
19 a cable portion, 15 prime, between switch 18 and the
20 light fixture.

21 BY MR. MESSING:

22 Q. In figure 1, switch 18 is not shown on the
23 housing 10, is it?

24 MR. DORSKY: Object to form.

25 THE WITNESS: For purposes of this figure,

1 which kind of reminds me of an exploded view when
2 you're trying to show elements of various things
3 clearly, but scales are -- things are not drawn to
4 scale and so forth, Chaimberg shows the switch 18
5 slightly above the light fixture 10.

6 BY MR. MESSING:

7 Q. You would agree that figure 1, again this
8 is during installation or during deinstallation,
9 switch 18 is located remotely from the housing 10;
10 is that right?

11 MR. DORSKY: Object to form.

12 THE WITNESS: No, I do not agree with that,
13 as I think I already answered that question. Switch
14 18 must be proximal to the light fixture as
15 Chaimberg shows.

16 BY MR. MESSING:

17 Q. How far away would Chaimberg's switch 18
18 have to be from the housing 10 in order to be
19 considered remote, in your opinion?

20 MR. DORSKY: Object to form.

21 THE WITNESS: I guess we can think about
22 the spirit of the teaching of Chaimberg. The switch
23 must come with the housing or in very close
24 proximity to the housing, so that upon removal from
25 the ceiling, the person doing maintenance can

1 readily access switch 18.

2 So if -- so in order to be remote, in his
3 terminology, it should be inconvenient to access.

4 For example, the driver housing would be
5 considered inconvenient to access and is considered
6 remote. Driver housing 16.

7 BY MR. MESSING:

8 Q. If the switch 18 were located an inch away
9 from housing 10, would that be remote in your
10 opinion?

11 MR. DORSKY: Object to form.

12 THE WITNESS: Are you talking about during
13 installation or after installation?

14 BY MR. MESSING:

15 Q. Let's talk about during installation first.
16 Can you please zoom in on figure 1 so we're
17 kind of framed in the right context?

18 During installation, say --

19 THE REPORTER: Say that again, I didn't
20 understand.

21 THE WITNESS: Your audio has gotten bad
22 again.

23 BY MR. MESSING:

24 Q. I apologize. I'll be closer to the
25 microphone.

1 Dr. Krames, in figure 1, if a portion of
2 cable 15 prime separates the switch 18 from the
3 housing 10, one inch long, would the switch 18 be
4 remote from the housing 10 during installation?

5 MR. DORSKY: Object to form.

6 THE WITNESS: Yes, I have to say this type
7 of question is strange with respect to
8 interpretation of the claims.

9 What matters with regard to the '336
10 Claim 1 and the limitation of the switch's remote is
11 where the switch is when the fixture is in
12 operation.

13 BY MR. MESSING:

14 Q. We'll get there, Dr. Krames, but I'm right
15 now talking about during installation.

16 During installation, if the switch, 18,
17 separated from the housing, 10, by one inch of
18 cable, 15 prime, would that switch be remote located
19 from the housing at that time?

20 MR. DORSKY: Objection to form.

21 THE WITNESS: During installation, if the
22 switch is close to the light fixture so that the
23 user can access it, as you said, one inch away, then
24 during installation or deinstallation or
25 maintenance, I would not consider that remote.

1 BY MR. MESSING:

2 Q. What if 15 prime was a foot long? If there
3 is a foot of cable separating switch 18 from housing
4 10, would switch 18 be remote from housing 10 during
5 installation?

6 MR. DORSKY: Object to form.

7 THE WITNESS: I think I see where you're
8 going with this, Jeff, but these are hypotheticals.
9 These are not any -- I don't recall an argument from
10 Dr. Eden on how far or how close the switch would be
11 needed to be considered remote, and so I'm not sure
12 it makes sense to ask my opinions about that when my
13 opinions are directed at the arguments that he or
14 the petitioner have made, and I don't recall a
15 discussion about that.

16 If you can point to somewhere in Dr. Eden's
17 materials where he argues this, I'm happy to look at
18 that, but I don't see the -- I don't think it's
19 appropriate, frankly, to think about these
20 hypotheticals with respect to a light fixture
21 design. And we're not even talking about the
22 design. We're talking about an installation
23 procedure, which is not an aspect of Claim 1 of the
24 '336.

25 ///

1 BY MR. MESSING:

2 Q. I'm not concerned with Dr. Eden's opinions
3 right now. I'm trying to understand your
4 interpretation of remote in this context.

5 So if shown figure 1, there is a foot of
6 space from cable 1 prime separating switch 18 from
7 the housing 10, would that switch 18 be remote from
8 the housing 10?

9 MR. DORSKY: Object to form.

10 THE WITNESS: I would say in the context of
11 Chaimberg's teaching that during installation or
12 deinstallation or maintenance only, if the switch
13 can be easily accessed by the user, then -- again,
14 during installation or deinstallation only, it would
15 not be remote.

16 But let me clarify, again, this is why this
17 line of questioning I find -- let's leave it at
18 that. The remote that we're talking about here,
19 remote to -- with respect to an installer, is not
20 the remote which is in the Claim 1 limitation of the
21 '336.

22 So you're asking me to answer a question
23 about the definition of remoteness that has nothing
24 to do with the limitation in Claim 1 of the '336.

25 So I want it to be clear that any answers

1 I've given with respect to the term "remote" in this
2 line of questioning are considering remoteness as
3 relates to installation or maintenance and not
4 remoteness with respect to the luminaire and its
5 final operating position, which is the context of
6 how a POSITA would interpret Claim 1 of the '336
7 patent.

8 BY MR. MESSING:

9 Q. If cable 15 prime were three feet long,
10 thus switch 18 was separated from housing 10 by
11 three feet of cable, do you consider that to be
12 remotely located from housing 10?

13 MR. DORSKY: Object to form.

14 THE WITNESS: Yes. If switch 18 is three
15 feet or more away, then I'll call it the
16 installation and remoteness starts to be there.

17 BY MR. MESSING:

18 Q. Anything less than three feet between
19 switch 18 and the housing 10, it's not remote
20 located. Is that your opinion?

21 A. I would say the installation remoteness
22 starts to emerge within that range.

23 MR. DORSKY: Object to form of the
24 question.

25 ///

1 BY MR. MESSING:

2 Q. Upon installation, let's say Chaimberg
3 light fixture and switch looked as it did here in
4 figure 1, would the switch be remote from the
5 housing 10?

6 MR. DORSKY: Object to form.

7 THE WITNESS: If you're asking -- when you
8 say upon installation, I don't know if you mean
9 during or after, so can you be clear.

10 BY MR. MESSING:

11 Q. I'll rephrase.

12 Ben, could you please zoom out a little bit
13 so we can see both figure 1 and 2.

14 My question is: Say cable 15 prime is a
15 cable that's approximately five inches long, so upon
16 installation we're looking at figure 2. The switch
17 would then be held up in the air by the cable and
18 it's a little different than what's shown in figure
19 2, but I'm asking if the switch was held up into the
20 air by the cable during installation?

21 MR. DORSKY: Object to form.

22 THE WITNESS: Jeff, if you're done, I have
23 to ask you to repeat the whole thing.

24 BY MR. MESSING:

25 Q. I'll rephrase. If a light fixture is

1 installed in the ceiling --

2 A. Again, let me explain this back as your
3 audio is really bad. Once the light fixture is
4 installed in the ceiling, like in figure 2?

5 Q. Correct.

6 A. So let's focus on figure 2.

7 Q. If in figure 2, if the cable, 15 prime, was
8 a stiffer cable, and it would hold the switch 18 in
9 its position that it's shown in figure 1 -- does
10 that make sense what I'm asking?

11 MR. DORSKY: Object to form.

12 THE WITNESS: I think you're asking about a
13 hypothetical situation which is not described by
14 Chaimberg wherein a section of the cable is replaced
15 by something stiff, I think I heard you say.

16 I'm not sure what that would be. I can
17 imagine there would be quite some issues with
18 including a stiff member out the back side of the
19 fixture as often there is not a lot of room in a
20 plenum, especially when you have other things in a
21 building infrastructure, conduits, even plumbing,
22 who knows what's up there. So these light fixtures
23 are typically designed to have a very thin form
24 factor once they're installed, as is indicated in
25 figure 2. That looks reasonable to me, so.

1 I can't imagine why somebody would put a
2 stiff member behind a fixture like that. That's
3 very strange.

4 BY MR. MESSING:

5 Q. I'll rephrase again. If the positioning of
6 cable 15 prime and switch 18, position shown in
7 figure 1, if --

8 THE REPORTER: I'm sorry, Jeff, your audio
9 is getting really bad.

10 (Recess taken.)

11 BY MR. MESSING:

12 Q. Before the technical issues we were
13 discussing Chaimberg, and I would like to switch our
14 focus to figure 2, please. Zoom in there.

15 Before I discuss that, I had a few
16 questions about the term "close proximity,"
17 Dr. Krames. You used that term; is that right?

18 A. I think Chaimberg uses that term.

19 Q. I believe you said earlier that in your
20 opinion the switch was in close proximity to the
21 housing and it would not be remote from the housing.

22 Is that a fair assessment?

23 MR. DORSKY: Object to form.

24 THE WITNESS: Yes, I think that's fair.

25 ///

1 BY MR. MESSING:

2 Q. How far away does the switch need to be
3 upon installation to be considered remote from the
4 housing, in your opinion, Dr. Krames?

5 MR. DORSKY: Object to form.

6 THE WITNESS: Well, in the context of the
7 lighting fixture design, it does not need to be
8 particularly far away, as describing -- in terms of
9 the interpretation of Claim 1 of '336, the term
10 "remote" just means not within the light fixture
11 cavity, for example.

12 That's very different than the installation
13 remoteness that Chaimberg is worried about. So I
14 think it's important to make that distinction. And
15 when I refer to close proximity, I'm referring to
16 Chaimberg's use of the term which is in the context
17 of this installation remoteness, which is very
18 different than whether or not a switch is remote to
19 the light fixture housing or not.

20 BY MR. MESSING:

21 Q. If Chaimberg's switch 18 were -- sorry,
22 scratch that.

23 If the length of cable in Chaimberg 15
24 prime separates the housing switch, if that cable
25 were six inches in length, do you consider that to

1 be close proximity?

2 MR. DORSKY: Object to form.

3 THE WITNESS: To be clear, 15 prime is just
4 one end of the cable. It's not clear that it
5 separates anything necessarily. So I think your
6 question would be interpreted as if the switch 18 is
7 positioned such that there is a length of cable of
8 six inches between it and the light fixture, would
9 that be considered remote. Is that your question?
10 BY MR. MESSING:

11 Q. That is my question. Thank you for
12 cleaning that up for me.

13 A. Okay. So, again, with respect to the
14 installation remoteness of Chaimberg, I think it
15 would not be installation-ally remote, so it would
16 not meet the requirements of -- his requirements of
17 close proximity during installation or remoteness.

18 So -- but that again doesn't have any
19 bearing on whether or not the switch would be remote
20 or not upon installation. It depends. It depends on
21 where switch 18 is in the installed luminaire.

22 Q. If installed luminaire switch 18 were
23 located out of the housing, would that be remote?

24 MR. DORSKY: Object to form.

25 THE WITNESS: In Chaimberg figure 2 we

1 don't see the switch remote from the housing.

2 As I pointed out in my declaration, almost
3 for sure it is inside the housing because we don't
4 see it here in this figure where every other element
5 is identified in detail, so your question relates to
6 a hypothetical which is not -- it's not related to
7 the installed luminaire of Chaimberg as shown in
8 figure 2.

9 BY MR. MESSING:

10 Q. If switch 18 were located in figure 2 where
11 number 15 is -- do you see number 15 there?

12 A. Yes, I do.

13 Q. If switch 18 were located at position 15 on
14 figure 2, would that switch be remote from the
15 housing?

16 MR. DORSKY: Object to form.

17 THE WITNESS: To be clear, switch 18 is not
18 shown by Chaimberg to be at the position that you
19 indicate, so that's not the case.

20 If Chaimberg intended that that be the
21 case, we would expect to see that in the figure.

22 BY MR. MESSING:

23 Q. Hypothetically, if switch 18 were located
24 in position 15, figure 2, would the switch be remote
25 in that hypothetical?

1 MR. DORSKY: Object to form.

2 THE WITNESS: I guess I can answer it this
3 way. We don't see switch 18 in figure 2 and it's
4 clearly not where you are asking in your
5 hypothetical around position 15. It's clearly not
6 there.

7 So there's only one of two places that it
8 could be. It's either in driver housing 16, or it's
9 within the cavity of the luminaire.

10 We know it's not the former because
11 Chaimberg teaches expressly that this is unwanted,
12 to have the switch be inside the driver housing,
13 that it's in fact dangerous to do so.

14 So that leaves us with the only conclusion,
15 which is that switch 18 is within the cavity of the
16 light fixture and that's why we don't see it in
17 figure 2.

18 BY MR. MESSING:

19 Q. My question was a little different,
20 Dr. Krames. I'm asking if switch 18 was located at
21 position 15, would the switch then be remote?

22 MR. DORSKY: Object to form.

23 THE WITNESS: I guess I can answer this
24 way. If switch 18 is positioned remote to the light
25 fixture upon installation, then it will be remote.

1 BY MR. MESSING:

2 Q. In your opinion, Dr. Krames, is the
3 position 15 on figure 2 remote from the housing?

4 MR. DORSKY: Object to form.

5 THE WITNESS: Yes, I would say position 15,
6 that particular location in figure 2, is remote from
7 the light fixture housing.

8 BY MR. MESSING:

9 Q. You would agree, Dr. Krames, that figure 2,
10 in this drawing, is switch 18 is inaccessible to the
11 user upon installation; is that right?

12 MR. DORSKY: Object to form.

13 THE WITNESS: No, I wouldn't agree with
14 that.

15 BY MR. MESSING:

16 Q. Is it your opinion this a user can access
17 switch 18 in figure 2?

18 A. Yes. During installation, the switch will
19 be accessible.

20 Q. Sorry, I may have phrased that poorly.
21 After installation.

22 So looking at figure 2, the light is sent
23 to the mounting hole. At that time the light
24 fixture is installed, is the switch 18 accessible to
25 the user?

1 MR. DORSKY: Object to form.

2 THE WITNESS: After installation, the
3 switch 18 will not be accessible to the user. Of
4 course it will be accessible again upon demounting
5 the light fixture from the ceiling. I think that's
6 clear.

7 BY MR. MESSING:

8 Q. Does figure 2 include the connector 19?

9 A. I don't see element 19 labeled in figure 2.

10 Q. Does figure 2 show the power supply cable
11 17?

12 A. It does not, although we do see cable 17 in
13 figure 1.

14 Q. You also see the connector 19 in figure 1;
15 is that right?

16 A. That's right.

17 Q. There is a second section of the cable 15
18 double prime. Do you see that in figure 1?

19 MR. DORSKY: Object to form.

20 THE WITNESS: I see 15 double prime.

21 BY MR. MESSING:

22 Q. Is 15 double prime shown in figure 2 of
23 Chaimberg?

24 A. Cable 15 is shown in figure 2, but the
25 element 15 double prime is not shown.

1 Q. We can put this exhibit away for now.

2 Dr. Krames, you offered infringement and
3 validity opinions in the district court case between
4 Signify and Menard, correct?

5 A. Yes, that's correct.

6 Q. In your Menard declaration you compared
7 Chaimberg's switch to one of the Menard's products
8 that you analyzed in the district court case,
9 correct?

10 MR. DORSKY: Object to form.

11 THE WITNESS: In the declaration I have an
12 example of a CCT switchable product that was
13 analyzed for that case.

14 MR. MESSING: Ben, can you please pull up
15 Dr. Krames's declaration. I think it's 2031.

16 VERITEXT CONCIERGE: Introducing Exhibit
17 2031.

18 BY MR. MESSING:

19 Q. You have a printed copy of this as well,
20 Dr. Krames; is that right?

21 A. Yes, I'm looking at it right now.

22 Q. This is a copy of the declaration that you
23 submitted in support of Signify's patent response in
24 this IPR?

25 A. That's right.

1 Q. Could we please go to page 91 of the PDF.
2 This is Paragraph 154, page 85 of the printout. Are
3 you there Dr. Krames?

4 A. Yes, just give me a minute.
5 Yes, okay.

6 Q. Is this the analysis you were referring to
7 where you referenced a CCT switch from a product?

8 A. Yes, I think it's the analysis you raised,
9 but we're both talking about the same thing.

10 Q. The product discussed here is SKU 348-2107;
11 is that right?

12 A. That's right.

13 Q. And on page 86 you have a few pictures of
14 CCT switch from SKU 348-2107. Dr. Krames, are these
15 pictures of the CCT switch from the SKU 348-2107?

16 A. I believe so.

17 Q. Did you take these pictures?

18 A. I may have. I don't recall now if I did or
19 someone else did. It's been a while.

20 Q. At some point you personally looked at the
21 product SKU 348-2107?

22 A. Yes, I believe so.

23 Q. Is it your opinion, Dr. Krames, that this
24 product 348-2107 practices Claims 3, 1, 7, 9, 11
25 through 13, 15 and 19 of the '336 patent; is that

1 right?

2 MR. DORSKY: Object to form, relevance.

3 THE WITNESS: We're not claiming that
4 anywhere, I don't believe. The point of showing
5 this is to describe what was a point of confusion I
6 think a little bit maybe on Dr. Eden's side with
7 respect to some of the references in terms of what a
8 switch body is.

9 As is pretty clear and is pointed out in my
10 declaration, the rectangular structure that's
11 referred to as switch 18 in Chaimberg, that physical
12 structure that was highlighted by Dr. Eden as a body
13 of a switch, it is certainly not that as it would be
14 unsafe, but is more likely an outer casing to
15 contain electronics. Which is exactly what we're
16 showing here.

17 So you see this white portion, white
18 plastic, outer casing. It's a clamshell, two sides,
19 which is on the right they're split apart, and in
20 this case there's a slide switch inside.

21 So point of this was to show what I think a
22 POSITA would understand is that rectangular portion
23 in switch 18 in Chaimberg, which is not the body of
24 a switch.

25 I'm not here to talk about the details of

1 the infringement case. I don't have those materials
2 in front of me. I guess we could do that, but I
3 would have to go back and look at these reports, and
4 there are a lot of different products and
5 infringement claims are different for the different
6 product families, and so I think it's inappropriate
7 for me to speak about that today.

8 BY MR. MESSING:

9 Q. We can hopefully clear up a little
10 confusion using this product as did you as well.

11 Can we please pull up tab "B" and mark that
12 as Exhibit 2.

13 (The document referred to was marked as
14 Exhibit 2 for identification and is attached
15 hereto.)

16 VERITEXT CONCIERGE: Marking Exhibit 2.

17 BY MR. MESSING:

18 Q. Can you please go to the second page of
19 this document.

20 Dr. Krames, this is a portion of your
21 infringement report filed in the district court case
22 and it relates to a SKU that we were just looking
23 at, 348-2107.

24 Do you see that document on the screen?

25 A. I do.

1 Q. Do you recognize this document?

2 A. Like I said, it's been a while, but I don't
3 have a reason to doubt this is an appendix to the
4 infringement report, but this was not -- this is not
5 something that I analyzed before our deposition today
6 or in preparation for this proceeding.

7 Q. Do you see the first SKU listed on the
8 table is SKU 348-2107?

9 A. Yes, I see that.

10 Q. That is the same SKU that you included
11 three pictures from in your IPR declaration; is that
12 right?

13 A. That's correct.

14 Q. The first sentence here, the main section,
15 states: "As discussed below, the accused products
16 identified below infringe asserted claims 1, 3, 7,
17 9, 11 through 13, 15 and 19 of the '336 patent."

18 Is that right?

19 A. That's correct.

20 Q. So it's your opinion that SKU 348-2107,
21 including the foots that you include in your
22 declaration, act as the asserted claims of the '336
23 patent including 1, 3, 7, 9, 11 to 13, 15 and 19?

24 MR. DORSKY: Object to form, relevance.

25 THE WITNESS: I agree that my report

1 includes opinions that the 348-2107 product
2 infringes claims 1, 3, 7, 9, 11 through 13, 15 and
3 19 of the '336 patent.

4 BY MR. MESSING:

5 Q. Please go to page 48 of the PDF. You can
6 zoom in that last paragraph here. As discussed in
7 Claim 1.

8 Do you see where the bottom states: "Each
9 exemplary representative product includes a CCT
10 selection switch coupled to the electrical cable via
11 a circuit board and located in a junction box
12 disposed remotely from the housing, the CCT
13 selection switch having three positions, each of
14 which corresponds to a discrete correlated color
15 temperature, CCT, output by one or more LEDs of the
16 luminaire"?

17 A. Yes, I see that.

18 Q. Below that is the SKU number that we
19 discussed, the 348-2107?

20 A. That's correct.

21 Q. Can you please go down to page 51 of the
22 PDF, page 50 of the document itself, and zoom in on
23 the two middle pictures there.

24 These are pictures of SKU 348-2107; is that
25 correct, Dr. Krames?

1 A. I'm going to go there on the document in the
2 Exhibit Share so I can look at everything in full
3 context. Just give me a minute.

4 Okay, I'm sorry, Jeff, can you repeat the
5 question?

6 Q. These two switches are from the SKU
7 348-2107; is that right?

8 A. Yes, that's correct.

9 Q. Here you included two annotations in the
10 red boxes. The first says switch in junction box
11 disposed remotely from housing. The second says
12 switch remote from housing.

13 Do you see that?

14 A. I do.

15 Q. You've identified the housing as the white
16 metal backing of the luminaire; is that correct?

17 MR. DORSKY: Object to form, relevance.

18 THE WITNESS: The white backing is a
19 portion of the light fixture housing.

20 BY MR. MESSING:

21 Q. The junction box is the silver metal box
22 attached to the housing?

23 MR. DORSKY: Same objections.

24 THE WITNESS: Yes, that's correct.

25 BY MR. MESSING:

1 Q. Is it your opinion that the switch here is
2 remote from the housing?

3 MR. DORSKY: Object to form, relevance.

4 THE WITNESS: Yes, in this case the switch
5 is inside the junction box which is remote from the
6 housing of the light fixture.

7 BY MR. MESSING:

8 Q. Just to clarify, the junction box itself is
9 not remote from the housing, is it?

10 MR. DORSKY: Object to form, relevance.

11 THE WITNESS: The junction box is attached
12 to the fixture.

13 BY MR. MESSING:

14 Q. And the switch is located within that
15 junction box?

16 MR. DORSKY: Same objection.

17 THE WITNESS: That's correct.

18 BY MR. MESSING:

19 Q. Please scroll down a couple pages to page
20 70 of the PDF. That was a lot more than a couple.

21 This is another picture of SKU 348-2107.
22 Do you see that?

23 A. Yes, I see that.

24 Q. Do you see the switch resting at the bottom
25 of the junction box? Is that a fair description?

1 MR. DORSKY: Object to form, relevance.

2 THE WITNESS: I don't know that the switch
3 is resting on the bottom. I would characterize the
4 switch as being relatively loose within the junction
5 box.

6 BY MR. MESSING:

7 Q. Is it your opinion that the switch shown
8 here, SKU 348-2107, is remote from the luminaire
9 housing?

10 MR. DORSKY: Object to form, relevance.

11 THE WITNESS: Yes, the switch here
12 positioned in this junction box in this way is
13 remote from the light fixture housing.

14 BY MR. MESSING:

15 Q. The junction box did not have -- let me
16 rephrase that.

17 The junction box shown here has a bottom
18 separating the switch from the luminaire housing; is
19 that right?

20 MR. DORSKY: Object to form, relevance.

21 THE WITNESS: Can you repeat the question?

22 BY MR. MESSING:

23 Q. Shown on the screen here there is a layer
24 of the junction box on the bottom that is resting
25 against the winter housing; is that right?

1 MR. DORSKY: Object to form, relevance.

2 BY MR. MESSING:

3 Q. I'll rephrase. The junction box in SKU
4 348-2107 is attached to the luminaire as a surface
5 that is touching the housing; is that right?

6 MR. DORSKY: Object to form and relevance.

7 THE WITNESS: I think your question is
8 there is a portion of the junction box which is
9 touching the housing of the light fixture I think is
10 what you said?

11 BY MR. MESSING:

12 Q. Correct.

13 A. Sorry, Jeff, your audio.

14 (Technical discussion.)

15 Q. If we zoom in on the top picture here,
16 Dr. Krames, you would agree there is a portion of
17 the junction box that is between the CCT switch and
18 the luminaire housing; is that right?

19 MR. DORSKY: Object to form, relevance.

20 THE WITNESS: The box encloses the switch,
21 so, yeah, between the switch and the light fixture
22 housing, there is a portion of the junction box.

23 BY MR. MESSING:

24 Q. I'm referring to this portion of the
25 junction box that -- I guess on the bottom from our

1 view, does that make sense to you?

2 A. About the orientation here of this photo,
3 and the junction box is taken apart, and in terms of
4 describing the physical relationship of the junction
5 box of the fixture is difficult with this particular
6 close-in view. So I --

7 Q. That's fair.

8 A. I'm not sure in general along the lines of
9 the endless objections why we're talking about this
10 which has no relevance to the IPR proceeding.

11 Q. Ben, could you please highlight on the
12 screen the portion of the junction box around that
13 red wire and that right arrow, that area between the
14 word "switch" and the actual picture of the switch.

15 If you go a little bit above there, too.

16 Sorry, it's hard to refer to things without
17 being able to actually highlight them, but I
18 guess -- what I'm referring to I'll call the wall,
19 that upper portion, a part of it is highlighted.

20 Do you see where Ben highlighted on the
21 screen?

22 A. Yes, I see what Ben is highlighting on the
23 screen.

24 Q. You understand that I'm referring to that
25 portion of the junction box if I say the wall of the

1 junction box?

2 A. You have -- it looks like four or five
3 surfaces highlighted right now, so if you're trying
4 to designate any one surface, I don't know what
5 you're referring to.

6 Q. Ben, could you please remove the lower
7 highlighting and only highlight that kind of top
8 portion that begins where the shadow starts. So
9 just above the actual switch.

10 Yes, right there.

11 Do you see that surface, Dr. Krames?

12 A. Yes, I do.

13 Q. If I refer to that surface as the wall, a
14 wall of the junction box, will you understand what
15 I'm referring to?

16 A. Yes, a wall of the junction box.

17 MR. DORSKY: Ms. Cloud, are you catching my
18 objections? I don't see it in the transcript.

19 THE REPORTER: If you don't see it on the
20 realtime, I didn't hear it.

21 MR. DORSKY: Last question, object to form.

22 Sorry for the interruption, Jeff.

23 BY MR. MESSING:

24 Q. I'm causing far more interruptions with my
25 cell phone here. You have quite a few of those to

1 catch up to me.

2 Dr. Krames, if this junction box did not
3 include that highlighted wall such that the switch
4 would be touching the luminaire body housing upon
5 installation, would that switch still be remote?

6 MR. DORSKY: Object to form, relevance.

7 THE WITNESS: I think you're asking if the
8 switch was outside the housing and not within the
9 junction box, would it still be remote, and the
10 answer is yes.

11 BY MR. MESSING:

12 Q. The question is a little different. If
13 it's still kind of bound by the junction box but
14 able to touch the luminaire housing, would that
15 switch be remote?

16 MR. DORSKY: Object to form, relevance.

17 THE WITNESS: If the switch was as shown
18 here, an external element but touching the light
19 fixture housing, would it be remote? Yes, it would
20 be remote.

21 MR. MESSING: I think we're at a good spot
22 to take a break. I have my new laptop here and
23 we've been going over an hour.

24 (Recess taken.)

25 THE WITNESS: I'm ready. And Mr Messing,

1 while we're back on the record and since we're into
2 my declaration, I wanted to call out there are two
3 typos in the declaration that I would like to cover.
4 Can we do that now?

5 BY MR. MESSING:

6 Q. Sure, we can cover that now.

7 A. There's just two. The first one is in
8 paragraph 188, and the error is in the last sentence.
9 It says: "The general concept of using a switch to
10 select a CCT setting using two or more sets of LEDs
11 as disclosed in Chaimberg," that should be Roberge.
12 So that where it says in the second sentence the
13 first "Chaimberg" should be "Roberge." So this
14 should be Roberge.

15 Q. Okay.

16 A. And then the second one is in paragraph 192,
17 and it's in the first line: "Thus a POSITA," it says
18 "would not have," and it should say "would have," so
19 the "not" shouldn't be there. Sorry for the typos.

20 Q. Happens to all of us. Thank you for
21 pointing those out.

22 A. Sure.

23 Q. Ben, can we pull back up the exhibit we
24 were looking at. I believe it was Exhibit 2. We're
25 on page 70 of the PDF.

1 Can you please scroll up a page here to
2 page 68 of Exhibit 2, and the second citation here
3 it starts with -- it says "See also 348-2107." Do
4 you see that Dr. Krames?

5 A. "See also for example," you mean in the
6 first line, 348-2107?

7 Q. Yes, that's right.

8 A. Yes, I see that.

9 Q. After the 348-2107 there is a number of
10 Bates numbers mark beginning with MEN000016. Do you
11 see that?

12 A. Yes.

13 Q. And if you look down to the third line,
14 there's another range of Bates numbers identified
15 with respect to 348-2107 beginning with SIGNIFYMNRD.
16 Do you see that?

17 A. On the third line, SIGNIFYMNRD, yes, I see
18 that.

19 Q. And this line identifies SIGNIFYMNRD0018733
20 through SIGNIFYMNRD0018755 as documents relating to
21 348-2107. Do you see that?

22 A. Yes, that appears to be the case.

23 Q. Can we please pull up tab "C" and mark that
24 as Exhibit 3.

25 VERITEXT CONCIERGE: Marking Exhibit 3.

1 (The document referred to was marked as
2 Exhibit 3 for identification and is attached
3 hereto.)

4 BY MR. MESSING:

5 Q. This is one of the documents in that Bates
6 range we just looked at in the district court case
7 SIGNIFYMNRD0018750. Do you see this document on
8 your screen?

9 A. I see it on the screen. I don't see it in
10 the exhibit list as a marked exhibit, no.

11 VERITEXT CONCIERGE: I just stamped that
12 now. It should be appearing if you refresh.

13 MR. MESSING: Ben, can you please zoom in
14 on the actual top of the luminaire where that
15 junction box is.

16 BY MR. MESSING:

17 Q. Before the break, Dr. Krames, we were
18 talking about a hypothetical of removing a portion
19 of the junction box. Do you recall that?

20 A. I don't recall removing a portion of the
21 junction box. I remember several questions about
22 whether or not the switch is a remote and various
23 questions related to the junction box.

24 I don't remember questions about
25 disassembling the junction box, but maybe I'm

1 misremembering already.

2 Q. In this picture here, do you see the CCT
3 switch in the right corner, the white box?

4 A. Yes. Again, I haven't -- it's been a while
5 since we looked at these materials, but that appears
6 to be a CCT switch on the right-hand side of the
7 junction box.

8 Q. And it's your opinion that the CCT switch
9 is remote from the luminaire housing; is that right?

10 MR. DORSKY: Object to form, relevance.

11 THE WITNESS: This CCT switch is remote
12 from the light fixture housing.

13 MR. MESSING: Ben, can we zoom into that
14 portion of the junction box with the CCT switch.

15 BY MR. MESSING:

16 Q. Dr. Krames, you can see a portion of the
17 light fixture housing directly to the right of the
18 CCT switch; is that right?

19 MR. DORSKY: Object to form, relevance.

20 THE WITNESS: Yes, the white surface
21 towards the right side of the image appears to be
22 the back of the light fixture housing.

23 BY MR. MESSING:

24 Q. In your opinion, even if this CCT switch is
25 touching the light fixture housing, it is still

1 remote from the light fixture housing; is that
2 right?

3 MR. DORSKY: Object to form, relevance.

4 THE WITNESS: If the switch as shown here
5 were just touching the light fixture housing, which
6 I think is what you asked, or which appears to be
7 the case already, would it still be remote? Yes, it
8 would be remote.

9 BY MR. MESSING:

10 Q. In your opinion, Dr. Krames, a CCT switch
11 can still be touching the light fixture housing but
12 still be remote from that light fixture housing?

13 MR. DORSKY: Object to form.

14 THE WITNESS: In this case where the
15 fixture is a separate body that is not physically
16 attached to the light fixture but is just touching
17 it, it's clearly remote.

18 BY MR. MESSING:

19 Q. These cables here connect the CCT switch to
20 light fixture housing; is that right?

21 MR. DORSKY: Form, relevance.

22 THE WITNESS: The cables here are cables of
23 the luminaire that connect to the light fixture. Or
24 connect eventually -- couple to the LEDs inside the
25 light fixture.

1 MR. MESSING: We can take this exhibit
2 away. Can we please pull Chaimberg back up. That
3 was Exhibit 1003.

4 BY MR. MESSING:

5 Q. Dr. Krames, in Chaimberg, the live wire 17
6 provides power to the LED lighting fixture; is that
7 fair?

8 MR. DORSKY: Form.

9 THE WITNESS: Live wire 17 is powered from
10 the built infrastructure. So this would be mains
11 voltage. It does not itself apply power directly to
12 the LEDs. There has to be some sort of power
13 conditioning circuitry involved.

14 BY MR. MESSING:

15 Q. The live wire 17 is connected to the driver
16 circuit; is that right?

17 A. The live wire 17 must be electrically
18 coupled to the driver circuitry at some point.

19 Q. And in Chaimberg, the driver circuitry is
20 located in driver housing 16?

21 A. That's what it says.

22 Q. Cable 15 of Chaimberg is also connected to
23 the driver circuit 20?

24 A. That's not so clear actually. In fact -- in
25 fact, a lot of the teaching in Chaimberg around the

1 driver circuit is very confusing.

2 Q. Can we go to page 5 of the PDF, column 3,
3 around line 20. If we could zoom in between line 0
4 and 25. The portion I'm referring to now is on
5 line 21, begins with: "The cable 15 is also secured
6 at a far end 15 double prime to a driver circuit 20
7 as illustrated in figure 3."

8 Do you see that?

9 A. Yes, I do.

10 Q. You would agree that Chaimberg states that
11 the cable 15 is secured at a far end 15 double prime
12 to a driver circuit 20?

13 A. Yes, I do.

14 Q. The other end of Chaimberg 15 prime is
15 "secured to the light housing and has wires therein
16 cured to the two sets of LEDs to supply driving
17 current to each of the sets and such is obvious to a
18 person skilled in the art."

19 Is that what Chaimberg states?

20 MR. DORSKY: Object to form.

21 BY MR. MESSING:

22 Q. I'll rephrase. That was poorly phrased.

23 I'll draw your attention to line 18,
24 states: "As shown, a cable 15 is secured at one end
25 15 prime to the light housing 12."

1 Do you see that?

2 A. Yes.

3 Q. Did I read that correctly?

4 A. I think so. You can read it again if you
5 like, but I see what the highlighted portion here
6 says.

7 Q. The next part of that sentence continues
8 at: "Light housing 12 has wires therein secured to
9 the two sets of LEDs to supply driving current to
10 each of the sets and such is obvious to a person
11 skilled in the art."

12 Do you see that?

13 A. Yes, I do.

14 Q. Do you agree that Chaimberg discloses that
15 cable 15 supplies driving current to each of the
16 sets of LEDs?

17 MR. DORSKY: Object to form.

18 THE WITNESS: Jeff, can you repeat the
19 question?

20 BY MR. MESSING:

21 Q. Do you agree that Chaimberg discloses that
22 cable 15 supplies driving current to each of the
23 sets of LEDs?

24 MR. DORSKY: Same objection.

25 THE WITNESS: Yes, that's correct.

1 BY MR. MESSING:

2 Q. You can zoom back out then. If you can
3 please go to PDF page 3 and zoom in on figure 3.

4 Dr. Krames, we're shown here figure 3. Do
5 you agree that this is a schematic diagram of
6 Chaimberg's driver circuit?

7 MR. DORSKY: Object to form.

8 THE WITNESS: Figure 3 of Chaimberg is
9 element 20 here. He refers to it as a driver
10 circuit.

11 I will point out that it does not appear to
12 be a driver circuit. There is no indication of
13 where the mains voltage is supplied, which is a
14 fundamental part of a driver for an LED.

15 BY MR. MESSING:

16 Q. Figure 3 identifies the switch 18; is that
17 right?

18 A. I see an element 18 listed here.

19 Q. And element 18 points to a rectangular box.
20 Do you see that?

21 MR. DORSKY: I.

22 THE WITNESS: I do.

23 BY MR. MESSING:

24 Q. And that rectangular box includes parts 32
25 and 33, do you see that?

1 MR. DORSKY: Object to form.

2 THE WITNESS: Yes, I see elements 32 and 33
3 that are contained within the rectangular box
4 labeled 18.

5 BY MR. MESSING:

6 Q. And elements 32 and 33 are the conducting
7 arms of the switch 18; does that sound right?

8 A. Give me a second, please.

9 Q. I can help you out a little bit. It's
10 column 436, and if we can jump over there quick,
11 what we're showing now, Dr. Krames, is column 4,
12 approximately lines 27 to 52 of Chaimberg.

13 I'll direct your attention to line 34,
14 begins: "The switch 18 is a toggle switch provided
15 with a slide button 31, having two conducting arms,
16 32 and 33."

17 Do you see that?

18 A. I do.

19 Q. Do you agree that Chaimberg discloses
20 elements 32 and 33 from figure 3 are two conducting
21 arms?

22 A. Yes, he describes them as conducting arms.

23 Q. We can take down Chaimberg.

24 I would like to shift gears a little bit
25 now and talk about another reference. The Roberge

1 reference which I believe is Exhibit 1011.

2 Dr. Krames, I believe you have a printout copy of
3 this as well which you're free to refer to as well.

4 A. That's right.

5 Q. It's the Roberge's reference 1011 shared
6 here, U.S. patent 7,178,941. Do you see that?

7 A. I do.

8 Q. And if I refer to Roberge, I think we
9 already have, but you'll understand I'm referring to
10 U.S. patent 7,178,941?

11 A. Yes.

12 Q. You understand this reference Roberge was
13 filed in May 5, 2004?

14 A. That's correct.

15 Q. Have you read the entire Roberge reference?

16 A. I have skimmed it cover to cover. I have
17 not read it as one might read an exciting novel.
18 I've covered what I need to cover in Roberge.

19 Q. You understand that Signify now owns the
20 Roberge patent?

21 MR. DORSKY: Object to form, relevance.

22 THE WITNESS: I have not checked the
23 assignment of this application. I recognize it was
24 originally filed by Color Kinetics who was later --
25 the company was acquired by Philips, so it's

1 certainly plausible when you say it.

2 BY MR. MESSING:

3 Q. You would agree, Dr. Krames, that
4 Chaimberg -- sorry, scratch that.

5 You would agree, Dr. Krames, that Roberge
6 discloses switches for controlling CCT; is that
7 fair?

8 MR. DORSKY: Object to form.

9 THE WITNESS: Roberge describes setting
10 color temperatures in lighting products using
11 various mechanisms.

12 BY MR. MESSING:

13 Q. And the mechanisms described in Roberge
14 include mechanical switches; is that right?

15 A. There's at least one example of a mechanical
16 way of switching the CCT.

17 Q. Can we please go to page 100 of the PDF.
18 This will be column 30 -- sorry, column 42, line 30.

19 Dr. Krames, I would like to call your
20 attention to line 35, column 42 in Roberge states
21 here: "In various embodiments the slides, switches,
22 dials, DIP switches and the like can be used to
23 control a wide range of variables such as color,
24 color temperature, intensity, hue."

25 Do you see that?

1 A. Yes, I see that.

2 Q. You would agree that slides, dials, DIP
3 switches were known in the art to a POSITA as of
4 2004?

5 MR. DORSKY: Object to form.

6 THE WITNESS: Sorry, Jeff, can you rephrase
7 the question, please.

8 BY MR. MESSING:

9 Q. The inventors of Roberge did not invent
10 slides, switches, dials or DIP switches, did they?

11 MR. DORSKY: Object to form, foundation.

12 THE WITNESS: I'm not going to comment on
13 the inventors of Roberge with relationship to
14 switches, but they do call out here what is said in
15 the patent in various embodiments, which is dials,
16 DIP switches and the like could be used to control a
17 wide range of variables.

18 BY MR. MESSING:

19 Q. Switches like dials, DIP switches, slide
20 switches, were known in the art before the Roberge
21 patent was filed; is that right?

22 MR. DORSKY: Object to form.

23 THE WITNESS: Yes, that's correct.

24 BY MR. MESSING:

25 Q. Dr. Krames, I'll draw your attention to

1 line 25. Towards the end of this line a new
2 sentence begins saying: "Figure 34g shows a DIP
3 switch 3410 which can be used to get simple modes of
4 lighting unit 102." Do you see that?

5 A. Yes, I see that.

6 Q. Can we please go to line 50 of the same
7 column. Starting at line 51, states: "Referring to
8 figure 34i, in embodiments a dial allows a user to
9 select one or more colors or color temperatures from
10 a scale 3414."

11 Do you see that?

12 A. I do.

13 Q. Roberge discloses a switch in 34i that
14 allows a user to select one or more colors or color
15 temperatures from a scale 3414; is that right?

16 MR. DORSKY: Object to form.

17 THE WITNESS: Roberge discloses a dial that
18 allows user to select one or more color
19 temperatures, and in particular he goes on to talk
20 about this offering a capability for the lighting
21 designer or installer to set the color temperatures
22 for products appropriately for an installation for a
23 lighting project.

24 BY MR. MESSING:

25 Q. It also states on line 57 that the slide

1 mechanism can be used like the dial to set a
2 particular color temperature of white light; is that
3 correct?

4 A. Yes, I see where it says a slide mechanism
5 can be used like the dial.

6 Q. It says that the slide mechanism can be
7 used like the dial to set a particular color
8 temperature of white light?

9 A. That's correct.

10 Q. And the last sentence here in this
11 paragraph around line 62 states: "Providing
12 adjustable lighting units 102 offers designers and
13 installers much greater control over the correct
14 maintenance of the lighting of the environment."

15 Do you see that?

16 A. I do.

17 MR. MESSING: Ben, can we please go to page
18 39 of the PDF. If we could please zoom in on 34i.

19 BY MR. MESSING:

20 Q. Dr. Krames, you're familiar with the figure
21 34i, right?

22 A. Yes.

23 Q. Figure 34i is the dial that we were just
24 discussing; is that right?

25 A. That's correct.

1 Q. And figure 34i discloses a number of CCTs,
2 including 2700 Kelvin, 3000K, 3500 Kelvin, 4000
3 Kelvin, 4500 Kelvin, 5000 Kelvin, 5500 Kelvin, 6000
4 Kelvin, 6500 Kelvin, 7000 Kelvin and 8000 Kelvin; is
5 that correct?

6 A. That's correct.

7 Q. Each of these CCT values shown on figure
8 34i were known in the art at the time Roberge was
9 filed in 2004; is that right?

10 MR. DORSKY: Object to form.

11 THE WITNESS: CCT for white light were
12 known across a very wide range of color
13 temperatures, and the definition of color
14 temperature was certainly set before the filing of
15 Roberge, and that can go from extremely low color
16 temperatures like candlelight, 1800 Kelvin or even
17 less, to very high color temperatures which is what
18 we see in solar radiation that can get to tens of
19 thousands of Kelvin, depending on the details of the
20 blue light content.

21 So I'm not sure if you're asking was color
22 temperature understood prior to 2004, the answer is
23 yes.

24 BY MR. MESSING:

25 Q. Beg your pardon. Could you please move

1 over to figure 34g up to the right in this one. We
2 read about figure 34g earlier, and you would agree
3 Roberge says that figure 34g is a DIP switch 3410
4 which can be used to set simple modes of a lighting
5 unit 102?

6 MR. DORSKY: Object to form.

7 THE WITNESS: Yes, I agree that's what
8 Roberge says about figure 43 -- sorry, 34g.

9 BY MR. MESSING:

10 Q. Can we please go to Roberge page 87 of the
11 PDF. This will be lines -- column 15, line 35 to
12 45.

13 Dr. Krames, I would like to draw your
14 attention to line 35. Here Roberge states that:
15 "The terms lighting unit, luminaire and lighting
16 fixture are used herein to refer to an apparatus
17 including one or more light sources 300."

18 Do you see that?

19 A. Yes.

20 Q. The next sentence states: "A given
21 lighting unit 102 may have any one of a variety of
22 mounting arrangements for the light sources in a
23 variety of housings 800."

24 Do you see that?

25 A. Yes.

1 Q. The next sentence then states: "Housing
2 800 may include enclosures, platform, boards,
3 mountings and many other form factors including
4 forms designed for other purposes."

5 Is that right?

6 MR. DORSKY: Object to form.

7 THE WITNESS: Yes, I see that.

8 BY MR. MESSING:

9 Q. If we could go down a couple columns to
10 page 88 of the PDF. This will be column 17, line
11 54. So the last paragraph of column 17.

12 This paragraph states: "In embodiments the
13 housing 800 may be a housing for an architectural,
14 theatrical, or entertainment lighting fixture,
15 luminaire, lamp, system or other product."

16 Do you see that?

17 A. I do.

18 Q. Roberge discloses that: "The housing 800
19 may be made up of a metal, a plastic, a polymer, a
20 ceramic material, glass, an alloy or another
21 suitable material." Is that right?

22 A. Yes, that's what Roberge says. Again, kind
23 of related to the size of the patent application,
24 Roberge describes everything under the sun, any kind
25 of consumable light fixture from practical ones to

1 architectural ones to ones that may be in the realm
2 of fantasy land. So he describes a very, very wide
3 range of housings.

4 Q. And the range of housings described in
5 Roberge include luminaires?

6 A. Some of the housings that he described would
7 be considered luminaires.

8 Q. Are you aware, Dr. Krames, that Signify has
9 asserted a Roberge patent against luminaires in
10 district court patent cases?

11 MR. DORSKY: Object to form, relevance.

12 THE WITNESS: I'm not aware of any
13 litigation involving the Roberge patent other than
14 this proceeding here.

15 MR. MESSING: Ben, can we please turn back
16 to figure 34i.

17 BY MR. MESSING:

18 Q. The first six items listed on the dial
19 starting from left to right are 2700, 3000, 3500,
20 4000, 4500 and 5000; is that right?

21 A. Yes, that's correct.

22 Q. Those first three temperatures, 2700, 3000,
23 3500, you would agree, Dr. Krames, that as of 2016,
24 it was known in the art to use lighting devices that
25 emit white light at either 2700, 3000 or 3500

1 Kelvin?

2 MR. DORSKY: Object to form.

3 THE WITNESS: White lighting products were
4 known across a wide range of color temperatures,
5 broader than the range that you described, in fact,
6 so if you're asking are these the most common color
7 temperatures, I'm not sure what your question is,
8 actually.

9 BY MR. MESSING:

10 Q. I'll rephrase. Were lighting devices
11 offered in color temperatures of 2700, 3000 or 3500
12 Kelvin before 2016?

13 MR. DORSKY: Object to form.

14 THE WITNESS: Certainly 2700 Kelvin and
15 3000K would have been available. 3500 Kelvin is a
16 little bit more unusual color temperature.

17 BY MR. MESSING:

18 Q. Can you please pull up Exhibit 1001. This
19 is the '336 patent.

20 Dr. Krames, I would like to draw your
21 attention to page 21 of the PDF, column 1. This is
22 the background section, and if we zoom in on around
23 line 35, states that: "For example, a compact
24 fluorescent downlight might accept 6, 32-, or 42-
25 watt lamps in 2700, 3000 and 3500 Kelvin CCT."

1 Do you see that?

2 A. I do.

3 Q. Do you read the '336 patent acknowledges
4 that fluorescent lamps were available as of 2016 in
5 2700, 3000 and 3500 Kelvin?

6 A. Correct.

7 Q. Would you agree, Dr. Krames, that a color
8 temperature of between 2700 and 3000K is considered
9 the most pleasing for living spaces?

10 MR. DORSKY: Object to form.

11 THE WITNESS: Globally you can't say that's
12 true. Lighting preference is very -- has a strong
13 geographic influence, so very warm color
14 temperatures that might be acceptable, for example,
15 in northern Europe are not particularly as well
16 received in parts of Asia, for example.

17 So generally in Asia you see preference for
18 higher color temperatures and even color
19 temperatures that would be very difficult to find in
20 a European built environment or even North American
21 built environment.

22 BY MR. MESSING:

23 Q. Can we please pull up tab "D" and mark that
24 as Exhibit 3.

25 VERITEXT CONCIERGE: This one will be

1 Exhibit 4. Marking Exhibit 4.

2 MR. MESSING: Thank you.

3 (The document referred to was marked as
4 Exhibit 4 for identification and is attached
5 hereto.)

6 BY MR. MESSING:

7 Q. Dr. Krames, what we've just marked as
8 Exhibit 4 is a patent publication, patent
9 application publication, publishing number
10 2010/0289044. Do you see that?

11 A. I do.

12 Q. And you were listed as the first named
13 inventor on this patent?

14 A. That's correct.

15 Q. Do you recognize this patent application?

16 A. It's been 15 years, but yes, I -- it does
17 not look unfamiliar; how about that?

18 Q. Fair. And this patent was assigned to
19 Philips, which is now Signify?

20 MR. DORSKY: Object to form.

21 THE WITNESS: This would have been filed as
22 Philips Lumileds would have been the original
23 assignee, which is a subsidiary of Philips.
24 Basically says right here, Philips Lumileds Lighting
25 Company is the assignee.

1 BY MR. MESSING:

2 Q. Could we please go to page 15 of the PDF,
3 paragraph 6 of the application.

4 The fourth line from the bottom of
5 paragraph 6 states: "A color temperature of between
6 2700 and 3000K is considered the most pleasing for
7 living spaces since it is the most flattering for
8 skin tones and clothing. Cool light is considered
9 to be 3600 to 5500 Kelvin, typical for an office
10 that uses fluorescents bulbs."

11 Do you see that?

12 A. I do.

13 Q. I think this may go back to your statement
14 on distinguishing between different regions. Is it
15 fair that as you sit here in North America or
16 Europe, for example, a color temperature between
17 2700 and 3000K is considered the most pleasing for
18 living spaces?

19 MR. DORSKY: Object to form.

20 THE WITNESS: I'll stand by my answer
21 before, but I'll acknowledge you're identifying a
22 geographical bias that I may have had at the time we
23 wrote this, because we were highly influenced by our
24 customers which were typically in North America and
25 in Europe.

1 And one thing to know, achieving a warm
2 color temperature was in fact quite difficult for
3 LEDs because of the details around the technology --
4 technologies were available especially for phosphor
5 down-conversion.

6 We had a very good yellow-emitting
7 phosphor, YAG, which had been developed back in the
8 1970s for scintillator applications, but in order to
9 get warm white, you needed red. And the development
10 of red phosphor for LEDs was quite the task. And
11 when we finally achieved that, we were very pleased,
12 to use the same term, that we could do that.

13 And I can imagine this was very much on my
14 mind at the time that we were writing this patent
15 application because we had achieved warm white
16 around this time frame, and we were trying to make
17 it as efficient as possible, which remained a
18 challenge. Even to today, it remains a bit of a
19 challenge.

20 So I could imagine my emphasis about it
21 here. So again, it would be in the context of
22 thinking about the customer base of Lumileds and
23 Philips which was primarily North America and
24 Europe.

25 MR. MESSING: I think we're at a good spot

1 for a break here now for lunch.

2 (At the hour of 12:45 p.m. a luncheon
3 recess was taken. The deposition was resumed at
4 1:30 p.m., the same persons being present.)
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1 MERIDIAN, IDAHO, THURSDAY, MARCH 13, 2025

2 1:30 P.M.

3
4 EXAMINATION (RESUMED)

5 BY MR. MESSING:

6 Q. Dr. Krames, I would like to shift a little
7 bit and talk about wiring illuminators in general.

8 Dr. Krames, you would agree that existing
9 house wiring, those wired directly into a luminaire,
10 would not constitute an electrical cable of the
11 luminaire?

12 MR. DORSKY: Object to form.

13 THE WITNESS: Can you rephrase your
14 question. I think you said -- why don't you start
15 from the top again.

16 BY MR. MESSING:

17 Q. Would you agree that a POSITA would not
18 have understood existing house wiring that is wired
19 directly into a luminaire to constitute an
20 electrical cable of the luminaire?

21 A. What do you mean wired directly to a
22 luminaire?

23 Q. Can we please pull up Exhibit 2031. If you
24 can please go to page 141 of the PDF. That would be
25 the sixth line to the bottom on paragraph 233

1 beginning with "a POSITA would not have understood."

2 Do you see this text in your declaration?

3 A. Yes, I do.

4 Q. You would agree that if a luminaire was
5 powered by a wire that was already existing in the
6 house or install location, that the existing wire
7 would not be a cable of the luminaire?

8 A. Yeah, so what we're stating here -- what I'm
9 stating here is that generally a power cable is --
10 through house wiring is set up to distribute power to
11 the house. And that that power is available to light
12 fixtures, and usually that interface is through a
13 driver or some sort of -- like we saw, we're talking
14 about earlier with Chaimberg, there's an input,
15 so-called live wire, that then goes into a receptacle
16 which houses the driving components for converting AC
17 to DC voltage and conditioning the voltage to power
18 other aspects of the luminaire, including the LEDs.

19 So that so-called live wire that comes in
20 from the house is not a cable of the luminaire.

21 Q. Just to be clear, a wire from the house
22 that goes into a receptacle in the luminaire which
23 houses the driving components, that wire would not
24 be a cable of the luminaire?

25 MR. DORSKY: Object to form.

1 THE WITNESS: The mains voltage wiring that
2 is part of the built infrastructure power
3 distribution is not a cable of the luminaire.

4 BY MR. MESSING:

5 Q. If a luminaire was connected to an existing
6 junction box in the house -- let's say you're
7 replacing a luminaire and you were just using the
8 wire that was already there from an existing
9 junction box. Would that existing wire then be a
10 cable of the luminaire?

11 MR. DORSKY: Object to form.

12 THE WITNESS: Let's talk about an example.
13 Can you rephrase your question and maybe we can use
14 figure 1 of the Chaimberg to help me understand your
15 question.

16 When you say there's an existing cable at
17 the junction box, I don't know what you're saying
18 exactly.

19 BY MR. MESSING:

20 Q. Let's pull up Chaimberg figure 1.

21 My question is a little -- Chaimberg --
22 let's say that cable 15 could be connected or could
23 be removed at the housing itself, at the 15 prime
24 location. Does that make sense?

25 A. At which location? There's a connector here

1 already, connector 19; maybe we can start there.

2 Q. Actually, I think I know a better example
3 for this. Can we pull up the '336 patent, figure 5.
4 This is the claimed prior art luminaire. Do you see
5 figure 5 on the screen?

6 A. I do.

7 Q. Do you agree this is a luminaire that would
8 have been known in the art as of 2016 or 2018?

9 MR. DORSKY: Object to form.

10 THE WITNESS: This was a standard luminaire
11 that the '336 patent designated prior art.

12 BY MR. MESSING:

13 Q. My question is if you were installing this
14 prior art luminaire into a house that already had an
15 existing junction box and existing cable from the
16 junction box that is then used to power the
17 luminaire -- does that hypothetical make sense?

18 MR. DORSKY: Object to form.

19 THE WITNESS: It kind of depends on what
20 design we're talking about. So I think a better
21 figure to talk about to cover the various aspects
22 you might want to be questioning about is figure 8.

23 BY MR. MESSING:

24 Q. Sure, let's look at figure 8. I think
25 you're quite right. Figure 8 of the luminaire

1 housing 805; is that right?

2 A. I think that's the whole fixture. The light
3 head; the head part of the lighting fixture, yes.

4 Q. If you were to be replacing an existing
5 luminaire in the house and there is already a
6 junction box there, which would already have your
7 prior junction box 890 and prior junction box cable
8 827, if you then connected 805 to a separately
9 purchased, separately made, cable and junction box,
10 would that cable be a cable of the luminaire?

11 MR. DORSKY: Object to form, relevance.

12 THE WITNESS: To be clear, when we're
13 installing this one, the new luminaire will likely
14 come with a cable 827 for installation, and that
15 will clearly be a cable of the luminaire.

16 BY MR. MESSING:

17 Q. We can put this exhibit away.

18 Dr. Krames, in those examples we just
19 discussed, the luminaires are ultimately powered by
20 existing voltage from the house where it's
21 installed; is that correct?

22 A. No, the light fixtures are powered by
23 typically DC current or pulse-width modulated current
24 from the output of the driver.

25 Q. Those drivers receive their power from

1 existing wiring in the house; is that fair?

2 A. Commonly, yes.

3 Q. A luminaire could be powered by other power
4 sources, right?

5 A. Yes.

6 MR. DORSKY: Object to form.

7 BY MR. MESSING:

8 Q. Could a luminaire be powered by a battery,
9 for example?

10 A. Yes.

11 Q. Can we please pull up what would be Exhibit
12 1008, the file history of the '424 provisional
13 application?

14 VERITEXT CONCIERGE. Introducing
15 Exhibit 1008.

16 BY MR. MESSING:

17 Q. Dr. Krames, are you familiar with
18 Exhibit 1008?

19 A. Yes, I am.

20 Q. I would like to ask a few questions about
21 figure 4 of the '424 provision on page 40 of the
22 PDF?

23 Dr. Krames, figure 4 of the '424
24 provisional is a schematic of a luminaire; is that
25 correct?

1 A. Figure 4 is a schematic of driver circuitry
2 and the LEDs that they control.

3 Q. Figure 4 includes a number of components
4 including LEDs, switches, resistors, is that right?

5 A. Yes, figure 4 of the '424 provisional
6 includes a schematic for components such as LEDs,
7 transistors, resistors, which I think is what you
8 said.

9 Q. Throughout the schematic there are lines
10 connecting different components, right?

11 A. That's correct.

12 Q. Are each of these lines shown on the
13 schematic a wire?

14 MR. DORSKY: Object to form.

15 THE WITNESS: Wires in a circuit schematic
16 generally indicate an electrical connection for
17 current flow. The current flow can be carried
18 through various topologies. It could be wire. It
19 could be a circuit trace on a print circuit board.
20 It could be through -- those are the two most common
21 things that you see in a schematic.

22 BY MR. MESSING:

23 Q. Can you zoom in towards the right, kind of,
24 bottom corner or so of the schematic around the
25 figure 4 label.

1 Dr. Krames, in the middle of what we have
2 blown up here, do you see there's numbers 12 and 13,
3 looks like a rectangle with a curved end. Do you
4 see that?

5 A. Yes, that's a logic symbol and I see inputs
6 12 and 13.

7 Q. Does a logic symbol take that shape in
8 practice?

9 MR. DORSKY: Object to form.

10 THE WITNESS: The symbol is a symbol. I
11 just like -- onto the right you see what looks like
12 a Zener diode, for example, in the very far right.

13 So these symbols are indicative of how the
14 circuit works. This is not an integrated circuit
15 routing layout, which would be the physical
16 manifestation of this controller, nor is it a print
17 circuit board layout which would be a physical
18 description of the full assembly; for example, of
19 the driver.

20 This is the way that an electrical
21 engineering, the function of such a controller, is
22 described.

23 MR. MESSING: Ben, can we zoom in a little
24 further -- actually let's stay here.

25

1 BY MR. MESSING:

2 Q. Dr. Krames, above that logic symbol near
3 the numbers 12 and 13 there's some writing above it.
4 Do you see that?

5 A. I do.

6 Q. Can you read that writing for me?

7 A. This one is a little bit difficult to read
8 because of the quality of the image. I can perhaps
9 do a better job looking at some of the other figures
10 we have related to that, if that's okay.

11 Q. For now I would like to stick with this
12 figure and make sure that I understand correctly
13 that the figure 4 in the '424 provisional, this
14 writing is electrical; is that fair?

15 MR. DORSKY: Object to form.

16 THE WITNESS: The writing is electrical? I
17 don't know --

18 BY MR. MESSING:

19 Q. I'll rephrase. Withdrawn.

20 Dr. Krames, this writing as produced in
21 figure 4 of the '424 provisional is electrical?

22 MR. DORSKY: Object to form.

23 THE WITNESS: No, I don't agree with that.

24 BY MR. MESSING:

25 Q. Sitting here today, can you read the text

1 that is above the logic symbol?

2 A. I can give it a shot. I'll submit that this
3 is probably not the best version of this image to
4 look at and probably not the best way to do so,
5 specially given my eyesight. But it certainly
6 appears to start with MC140 -- looks like 9. Next
7 character is a little bit tough, and then there is a
8 BD and it ends TR2G.

9 In terms of practicality, if I'm looking to
10 replicate that, or a POSITA is looking to replicate
11 this circuit, they would look for a NAND device --
12 that's what this logic symbol is. And with the
13 characters I just read with probably fairly little
14 effort would be able to find exactly what they would
15 need to replicate here. But as I said before,
16 there's probably a better rendition of this writing
17 somewhere in the literature, perhaps in the '336
18 patent itself.

19 Q. Could we please go up to figure 3 of the
20 '424 provisional. What we're seeing now is figure
21 3, which was a table showing the resulting color
22 temperatures based on the input in switches 1 and 2
23 in the luminaire I described in the '424
24 provisional; is that correct?

25 A. I'm sorry, Jeff, can you repeat the

1 question?

2 Q. Yes. The table shown in figure 3 starting
3 with the left two columns shows different positions
4 for the switches 1 and 2; is that right?

5 A. That's right.

6 Q. And there are four different combinations
7 of switch positions disclosed in table -- in the
8 table in figure 3; is that right?

9 A. That's correct.

10 Q. We can zoom out and go back to -- we can
11 stay on this page. Can you please go to page 19 of
12 the PDF. Dr. Krames, you could agree the '424
13 provisional refers to a dual in-line pin, or DIP
14 switch?

15 A. Yes, it does.

16 Q. You would agree that a DIP switch -- strike
17 that.

18 You would agree that DIP switches with a
19 body, pins for coupling to a circuit board and an
20 actuator that can be moved between positions were
21 generally known in the art before the '424
22 provisional was filed?

23 MR. DORSKY: Object to form.

24 THE WITNESS: DIP switches were known at
25 the time of the filing.

1 BY MR. MESSING:

2 Q. You would agree that at the time of the
3 filing, it was known in the art that DIP switches
4 could include a body?

5 MR. DORSKY: Object to form.

6 THE WITNESS: DIP switches typically have a
7 body.

8 BY MR. MESSING:

9 Q. You would agree that DIP switches as of the
10 time of the '424 provisional would have had pins for
11 coupling with a circuit board?

12 MR. DORSKY: Object to form.

13 THE WITNESS: Yes, DIP switches have pins
14 for coupling to circuitry.

15 BY MR. MESSING:

16 Q. You would agree that DIP switches have
17 actuators that can be moved between positions to
18 select a particular output?

19 MR. DORSKY: Object on form.

20 THE WITNESS: Yes, DIP switches have
21 actuators for selecting various outputs.

22 BY MR. MESSING:

23 Q. Please put Exhibit 1001 back up, the '336
24 patent. I would like to go to page 28 to look at
25 claim 13.

1 Dr. Krames, in your report and in
2 Dr. Eden's declaration, you understand that we
3 referred to these sections of claim 13 as claim
4 elements. Does that sound right?

5 A. We usually use that kind of language, so
6 that doesn't surprise me.

7 Q. Are you okay if I refer to the statement "a
8 body" as element "A"?

9 A. Sure.

10 Q. In the next portion of claim 13, at least
11 one coupling feature disposed on the body wherein
12 the first -- wherein at least one first coupling
13 feature is likely coupled to an electrical cable of
14 the luminaire. Are you okay if you refer to that as
15 element "B"?

16 A. Yes.

17 Q. Element "C" would be an actuator disposed
18 on the body wherein the actuator has a range of
19 positions?

20 A. Okay.

21 Q. And element "D" I'll refer to means the
22 last statement which is wherein each position of the
23 range of positions of the actuator corresponds to a
24 CCT of light emitted by the luminaire.

25 Is that fair?

1 A. Sure.

2 Q. You would agree, Dr. Krames, as of 2016, a
3 DIP switch known in the art included a body as
4 recited in element "A"?

5 MR. DORSKY: Object to form.

6 THE WITNESS: Yes, DIP switches have
7 bodies.

8 BY MR. MESSING:

9 Q. And you would agree that a DIP switch would
10 include at least one coupling feature disposed on
11 the body, wherein at least the first coupling
12 feature could be configured to electrically couple
13 to a cable of a luminaire?

14 MR. DORSKY: Object to form.

15 THE WITNESS: The limitation of having a
16 coupling feature disposed on the body would
17 absolutely be true on a DIP switch, whether the
18 feature is configured to electrically couple to an
19 electric cable of the luminaire, depends.

20 That is certainly discussed in the '336
21 patent and its provisional, but I haven't seen any
22 other art within this proceeding, and I don't
23 remember Dr. Eden arguing that DIP switches were
24 shown coupled to cables of luminaire prior to the
25 '424 provisional.

1 BY MR. MESSING:

2 Q. You would agree that it was known that you
3 could couple a DIP switch to a cable generally?

4 MR. DORSKY: Object to form.

5 THE WITNESS: DIP switches are most
6 commonly disposed on circuit board, but -- yeah, so
7 it depends -- so that circuit board may -- it may
8 include cables, in which case there would be a
9 coupling, but in many cases there are no cables and
10 so there is no cable to connect to.

11 And then also we're talking specifically
12 about a luminaire. So it's certainly true that the
13 '424 provisional talks about all of these things and
14 claims them. But again, I'm not aware of any prior
15 art references cited in the petition nor anything
16 Dr. Eden shared or any arguments he made that this
17 element was known prior to the filing of the '424
18 provisional application.

19 BY MR. MESSING:

20 Q. Element "C", DIP switches, were known to
21 have an actuator disposed on the body wherein the
22 actuator has a range of positions?

23 A. That's correct.

24 MR. DORSKY: Object to form.

25 ///

1 BY MR. MESSING:

2 Q. Dr. Eden, would it be fair -- sorry. I'm
3 reading too much about Dr. Eden and Dr. Krames.

4 Dr. Krames, would it be fair to say that in
5 your opinion the invention of claim 13 is taking the
6 DIP switch or another mechanical switch with those
7 physical features discussed in elements "A" through
8 "C" and applying that to a luminaire to adjust the
9 CCT?

10 MR. DORSKY: Object to form.

11 THE WITNESS: I would agree that the
12 claimed invention is the full claim, including all
13 of its elements, which I'm not sure you covered in
14 your question.

15 BY MR. MESSING:

16 Q. Dr. Krames, you would agree that element
17 "A", element "C," and the first half of element "B,"
18 at least one first one coupling feature exposed on
19 the body, that those claim elements would be known
20 to a POSA based on a DIP switch; is that right?

21 MR. DORSKY: Object to form.

22 THE WITNESS: The individual elements, the
23 body, at least one first coupling feature in an
24 actuator, your question is are those -- would those
25 be known to persons skilled in the art at the time

1 of the filing?

2 Those particular elements, as we discussed,
3 are available on a DIP switch, and DIP switches were
4 known at the time of the filing.

5 BY MR. MESSING:

6 Q. Dr. Krames, what distinguishes the known
7 DIP switch from claim 13 is coupling, the first
8 coupling feature to an electrical cable luminaire,
9 and using the switch to change the CCT of the
10 luminaire. Is that a correct assessment?

11 MR. DORSKY: Object to form.

12 THE WITNESS: MR. DORSKY: Maybe we can
13 zoom out a little bit and talk about what the
14 invention is. Why would you have a DIP switch on a
15 luminaire anyway? Why would anybody bother to do
16 that?

17 So what's interesting and novel here is
18 that there is this selectability brought into the
19 luminaire as '336 patent describes in detail.

20 The goal was to reduce the number of SKUs
21 that retailers would need to keep on shelves because
22 now we had technology that could provide different
23 color temperatures for different lighting projects
24 all within the same product.

25 So the invention here was to realize we can

1 have multiple colors here on these luminaires. So
2 let's bring that selectability to the end user, and
3 that's why you need the switch in this manner. It
4 has to be -- it can be any kind of switch, not just
5 a DIP switch, although that's what we've been
6 talking about.

7 Wherein its coupling feature is configured
8 to electrically couple to a cable of a luminaire.
9 Okay? So we're not talking about DIP switches
10 anywhere. We're talking about specifically
11 luminaires, and an electrical cable within the
12 luminaire.

13 And what is the switch doing? The switch
14 is changing, selectively changing, the CCT at fixed
15 intervals. Which makes it easy for the end user to
16 use in a lighting project or home installation with
17 little effort, little room for error, so forth and
18 so on, as described in detail in the invention.

19 I'll point out that the claim of the
20 invention needs to be interpreted by the
21 specification and the entire context of the
22 invention. It's not just a grammatical exercise.

23 So a switch used in that way coupled to a
24 luminaire involving a cable of luminaire such that
25 each position of the range of positions of the

1 actuator on the switch corresponds to a CCT of the
2 light by the luminaire, yes.

3 That description, that Claim 1 as informed
4 by the full specification of the patent application,
5 is the invention for claim 13.

6 BY MR. MESSING:

7 Q. You mentioned that there are other switches
8 that could be used; it's not limited to a DIP
9 switch. Is that right?

10 A. Yes, I think the specification makes it
11 clear that other switches are possibilities.

12 Q. Would other switches include a rocker
13 switch?

14 A. It could.

15 Q. A toggle switch?

16 A. A toggle switch is kind of a strange term.
17 Often those mean just on/off, so that's a little bit
18 of a weird term to use.

19 Q. Could use a slide switch?

20 A. Yes.

21 Q. Could use a rotary switch?

22 A. Yes, the switch could be a rotary switch.

23 Q. Could the switch be a dial switch?

24 MR. DORSKY: Object to form.

25 THE WITNESS: Not necessarily a dial

1 switch. When a dial switch -- first of all, it's
2 usually called a dial, like your radio dial; tuner,
3 volume. These are typically continuous actuation
4 elements so they are -- you're dialing something in,
5 so it's generally continuous changing of something
6 like your tuner on your radio, to the extent anybody
7 does that anymore, but maybe a better analogy is the
8 volume on your radio that you turn up and down.
9 It's kind of continuous up and down, and that's the
10 most commonly used term. Or the way that dials --
11 the term "dial" is used typically means this kind of
12 continuous change aspect, so that would not have
13 individual positions that correspond to set
14 locations, like you might have in a rotary switch or
15 a slider switch and so forth.

16 BY MR. MESSING:

17 Q. Can we please go to page 25 of this PDF
18 toward the bottom right side, column -- sorry, left
19 side, column 9, lines 50 to the end of that column.
20 I think this gets to what we were just discussing.

21 Start with the second sentence here: "The
22 example switch 361 can be used to select one of a
23 number of CCTs." Do you see that?

24 A. Yes. What column are you at?

25 Q. Column 9. Next sentence states that: "The

1 switch 631 can be any number of types of switches,
2 including but not limited to one or more DIP
3 switches, one or more SIPP switches, one or more
4 rocker switches, one or more reed switches, one or
5 more magnetic switches, one or more rotary switches,
6 one or more rotary dials, one or more selectors or
7 selector switches, one or more slide switches, as
8 shown in figure 6C, one or more snap switches, one
9 or more thumbwheels, one or more toggles or toggle
10 switches, one or more keys or keypads, and one or
11 more buttons or pushbuttons."

12 Do you see that?

13 A. Yes.

14 Q. Do you agree these switches listed in
15 column 9 could be used to practice the invention of
16 claim 15?

17 MR. DORSKY: Object to form.

18 THE WITNESS: I think many of the switches
19 are applicable to the claim. I'll point out that
20 the specification is certainly allowed to bring in
21 ideas that are outside a particular narrowed claimed
22 invention. So while all of these switches are
23 obviously switches that can be used in various
24 capacities, some are more clearly linked to claim 13
25 than others.

1 BY MR. MESSING:

2 Q. If we can please pull up the Krames
3 declaration, paragraph 49, which will be Exhibit
4 2031. I'm just interested in the first half of the
5 paragraph for right now.

6 Dr. Krames, I would like to talk a little
7 bit more about something you mentioned, the way that
8 the '336 patent would -- could control the CCT of
9 the light emitted by the luminaire.

10 A. Okay.

11 Q. Here in paragraph 49 is a statement that
12 '336 patent explains, for example, that CCT
13 selection can be carried out by switching between or
14 among different LED groupings having different
15 associated Kelvin temperatures.

16 Did I read that correctly?

17 A. I believe so.

18 Q. And does switching between or among
19 different LED groups having different associated
20 Kelvin temperatures to adjust the CCT spectrum
21 emitted by a light a way of carrying out claim 13?

22 MR. DORSKY: Object to form.

23 THE WITNESS: I'm sorry, you have to
24 repeat, please.

25 BY MR. MESSING:

1 Q. In your opinion, Dr. Krames, is using, for
2 example, switching between or among different LED
3 groupings having different associated Kelvin
4 temperatures a way to practice claim 13 of the '336
5 patent?

6 MR. DORSKY: Object to form.

7 THE WITNESS: Well, just steering current
8 between two sets of LEDs by itself does not involve
9 all aspects of the claim 13, so I don't understand
10 your question.

11 If you're asking me is steering current
12 between two strings of LEDs at different color
13 temperatures a way to change the color between those
14 two color temperatures? Yes.

15 BY MR. MESSING:

16 Q. Is using a DIP switch that is coupled to an
17 electrical cable of the luminaire to then adjust the
18 switch amongst different LED groupings having
19 different associated Kelvin temperatures a way to
20 practice claim 13?

21 MR. DORSKY: Object to form.

22 THE WITNESS: Well, it's described in
23 detail in the '336 patent. We see a DIP switch, and
24 other DIP switches also, designed. The DIP switch,
25 as you agree, has a body, has a coupling feature,

1 and '336 shows that it can be coupled through its
2 coupling feature to a cable of the luminaire. And
3 they're actuators on the switch that can be set for
4 different positions, and those different positions
5 can result in different CCT outputs of the
6 luminaire. Which is verbatim -- well, my rough,
7 quick translation without reading it back, what
8 claim 13 is.

9 So this method of steering current could
10 absolutely be part of the implementation of claim
11 13.

12 BY MR. MESSING:

13 Q. I'll read this quote that you have from
14 column 3, line 57 to 68 of the '336 patent. It
15 says: "For example, the luminaire can comprise a
16 3000 Kelvin group of light-emitting diodes and a
17 4000 Kelvin group of light-emitting diodes. When
18 only the 3000 Kelvin group is on, the luminaire can
19 deliver 3000 Kelvin illumination. When only the
20 4000 Kelvin group is on, the luminaire can deliver
21 4000 Kelvin illumination. When the 3000 Kelvin
22 group and the 4000 Kelvin group are both on, the
23 luminaire can deliver 3500 Kelvin illumination."

24 Do you see that?

25 A. I do.

1 Q. In your opinion, Dr. Krames, would using a
2 mechanical switch to direct the current in the
3 manner described in column 3, lines 57 -- while
4 coupled to electrical cable implement claim 13 of
5 the '336 patent?

6 MR. DORSKY: Object to form.

7 THE WITNESS: Yes, sorry, Jeff, in the
8 middle of your question I didn't understand what you
9 said.

10 BY MR. MESSING:

11 Q. If you took a mechanical switch that met
12 the body actuator and coupling feature requirement,
13 coupled it to an electrical cable of the luminaire,
14 and then used that switch as described in the
15 passage we just read to select between the 3000
16 Kelvin and 4000 Kelvin LEDs, would that use be an
17 implementation of claim 13?

18 MR. DORSKY: Object to form.

19 THE WITNESS: Okay, so I'll replay back
20 your question and then answer it and you can tell me
21 if I got the question right.

22 You're saying if we have a mechanical
23 switch for controlling CCT of light emitted by a
24 luminaire, and the switch has a body, at least one
25 first coupling feature, configured to electrically

1 couple to an electrical cable of the luminaire, an
2 actuator disposed on the mechanical switch for
3 selecting positions among range of positions,
4 wherein each position in that range corresponds to a
5 different CCT output with a luminaire, then yes,
6 that's an implementation of claim 13.

7 BY MR. MESSING:

8 Q. Dr. Krames, this passage shown here
9 beginning with column 3, line 57, that you quoted,
10 do you see this here?

11 A. I don't know which one is 57. I just see
12 the text that's on the screen.

13 Q. Sorry, the bottom there says that this is
14 the '336 patent at 3/57 through --

15 A. Yes.

16 Q. The upper block quote there. Could you
17 explain to me how one could use this method shown
18 here, comprising 3000 Kelvin group and a 4000 Kelvin
19 group, to implement claim 13?

20 MR. DORSKY: Object to form.

21 THE WITNESS: Well, yes, this is basically
22 it's already described in the '336 patent in quite
23 some detail. We have the schematic that you can
24 look at, which I believe is figure 4.

25 So you have two different strings of LEDs,

1 and you have switches, or an actuator, on so-
2 called -- your mechanical switch that you mentioned,
3 and the switch is coupled to an electrical cable of
4 the luminaire such that when the switch is in
5 various positions, the current is steered amongst
6 the two sets of LEDs.

7 In one case, the current goes all to 3000
8 Kelvin; so you get that string of LEDs, you get 3000
9 Kelvin. In another setting, you have all the
10 current going to the 4000 Kelvin LEDs; so you get
11 4000 Kelvin.

12 And then in the other two positions you
13 have a split of the current. So you have light
14 output from both sets of streams of LEDs at the same
15 time, and you get a blend of the color temperatures,
16 which is nominally 3500 Kelvin; just an average of
17 the two.

18 BY MR. MESSING:

19 Q. We're not quite at an hour yet, but I'm at
20 a good breaking spot now so we can take a ten-minute
21 break.

22 (Recess taken.)

23 BY MR. MESSING:

24 Q. Dr. Krames, would you agree that the use of
25 a mechanical switch to control the CCT spectrum of

1 an LED lighting device was known in the art before
2 the '424 provisional was filed?

3 MR. DORSKY: Object to form.

4 THE WITNESS: I don't recall any argument
5 or seeing any prior art that showed that -- can you
6 rephrase the question again, please.

7 BY MR. MESSING:

8 Q. I'll ask it a little bit differently.
9 Would you agree that as of the time of the filing of
10 the '424 provisional, Lumileds Lighting devices
11 existed with two sets of LEDs at different color
12 temperatures where the user could adjust the CCT
13 output using a simple mechanical switch?

14 MR. DORSKY: Object to form.

15 THE WITNESS: Excuse me for a second. I
16 would like to go to my declaration where I talk
17 about priority dates if we can.

18 BY MR. MESSING:

19 Q. Sure.

20 A. Give me one second, I have gardeners
21 outside. I'm going to ask him to hold off on the
22 noise. I'll be right back.

23 Sorry about that, everyone.

24 Q. No worries.

25 A. Can you restate the question, please.

1 Q. I'll restate it and make this a little bit
2 easier on timing. Dr. Krames, would you agree that
3 as of 2015, which was before the '424 provisional
4 was filed, that LED lighting devices existed with
5 two sets of LEDs that had different color
6 temperatures where the user could adjust a simple
7 mechanical switch to vary the CCT output of the
8 device?

9 MR. DORSKY: Object to form.

10 THE WITNESS: I think what we can say is
11 that, for example in Roberge, there is a discussion
12 about a color CCT setting dial that can be set by
13 the manufacturer or installer to set a CCT.

14 BY MR. MESSING:

15 Q. So is it your opinion, Dr. Krames, that as
16 of 2015 there were no LED lighting devices that
17 included two sets of LEDs with different CCTs where
18 the user could adjust a simple mechanical switch to
19 vary the CCT output by the LED device?

20 MR. DORSKY: Object to form.

21 THE WITNESS: I'm just thinking about what
22 arguments were put in front of me that made the case
23 for that.

24 Let's look at Halliwell.

25 BY MR. MESSING:

1 Q. This is outside of Halliwell. I'm just
2 asking -- or any other references. I'm just asking
3 more generally. Are you aware of any?

4 MR. DORSKY: Object to form.

5 THE WITNESS: Are you asking me in my
6 general memory do I recall having CCT selectable
7 products in 2015 or earlier? That's your question?

8 BY MR. MESSING:

9 Q. Yes.

10 A. I don't recall that. The types of color
11 tuning products that I recall that were in that time
12 frame or even earlier were these widely tuneable
13 things like the Philips Hue lamp which got a lot of
14 notoriety. That was 2012 or so.

15 There you had colored LEDs, and because you
16 had red, green and blue at least, you could have
17 almost any -- a million colors, or millions of
18 colors, and so the product had to come with an app,
19 or a special tool, maybe the first ones had a tool, a
20 dial where you could dial in the colors.

21 So in that case, in principal, you could
22 make that a white CCT tuneable product, although I
23 think people used it for other purposes, more
24 entertainment lighting.

25 But that was all done remotely. That was by

1 a remote app or gadget that was communicating with
2 the -- this is a retrofit lamp. And the CCT, again,
3 presumably you could program that device to do
4 different CCTs as a white, although I don't know if
5 anybody did that.

6 So off the top of my head, in the 2015 time
7 frame I don't recall seeing that. And moreover, I
8 think more pertinent to this proceeding, I didn't see
9 Dr. Eden put forth any more arguments than what we
10 see here for the IPR through Roberge, Halliwell and
11 Chaimberg, which was quite late, actually, based on
12 the time frame you're discussing now.

13 Q. Can you please pull up tab "F," and please
14 mark that whatever Exhibit Number is next.

15 VERITEXT CONCIERGE: Yes, marking
16 Exhibit 5.

17 (The document referred to was marked as
18 Exhibit 5 for identification and is attached
19 hereto.)

20 BY MR. MESSING:

21 Q. Dr. Krames, we've just shared with you and
22 it's shown on the screen here exhibit 5, a copy of
23 U.S. patent number 8,933,644. It was issued on
24 January 13, 2015, filed on June 20, 2014, and you
25 are listed as a named inventor under "Inventors."

1 Do you see this?

2 A. I do.

3 Q. Are you familiar with this patent,
4 Exhibit 5?

5 A. Again, this was ten years ago. We've filed
6 a lot of patents so I would have to look at it a
7 little more to remind myself.

8 Q. Can you please go to page 101 of the PDF,
9 and that will be column 25. I would like to look at
10 line 49 to 65, the lower end on the bottom left
11 column.

12 I want to draw your attention to line 49.
13 The patent states: "As a consequence, it is
14 desirable to configure an LED-based lamp which is
15 useful for general illumination purposes and which
16 improves upon the quality-of-light limitations
17 described above. In some applications, lamps with
18 varying spectrum are desirable. This includes
19 variations in CCT, intensity, etcetera."

20 Do you see that?

21 A. I do.

22 Q. And the bottom of this paragraph then
23 states: "In some cases, only a few specific spectra
24 are desirable; for example, white spectra at a few
25 or several CCTs."

1 Do you see that?

2 A. Yes, and I also see the portion you skipped
3 over wherein it's clear that in this paragraph we are
4 describing three-color RGB lamps where the three
5 channels are driven separately to mix and generate
6 any desired spectrum. So this is the context, of
7 course, to be clear.

8 Q. The next paragraph states: "One example is
9 a three-way incandescent bulb. Control of the
10 three-way bulb is simple and inexpensive and often
11 is based on an inexpensive mechanical selector."

12 Do you see that?

13 A. I do.

14 Q. Let's move over to column 26 starting
15 around line 10 and then going down through line 15.
16 If you're looking at line 15 of the column on the
17 right, it states: "The following figures disclose
18 an LED lamp that can output a few specific spectra
19 and be controlled by a simple mechanical switch as
20 heretofore described."

21 Do you see that?

22 A. Yes, I see that.

23 Q. And on the next line it says: "In one
24 implementation, the lamp is embodied as a three-way
25 A-bulb containing two LED sources; LED1 4142, LED2,

1 4144, as shown in figure 41C and figure 41D, each
2 with different CCTs."

3 Do you see that?

4 A. I do.

5 Q. The different CCTs for those two LEDs are
6 provided below. Those are cool white, approximately
7 5000 Kelvin, and warm white, approximately 3000
8 Kelvin.

9 Do you see that?

10 A. I do.

11 Q. And the next line: "The bulb is compatible
12 with a regular three-way fixture. Depending on the
13 switch position, the lamp emits light at 3,000,
14 4,000 -- sorry, strike that. I'll repeat.

15 Line 24 begins: "The bulb is compatible
16 with a regular three-way fixture. Depending on the
17 switch position, the lamp emits light at 3000
18 Kelvin, 5000 Kelvin or about 4000 Kelvin, e.g., when
19 both LED sources are mixed."

20 Do you see that?

21 A. I do.

22 Q. Now, if we go down to about line 42, 43.
23 Begins: "For instance, in a given embodiment about
24 10 watts of power are consumed by the lamp, LED1 has
25 a CCT of 3000K."

1 Do you see that?

2 A. Yes.

3 Q. "LED2 has a CCT of about 5000K." Do you
4 see that?

5 A. Yes.

6 Q. So in the device you described here, there
7 are two LEDs, one with 5000 Kelvin and one with 3000
8 Kelvin; is that correct?

9 MR. DORSKY: Object to form, relevance.

10 THE WITNESS: If your question is does LED1
11 and LED2 have different CCTs, then yes, they do.
12 What's written here.

13 BY MR. MESSING:

14 Q. When the switch is in position "A," LED1
15 receives power. In position "B," LED1 and 2 both
16 receive power, yielding a CCT between 3000 and 5000
17 Kelvin; is that right?

18 MR. DORSKY: Object to form.

19 THE WITNESS: Yes, you're just reading the
20 specification and I think you read it correctly.

21 BY MR. MESSING:

22 Q. In position "C," only LED2 receives power,
23 so the light is CCT is 5000 Kelvin; is that right?

24 A. That's correct.

25 Q. The last note here states that: "In all

1 positions, a similar amount of light is emitted
2 because the same amount of power is driven through
3 the LEDs." Is that right?

4 A. Yes, you read it correctly.

5 Q. Next column, 27, and looking at lines about
6 15 to 20. This paragraph beginning around line 16:
7 "Typically a three-way bulb has to be used in a
8 compatible fixture with a three-way switch which
9 will contact either or both of the lines. In some
10 embodiments, however, a three-way switch is
11 integrated into the bulb."

12 Is that right?

13 A. Yes, you read that correctly.

14 MR. MESSING: We can put Exhibit 5 away.
15 Can we please pull up tab "G" and mark that as
16 Exhibit 6.

17 VERITEXT CONCIERGE: Marking Exhibit 6.

18 (The document referred to was marked as
19 Exhibit 6 for identification and is attached
20 hereto.)

21 BY MR. MESSING:

22 Q. Dr. Krames, Exhibit 6 of is a copy of U.S.
23 patent 10,139,056. This is another patent filed by
24 Soraa on which you were a named inventor. Do you
25 recognize this patent?

1 A. This one was filed after I left Soraa and so
2 my inventorship relates to the parent applications,
3 so this is probably a continuation, and it is,
4 because you can see that right there. It's probably
5 a continuation of a continuation.

6 So the point is I'm less familiar with this
7 one, but digitally -- but depending whether it was a
8 continuation in part or not.

9 Q. We can clear that up quick. If we zoom in
10 on the related patent info, we see the filing date
11 was June 9, 2017, and then in item 63 it says:
12 "Continuation of application number 15/154,581,
13 filed on May 13, 2016, new patent number 9,677,232."

14 Do you see that?

15 A. Yes.

16 Q. And the next part is cut off and I think
17 you have to go down a couple pages. Where it says
18 "which is a," if you scroll down to the next page at
19 the very top, "a continuation of application number
20 14/698,573, filed on April 28, 2015, now patent
21 number 9,368,695."

22 Do you see that?

23 A. I do.

24 Q. And that one was a continuation of
25 application number 14/528,876, filed on October 30,

1 2014, now U.S. patent 9,046,227.

2 A. I see that.

3 Q. Which was a continuation of application
4 number 14/310,957. Filed on June 20, 2014, now
5 patent number 8,933,644. Do you see that?

6 A. Yes, I do.

7 Q. And last patent, 8,933,644, is the patent
8 we were just looking at, Exhibit 5?

9 A. Yes, that's correct.

10 Q. And you understand that these other
11 applications were continuations, not continuations
12 in part, right?

13 A. I believe that's correct. So the '644 was a
14 continuation in part, but that was a previous filing.

15 Long story short, you could have suggested
16 that the '056 is a continuation of '644.

17 Q. Thank you. Can we please go to the very
18 last page, 118, and I want to look at Claim 1, top
19 right of column 51 -- sorry, top right of column 58.

20 Claim 1 states: "A three-way lighting
21 system comprising: A first light emitting diode,
22 LED, configured to emit first light having a first
23 spectral power, SPD. A second LED configured to
24 emit a second light having a second SPD
25 substantially different from said first SPD."

1 Do you see that?

2 A. Yes.

3 Q. The next element of this claim states: "A
4 driver coupled to said housing" -- sorry. Scratch
5 that. It's been a long day.

6 "A driver coupled to said first LED and
7 said second LED and configured to selectively power
8 said first LED to emit first light and said second
9 LED to emit said second light, wherein said driver
10 is configured to interface with a user-operated
11 switch to operate in at least first, second and
12 third modes."

13 Do you see that?

14 A. Yes, I see that.

15 Q. It continues: "In said first mode, said
16 driver is configured to power one of said first LED
17 and said second LED and said second mode, said
18 driver is configured to power both said first LED
19 and said second LED, and in said third mode, said
20 driver is configured to power neither of said first
21 LED and said second LED."

22 Do you see that?

23 A. I do.

24 Q. And if we look down at claim 4, it says
25 the lighting system of Claim 1, wherein said first

1 light has a first correlated color temperature, CCT,
2 and said second light has a different CCT?

3 A. Yes, I see that.

4 Q. We can put away Exhibit 6.

5 Dr. Krames, would you agree that as early
6 as 2004, embodying LEDs of different color
7 temperatures to create a third color temperature was
8 known in the art?

9 MR. DORSKY: Object to form.

10 THE WITNESS: Can you rephrase the question
11 or repeat the question.

12 BY MR. MESSING:

13 Q. I'll rephrase. In 2004, it was known that
14 an LED light could use a controller electrically
15 connected to an array of LEDs to vary the correlated
16 color temperature of the resulting spectrum produced
17 by the light.

18 Would you agree with that statement?

19 MR. DORSKY: Object to form.

20 THE WITNESS: Using a controller on a
21 single set of LEDs?

22 BY MR. MESSING:

23 Q. On an array of LEDs.

24 A. A single array? A single linear array of
25 LEDs?

1 Q. Yes.

2 A. A single linear array of static white-
3 emitting LEDs?

4 Q. Yes.

5 A. No. Off the top of my head, I don't see how
6 you could easily do that if you have a single string
7 of same color static white LEDs and you're going to
8 somehow control them to change the spectrum. I think
9 that's challenging.

10 You need at least two points in chromaticity
11 space to work from to have tuning. Unless you're
12 going to build in some unusual behavior in the LED.
13 I mean, there could be some kind of exotic things
14 where the LED changes color with drive
15 characteristics, which can happen. That's a pretty
16 exotic kind of thing, but you can get a blue LED can
17 shift with current and you could have a situation
18 where the blue LED spectrum will move around
19 depending on how you drive it, and this could affect
20 the CCT, but it's kind of limited in terms of how
21 much tunability you could get with that.

22 It also probably can be difficult to
23 maintain a white color if you do something like that.
24 You're more likely to get tinted colors which can
25 become nonwhite and unacceptable in many applications

1 for general lighting.

2 Q. I'll ask the question a little bit
3 differently this time. If the array included LEDs
4 of different color temperatures, would you agree
5 that as of 2004, it was known that you could use a
6 controller electrically connected to an array of
7 LEDs which includes different color temperatures, to
8 vary the correlated color temperature of the
9 resulting spectrum?

10 MR. DORSKY: Object to form.

11 THE WITNESS: Yes, I think -- you're asking
12 if you have two strings of LEDs of different
13 current, different color temperatures, and they're
14 both white, would one know how to change the color
15 temperature by steering -- by selecting different --
16 selecting them independently, basically?

17 BY MR. MESSING:

18 Q. Right.

19 A. We know from, for example, the examples in
20 Roberge where the color is set prior to installation
21 by selecting LEDs in the luminaire, if that's what
22 you're getting at.

23 MR. MESSING: Can we please pull up tab "H"
24 and we'll mark that as Exhibit 7.

25 VERITEXT CONCIERGE: Yes, marking

1 Exhibit 7.

2 (The document referred to was marked as
3 Exhibit 7 for identification and is attached
4 hereto.)

5 BY MR. MESSING:

6 Q. Dr. Krames, we've just shared what's been
7 marked as Exhibit 7 which is a copy of U.S. patent
8 8,846,423 issued on September 30, 2014, filed on
9 July 8, 2013, and I see you're listed here as the
10 fifth named inventor. Do you see that?

11 A. I do.

12 Q. Do you recognize this patent?

13 A. This one was filed well after I left, so the
14 priority application is probably the one I was
15 involved in. Yeah. So this particular -- I don't
16 know if these are all just straight continuation
17 individual or not.

18 Q. Is it on the related U.S. application data
19 section? The application data was filed as a
20 continuation, which was filed as a continuation,
21 which was filed as a division, which was filed as a
22 division.

23 Do you see that?

24 A. Yes, I do.

25 Q. You understand there were no continuation

1 parts in the chain of this patent as shown on the
2 face here?

3 A. Not that I see here, no.

4 Q. Can we please go to page 14 of the PDF, and
5 I would like to go to column 9, around -- a little
6 bit lower. Around line 50. And if we could please
7 zoom in on that paragraph there.

8 This application -- or this patent states:
9 "As illustrated in figure 7, individual or groups of
10 LEDs 602 may be independently controlled, e.g., by
11 controller 610, which is electrically connected to
12 the traces 606 on the board 604."

13 Do you see that?

14 A. I do.

15 Q. And then it states: "By independently
16 controlling LEDs 602 or groups of LEDs 602, a high-
17 color rendering, e.g., over 85, with a constant
18 brightness may be achieved."

19 Do you see that?

20 A. I do.

21 Q. "Further, the white points produced by the
22 array 600 may be tuneable over a large range of CCT,
23 e.g., between 3000 Kelvin and 6000 Kelvin."

24 Ben, if we could please pull figure 7 up
25 next to this if possible.

1 VERITEXT CONCIERGE: Stand by just one
2 moment.

3 BY MR. MESSING:

4 Q. Dr Krames, do you now see the description
5 of figure 7 and figure 7 on the screen?

6 A. I do.

7 Q. This device in figure 7 can be tuned over a
8 large range of CCT, e.g. from 3000 to 6000 Kelvin;
9 is that right?

10 MR. DORSKY: Object to form, relevance.

11 THE WITNESS: Yes. Maybe just as a side
12 comment here, my understanding is that the petition
13 has the prior documents that were submitted along
14 with the petition for the IPR. And all you're
15 sharing -- a lot of my prior work that I've done in
16 the past. Which I appreciate.

17 These apparently did not inform the main
18 argument behind the petition or they would have been
19 included and they were not. They weren't brought up
20 by Dr. Eden. So I -- also, I haven't looked at
21 these documents in a long, long, time. I think we
22 are having to go back to priority applications that
23 are more than ten years old, and you're asking me
24 questions about these things that I haven't thought
25 about for quite some time.

1 So I'm going to reserve that my answers --
2 I'll do my best to answer your questions, but I'm
3 not going to guarantee any accuracy of this unless
4 you want to give me time to read and review these
5 documents I haven't looked at for over ten years.

6 BY MR. MESSING:

7 Q. I understand it's been a while, and this
8 technology is pretty old. So with that in mind,
9 that it's been a while, I'm going to direct you to
10 this figure and ask you a few questions about what
11 we have here in figure 7.

12 In figure 7, this device includes a
13 controller 610 --

14 A. I'm sorry, let me make it more clear. If
15 we're going to do this, then I want to look at the
16 exhibit and I want a few minutes to look at it.

17 Q. Sure, please take a few minutes to look at
18 it.

19 Ben, what number is this?

20 VERITEXT CONCIERGE: This one will be
21 Exhibit 7.

22 THE WITNESS: Okay, I've looked it over,
23 thank you.

24 BY MR. MESSING:

25 Q. Figure 7, illustrating a group of LEDs 602;

1 is that right?

2 MR. DORSKY: Object on form, relevance.

3 THE WITNESS: Yes, figure 7 shows
4 individual or groups of LEDs 602. So 602 is kind of
5 everything.

6 BY MR. MESSING:

7 Q. And column 9 states that the individual or
8 groups of LEDs 602 may be independently controlled,
9 e.g., by controller 610, which is connected -- which
10 is electrically connected to the traces 606 on the
11 board 604.

12 Is that right?

13 MR. DORSKY: Objection, relevance.

14 THE WITNESS: Yes, that's what it says. So
15 it indicates, for example, that each of the
16 individual LEDs can be controlled, so you have any
17 number of combinations of different outputs or
18 colors that might be achieved. And the
19 specification goes on to say they could be white,
20 they could be color, blue, cyan, red, amber. So
21 it's basically a complete color-tuning mixing box in
22 here. Much like later, the hue lamp. Just to be
23 clear, what we're talking about here.

24 So this is any kind of tunability you might
25 want by mixing and matching colored LEDs with or

1 without white LEDs onto a single board and mixing
2 the light together to produce various spectra.

3 BY MR. MESSING:

4 Q. For example, the various spectra that could
5 be produced is white light with a CCT between 3000
6 and 6000 Kelvin; is that right?

7 MR. DORSKY: Object to form, relevance.

8 THE WITNESS: Yes, by a certain combination
9 of the various colored and white LEDs, one could
10 arrive at a CCT between 3000 and 6000 Kelvin by
11 careful manipulation of the controller.

12 BY MR. MESSING:

13 Q. What would you mean by manipulation of the
14 controller?

15 A. The controller has to control the LEDs to
16 give the desired spectrum. And depending what LEDs
17 you're starting with, that can look a bunch of
18 different ways.

19 If you continue on in the specification
20 here, it says around line 60, or 59: [As read] "LEDs
21 produce -- a white light may be used in combination
22 with LEDs of different colors such as blue, cyan,
23 amber and red to produce color with a desired CCT."

24 So if I have all of those different colors
25 and I want to produce a certain CCT, I need to get

1 that balance right. And so the controller has to be
2 carefully designed to share current appropriately
3 across all these multi-colored LEDs to arrive at the
4 desired spectrum and then hold that spectrum versus
5 temperature and time, which can be a challenge.

6 The more channels of color you have, the
7 more likely you are to get off-color in a situation
8 where temperature changes or over time when you have
9 degradation of the LEDs which can be different from
10 the different colors.

11 Q. What would the input to the controller look
12 like?

13 MR. DORSKY: Object to form, relevance.

14 THE WITNESS: It would have to be some sort
15 of program or user interface. I think probably the
16 most easy one to think about is the Hue lamp again
17 that we talked about, which would be basically this
18 implementation.

19 That one I think had, at least initially,
20 only three colors, maybe it had four, but for
21 simplicity -- and I think the early ones were three
22 colors, red, green, and blue.

23 So you need a controller that adjusts the
24 relative ratio of red, green and blue light output
25 to get the color that you want. And like I said

1 before, if you want white light, you can get there,
2 but you've got to balance the red, green and blue
3 output accordingly to hit the white point, and then
4 to stay there versus time and temperature is a bit
5 tricky. I don't know if the Philips Hue lamps had
6 control feedback mechanisms for that or not.

7 But that's how you would do it. You need
8 some sort of input to tell you in that case how to
9 split the current across the different colors, and
10 with the Hue lamp, that was done remotely, again
11 through an app or a special device, a remote device.

12 BY MR. MESSING:

13 Q. Could the input be a switch that the user
14 actuates to determine where the light will go?

15 MR. DORSKY: Object to form, relevance.

16 THE WITNESS: I think that would be very
17 tricky with a lamp like that. You have many degrees
18 of freedom there and the point is tunability. So
19 unlike the case of the '336 which had a very
20 practical thought about how to implement color
21 tuning, (a), that people want; (b), that would
22 affect supply chain inventory in a positive way; and
23 (c), what those color temperatures ought to be; so
24 that the selection is very simple and limited is a
25 far cry from what's described here, which is a

1 tuneable device where you can make anything. And if
2 you're going to have a tuneable device where you can
3 make anything, you need to have a controller that
4 can control all aspects. And that's difficult with
5 a simple mechanical switch because you have a device
6 that's capable of not a couple of positions, but
7 hundreds or thousands or even millions of different
8 colors that can be achieved.

9 So you need a practical -- you need some
10 means to be able to diverse that capability. And
11 that's clearly not discussed in -- at least what
12 I've read of the specification. Because when you
13 see that in the first line at 50 where it suggests
14 that individual LEDs may be independently
15 controlled.

16 So there are nine LEDs here. So I have
17 nine LEDs of independent control. So if you want to
18 independently control the nine LEDs, you're not
19 doing that typically with the mechanical switch.
20 You would have something more complicated than that.
21 BY MR. MESSING:

22 Q. So to make a complicated device like this
23 more user friendly, you would have to simplify its
24 ability to tune CCT?

25 MR. DORSKY: Object to form, relevance.

1 THE WITNESS: Yes, if you want to -- if you
2 want to limit the choices here, you need to
3 streamline the design.

4 BY MR. MESSING:

5 Q. We can put Exhibit 6 away.

6 We talked about DIP switches quite a bit
7 today and I would like to turn back to those for a
8 little bit.

9 Would you agree that using DIP switches to
10 control CCT in LED luminaires was disclosed as early
11 as 2000?

12 MR. DORSKY: Object to form.

13 THE WITNESS: I don't recall that.

14 MR. MESSING: Can you please pull up
15 Exhibit 1002.

16 VERITEXT CONCIERGE: Introducing
17 Exhibit 1002.

18 BY MR. MESSING:

19 Q. Dr. Krames, what we're preparing now is
20 Exhibit 1002 which was submitted with this IPR as
21 Exhibit 7 -- patent number 7,014,336, filed November
22 20, 2000.

23 Do you see that?

24 A. Yes, I do see that.

25 Q. Are you familiar with this reference?

1 A. I have seen this reference before. I did
2 not review it for this proceeding.

3 Q. You said you've seen this patent before but
4 not in the context of this proceeding. Was that in
5 the context of the Signify v. Lumileds case in the
6 District Court of Nevada?

7 A. Possibly.

8 Q. You understand this patent was asserted in
9 that litigation?

10 A. Possibly. I would have to go back and
11 check.

12 Q. Did you offer any opinions on this patent
13 in that case?

14 A. I would have to go back and look at the
15 reports.

16 Q. Can we please go to page 30 of the PDF,
17 column 8, and if we could zoom in around line 20 to
18 25. I want to draw your attention to the
19 description of figure 29 states it depicts one
20 possible LED lighting fixture which could be used to
21 replace a fluorescent tube.

22 Do you see that?

23 A. I do.

24 Q. Could we please go to page 40, towards the
25 bottom of column 28, lines 55 through 67.

1 I would like to direct your attention to
2 the last sentence of the paragraph beginning line
3 64: "In another embodiment, the light could have a
4 selection of switches, such as DIP switches enabling
5 it to operate in a standalone mode, where a desired
6 color temperature can be selected using the
7 switches," and it goes on to the next page, "and
8 changed by alteration of the standalone product."

9 Do you see that?

10 A. I do.

11 Q. Next paragraph states the lighting fixture
12 in figure 29 may also comprise a program control
13 switch 2512. This switch may be a selector switch
14 for selecting the color temperature, color of the
15 LED system, or any other illumination conditions."

16 Do you see that?

17 A. I see where it says that.

18 Q. It says: "For example, the switch may have
19 multiple settings for different colors. Position
20 one may cause the LED to produce 3200 Kelvin white
21 light. Position two may cause 4000 Kelvin white
22 light. Position three may be for blue light, and a
23 fourth position may be to allow the system to
24 receive external signals for color or other
25 illumination control."

1 Do you see that?

2 A. I do?

3 Q. Could we please -- could you please go to
4 page 25 of the PDF, and actually I would like to
5 look at figure 29, which we just read part of the
6 description for.

7 Dr. Krames, do you see -- and I'll point
8 you towards the top and the middle portion of this
9 figure number 2512.

10 A. I do.

11 Q. That is the switch that we were just
12 reading about in column 29?

13 MR. DORSKY: Objection, relevance.

14 THE WITNESS: That switch was called the
15 program control switch.

16 BY MR. MESSING:

17 Q. Do you agree that the program control
18 switch may be used -- may be selected prior to
19 selecting the color temperature or color of the LED
20 system?

21 MR. DORSKY: Object to form, relevance.

22 THE WITNESS: That's what it says in the
23 spec.

24 BY MR. MESSING:

25 Q. You might need to piece it together a

1 little bit here. Please pull up on the right. If
2 you could pull up the beginning of column 28, we
3 could have lines about 1 through 30. So we have an
4 easy reference to some of the other numbers here.

5 If you look around line 15, here it states
6 that the item 1153 is a rectangular mounting.

7 Do you see that?

8 MR. DORSKY: Objection, relevance.

9 THE WITNESS: Yes, I see that.

10 BY MR. MESSING:

11 Q. And the next line identifies that 1155 is a
12 strip of at least one component illumination source
13 such as an LED. Do you see that?

14 MR. DORSKY: Objection, relevance.

15 THE WITNESS: I see that.

16 BY MR. MESSING:

17 Q. And in figure 29, both the switch 2512 and
18 the LEDs 1155 are mounted on the same rectangular
19 mounting 1153; is that right?

20 MR. DORSKY: Object to form, relevance.

21 THE WITNESS: This specification is very
22 thin on what you're exactly seeing here. So there's
23 a strip of at least one LED, 1155, which is
24 apparently a different thing than the generally
25 rectangular mounting 1153. So I guess the strip is

1 not shown.

2 I don't know what else is not shown. I'm
3 not sure if what's shown as 2512, is that supposed
4 to be a switch or an integrated circuit with a
5 program on it or an access point for the switch
6 which is not shown, since they don't know other
7 elements in the figure, it's kind of hard to say
8 exactly what's going on.

9 BY MR. MESSING:

10 Q. We can scroll back to column 29, line 4 to
11 5 which states the fixture in 29 may also comprise a
12 program control switch 2512. Do you see that?

13 A. I do. That's kind of my point. So that
14 would be an integrated circuit.

15 MR. MESSING: I think we're done with this
16 exhibit.

17 I think we've been going close to an hour,
18 maybe more. I didn't write down the last time, but
19 I think now would be a good time for a ten-minute
20 break.

21 (Recess taken.)

22 MR. MESSING: Back on the record.

23 BY MR. MESSING:

24 Q. Could we please pull up the '336 patent and
25 go to page 15 of the PDF.

1 Dr. Krames, while we wait for this to pull
2 up, you would agree that one switch type disclosed
3 in the '336 patent is a slide switch?

4 A. Yes.

5 Q. And the '336 patent states that the slide
6 switch includes one or more coupling features, a
7 body and an actuator, right?

8 A. Yes. Where are you referring to in
9 specification?

10 Q. If we want to pull up on the right-hand
11 side page 25, column 9, line 65 is I believe where
12 it starts, and it breaks onto the next column which
13 makes things a little more difficult for us here,
14 but we can make do.

15 To start, Dr. Krames, would you agree the
16 slide switch shown in figure 6C is a standard slide
17 switch that would have been readily recognizable to
18 a POSITA?

19 MR. DORSKY: Object to form.

20 THE WITNESS: Yes, this looks like a
21 standard slide switch.

22 BY MR. MESSING:

23 Q. Column 9, line 65 states that: "The switch
24 631 has a body 671, and a number of coupling
25 features 672, in this case pins, disposed on the

1 bottom of the body 671 that allow the switch 631 to
2 become electrically coupled to an electrical
3 connector 629 on the substrate 625."

4 Do you see that?

5 A. Yes, I'm just going to pull it up on my end
6 so I can see things a little more easily.

7 Yes, I see that.

8 Q. And the slide switch shown in figure 6C
9 includes an actuator 673; is that right?

10 A. That's right.

11 Q. So the slide switch shown in 673 -- sorry,
12 scratch that.

13 The slide switch shown in figure 6C
14 includes a body, one or more coupling features, and
15 an actuator, right?

16 A. Yes, those elements are included.

17 Q. You would agree that a standard slide
18 switch would also include a body, an actuator and
19 coupling features like those shown in figure 6C?

20 MR. DORSKY: Object to form.

21 THE WITNESS: Yes this looks like a
22 standard slide switch to me.

23 BY MR. MESSING:

24 Q. Can we please pull up tab "0" and mark that
25 as -- I think it will be Exhibit 7.

1 VERITEXT CONCIERGE: This one will be
2 Exhibit 8, but we'll mark that as the next exhibit.

3 (The document referred to was marked as
4 Exhibit 8 for identification and is attached
5 hereto.)

6 MR. MESSING: Thank you. I'll start from
7 now on saying "Mark as the next exhibit" because I'm
8 sure I'll get it wrong again.

9 BY MR. MESSING:

10 Q. Dr. Krames, what we're showing here is a
11 specification from Switchcraft on the bottom right.
12 It has a couple of dates including 9-14-09 and
13 3-10-11.

14 Do you see that document, Exhibit 8?

15 A. I see the document on the screen and looks
16 like it's coming through the exhibit share now.

17 Yes, I see that.

18 Q. And towards the bottom, the name of this
19 drawing is -- bottom 3 column -- three columns from
20 the right, I guess, states "Slide switch 3 position
21 locking."

22 Do you see that?

23 A. Yes, I would say second column from right at
24 the bottom, the name is slide switch 3 position with
25 locking.

1 Q. If we could please zoom in on the upper
2 right corner. We have a 3-D drawing of the slide
3 switch. Do you see that?

4 A. I do.

5 Q. Would you agree, Dr. Krames, that this
6 picture depicts a standard slide switch?

7 MR. DORSKY: Object to form.

8 THE WITNESS: This says "position locking."
9 I'm not 100 percent sure what that means, so I don't
10 know if that -- I haven't seen this before, by the
11 way -- if there is a way that this position is fixed
12 in a way that makes it difficult to change, and so
13 for some applications in vibration environments or
14 something like that, I don't know, or maybe that's a
15 term that's common, but I don't know what the term
16 "locking" is.

17 On the face of it, it looks like a standard
18 slide switch, but I wonder if there's more to it
19 that than that in this particular case.

20 BY MR. MESSING:

21 Q. Would you agree, Dr. Krames, that at the
22 top of this picture there is an actuator on the
23 slide switch?

24 MR. DORSKY: Object to form.

25 THE WITNESS: The top element on this

1 figure we're looking at now, is that your question?

2 BY MR. MESSING:

3 Q. Yes.

4 A. Yes, that appears to be an actuator such as
5 identified as 673 in the '336 patent.

6 Q. Would you agree that this portion I've
7 roughly circled here is the body similar to that
8 which is numbered 671 in figure 6C?

9 MR. DORSKY: Form, relevance.

10 THE WITNESS: Yes, you've at least
11 encircled a portion of the body.

12 BY MR. MESSING:

13 Q. Would you agree that these features down
14 here which I'm attempting to circle are coupling
15 features similar to those identified as 672 in
16 figure 6C?

17 MR. DORSKY: Object to form, relevance.

18 THE WITNESS: Yes, these -- the pins you've
19 circled look like the coupling features of this
20 switch.

21 BY MR. MESSING:

22 Q. We can take this exhibit down.

23 If we can please go back to figure 6 of the
24 '336 patent. Figure 6B and figure 6C. Sorry, the
25 other '336, Exhibit 1001, and it's page 15 of the

1 PDF.

2 It appears there is like a gray box toward
3 the top of the screen.

4 Dr. Krames, in figure 6B the slide switch
5 is depicted as being mounted on a board in the
6 luminaire; is that right?

7 A. Give me a second here.

8 Q. I can point you to better phrasing of this
9 where at the beginning of column 10, end of column
10 9, it states that: "The switch can be electrically
11 coupled to an electrical connector 629 on the
12 substrate 25."

13 A. Thank you. Can you repeat the question.

14 Q. So in figure 6B, the switch 631 is mounted
15 to an electrical capture 629, which is then mounted
16 on the substrate 625; is that right?

17 A. That's right.

18 Q. And the '336 patent discloses that its
19 switch could also be mounted on the housing of the
20 luminaire; is that right?

21 A. That was a different question than you asked
22 before.

23 Q. I can point you to page 24 of the PDF. It
24 will be in column 7, line 24. Strike that. About
25 line 27.

1 It states: "In various embodiments,
2 switches do tend to be mounted to the housing 105 of
3 the luminaire. For example, within the housing 101
4 in figure 1 or on the exterior surface of the
5 housing 105."

6 Do you see that?

7 A. I see that.

8 Q. Do you agree the CCT switch of the '336
9 patent could be mounted on an exterior surface of
10 the housing; is that right?

11 A. That's correct.

12 Q. In a CCT switch that is mounted on the
13 exterior surface of the housing as described in the
14 '336 patent could still practice claim 13; is that
15 right?

16 MR. DORSKY: Object to form.

17 THE WITNESS: In principle a switch mounted
18 to the exterior of the housing could be implementing
19 claim 13 of the '336 patent if it meets every claim
20 limitation, so it depends on the type of the switch
21 and then it need to have a body.

22 The coupling feature coupled to an
23 electrical cable of the luminaire, so we're talking
24 about a luminaire. And an actuator, so the switch
25 needs an actuator wherein the positions correspond

1 to positions of different CCTs. So in principal one
2 could have a product that infringes claim 13 of the
3 '336 patent with a switch on the exterior of the
4 housing fixture.

5 BY MR. MESSING:

6 Q. Can with please go to figure 9 of the '336
7 patent. Let's go to figure 9B.

8 Dr. Krames, you're familiar with figure 9B
9 of the '336 patent?

10 A. Yes.

11 Q. You would agree that the luminaire
12 disclosed in figure 9B of the '336 patent is an
13 embodiment that in your opinion practices at least
14 claims 1 and 13 of the '336 patent?

15 A. Let's look at the description of figure 9,
16 please.

17 Q. Yes, let's go to page 26.

18 VERITEXT CONCIERGE: Counsel, I believe
19 Mr. Dorsky has lost connection to the call.

20 MR. MESSING: We should go off the record
21 to let him rejoin.

22 (Recess taken.)

23 MR. MESSING: Back on the record.

24 BY MR. MESSING:

25 Q. Dr. Krames, I'll direct you to the bottom

1 of column 11 which is discussing the luminaire shown
2 in figure 9B.

3 A. Yes.

4 Q. "With the embodiments discussed previously,
5 the example switch is located on the housing of the
6 luminaire or within the housing of the luminaire.
7 Here, the switch 931 is located outside the housing
8 of the luminaire 905. Specifically, in this case
9 the switch 931 is in-line with the electrical cable
10 927. The switch 931 can be substantially the same
11 as the example switches discussed above. For
12 instance, the switch 931 can have one or more
13 coupling features, e.g., usually terminal points,
14 that are used to couple to one or more electrical
15 conductors of one or more electrical cables 927. As
16 another example, the switch 931 could have an
17 actuator having multiple positions."

18 Do you see that?

19 A. Yes, I see that.

20 Q. "As yet another example, the switch 931 can
21 be or include an in-line pin switch, multiple DIP
22 switches, one or more single in-line pin packages,
23 one or more rocker switches, one or more reed
24 switches, one or more magnetic switches, one or more
25 rotary switches, one or more rotary dials, one or

1 more selectors or selector switches, one or more
2 slide switches," and it goes on to other examples.

3 With that description of the switch 931 in
4 mind, would you agree that the '336 patent's
5 embodiment shown in figure 9B would practice claims
6 113 of the '336 patent?

7 A. Did you say 1 through 13 or 1 and 13?

8 Q. 1 and 13.

9 A. Yes. This figure is the figure used to
10 describe the implementation of the invention, so it's
11 consistent with those claims.

12 Q. Can we please go to figure 10. Are you
13 familiar with figure 10 of the '336 patent?

14 A. Yes.

15 Q. You would agree that the luminaire shown in
16 figure 10 is also an embodiment of the [inaudible]
17 invention of the '336 patent that practices claims 1
18 and 13?

19 A. Yes.

20 Q. In figure 10 the CCT switch is identified
21 as 1031; is that right?

22 A. That's correct.

23 Q. And then figure 10 -- strike that.

24 In the embodiment disclosed in figure 10,
25 the '336 patent states that the CCT switch 1031 is

1 disposed within the juncture box 1092; is that
2 right?

3 A. Disposed within cavity 1092 formed by the
4 walls 1091, of the junction box 1090.

5 Q. In terms of physically attaching the switch
6 1031 within the junction box, how would that be
7 done?

8 MR. DORSKY: Object to form.

9 THE WITNESS: Could you repeat the
10 question?

11 BY MR. MESSING:

12 Q. I'll rephrase. As an engineer building an
13 LED illuminator, how would you mount the CCT switch
14 1031 within the junction box?

15 MR. DORSKY: Object to form, relevance.

16 THE WITNESS: It's a bit of a hypothetical.
17 You could do it in any number of ways.

18 BY MR. MESSING:

19 Q. What would some of those ways be?

20 MR. DORSKY: Object to form, relevance.

21 THE WITNESS: Well, in one way could be
22 similar to what we saw earlier in one of the product
23 analyses where you see the CCT switch in a casing
24 coupled to a cable of the luminaire and it's
25 positioned kind of like what you see here in this

1 position 1031 in the cavity at the junction box or
2 in a cavity of the driver junction box.

3 BY MR. MESSING:

4 Q. Could the CCT switch 1031 also be screwed
5 into the junction box wall to hold it in place?

6 MR. DORSKY: Object to form.

7 THE WITNESS: I don't see why not.

8 BY MR. MESSING:

9 Q. Would you agree, Dr. Krames, that as of
10 2018, a POSITA would know how to actually install
11 the CCT switch within a junction box either by
12 attaching the screws to the side or having it set
13 similar to the samples that we looked at?

14 MR. DORSKY: Objection to form.

15 THE WITNESS: With the '336 patent in hand,
16 I think the POSA would know what to do to implement
17 the invention and might consider various options for
18 where to locate the switch because the '336 is
19 fairly broad about where you can put the switch, as
20 we discussed earlier. It can be on the housing of
21 the luminaire. It can be remote as well.

22 BY MR. MESSING:

23 Q. The junction boxes can include other
24 switches beyond CCT switches, right?

25 MR. DORSKY: Objection to form.

1 THE WITNESS: Such as?

2 BY MR. MESSING:

3 Q. Could you have a switch for another purpose
4 within a junction box, just for any application?

5 MR. DORSKY: Object to form.

6 THE WITNESS: In principle you could have a
7 switch located there, another switch that would have
8 to have some kind of other function.

9 BY MR. MESSING:

10 Q. And a POSA as of 2018 would understand how
11 to physically place a switch within a junction box?

12 A. Yes. I don't see the difficulty with that.

13 Q. Could we please go to page 27 of the PDF,
14 and if we could look at the first paragraph and a
15 half of column 13.

16 Starting with around line 12 there is a
17 description that says: "As an alternative to the
18 embodiment shown in figure 10." Do you see that?

19 A. Line 12. Okay, yes, I see that.

20 Q. Then it goes on to say: "Rather than being
21 disposed within the cavity 1092 of the junction box
22 1090, the switch 1031 can be disposed on a wall 1091
23 of the junction box 1090."

24 Do you see that?

25 A. I do.

1 Q. You would agree that the CCT switch 1031
2 disclosed in the embodiment of figure 10 could
3 either be located within that cavity of the junction
4 box or on an outside wall of the junction box; is
5 that right?

6 A. That's right.

7 Q. We can put this exhibit away for now. Can
8 you please pull up Exhibit 1013.

9 VERITEXT CONCIERGE: Introducing Exhibit
10 1013.

11 BY MR. MESSING:

12 Q. Dr. Krames, we've just shared Exhibit 1013.
13 This is a copy of U.S. patent 7,192,160 issued to
14 Reiff is the first named inventor. Do you see this
15 on your screen?

16 A. I do.

17 Q. Are you familiar with the Reiff patent?

18 A. I am.

19 Q. Could we please scroll to figure 2.
20 Dr. Krames, do you agree that the Reiff patent
21 includes an electrical cord 56?

22 A. Let's get our terminology straight.

23 Q. I can point you to page 8 of the PDF,
24 column 6, lines 18 to 20.

25 Do you see on line 18 it says: "Located

1 along electrical cord 56 extending From end cap 22
2 is a control box 64 which is provided with switch 66
3 for operating fluorescent lamp 30 and LEDs 32."

4 A. Yes, I see that.

5 Q. And figure 9 -- in figure 2 you see the
6 electrical cord 56?

7 A. I see that.

8 Q. And you see the control box 64 which is
9 located along the electrical cord 56?

10 A. I do.

11 Q. Go up to page 7, lines 4/28 through 4/32.
12 Here it states that: "The control box 64 which
13 includes a switch of any suitable type for turning
14 the lights on and off and selecting between
15 different light sources."

16 Do you see that?

17 A. Yes, I do.

18 Q. We can put this away for now.

19 Can we please pull up Exhibit 1012. This
20 is the Halliwell reference.

21 VERITEXT CONCIERGE: Introducing Exhibit
22 1012.

23 BY MR. MESSING:

24 Q. Dr. Krames, are you familiar with Exhibit
25 1012, the Halliwell patent?

1 A. I am.

2 Q. You would agree that Halliwell discloses a
3 switch 30 and is capable of adjusting the CCT output
4 by an LED luminaire?

5 MR. DORSKY: Object to form.

6 THE WITNESS: Yes, I would agree with that.
7 BY MR. MESSING:

8 Q. You would agree that Halliwell discloses a
9 CCT switch 30 that can be mounted on an exterior
10 surface of the LED lighting device, including the
11 back of the device?

12 MR. DORSKY: Object to form.

13 MR. MESSING: Ben, can we pull up page 17
14 of the PDF, bottom of column 6. We can just stay
15 here.

16 BY MR. MESSING:

17 Q. On the right side of the page it says:
18 "For example, the switch 30 may be mounted on an
19 exterior surface of the LED lighting device 20. For
20 example, the switch 30 may be mounted on a back,
21 bottom or otherwise generally hidden from the
22 surface of the device housing."

23 Do you see that?

24 A. I do.

25 MR. MESSING: Ben, can you please go down

1 to column 7, line 60, should be on the next page of
2 the PDF.

3 Q. Starts around line 61, Halliwell states:
4 "For example, in various embodiments, one or more of
5 the LED packages 18 may be configured to emit light
6 of at least one of 2700 Kelvin, 3000 Kelvin, 3500
7 Kelvin, 4000 Kelvin, 5000 Kelvin, 5700 Kelvin, 6000
8 Kelvin, 7000 Kelvin, 7500 Kelvin and/or other color
9 temperatures as appropriate for the application."

10 A. Was that a question?

11 Q. Do you see that text disclosed in the
12 Halliwell reference?

13 A. I do.

14 Q. Could we please go to page 21 -- sorry,
15 column 13, line 43. Here is about line 43, and the
16 sentence begins: "The switch 30 has been
17 illustrated herein as a slider switch. It should be
18 understood however that the switch 30 may take a
19 variety of forms as appropriate for the
20 application."

21 Do you see that?

22 A. I do.

23 Q. Can we please go to figure 4 of the
24 Halliwell reference. That will be page 9 of the
25 PDF.

1 Dr. Krames, are you familiar with figure 4
2 of Halliwell?

3 A. I am.

4 Q. And you understand that the item 30 in
5 figure 4 is part of the circuit diagram that
6 represents the switch 30?

7 MR. DORSKY: Object to form.

8 THE WITNESS: No, I wouldn't say that's
9 what this figure depicts.

10 BY MR. MESSING:

11 Q. How would you describe this figure?

12 MR. DORSKY: Form.

13 THE WITNESS: This figure is a block
14 diagram that attempts to show how to implement the
15 luminaire, and the -- it's a bit of a hybrid. It's
16 a block diagram in the switch 30 we're looking at
17 what appears to be the switch label on the Luminex
18 itself that indicates the CCT labeling. So it's a
19 bit of a jumble here.

20 I guess I should have said jumble instead
21 of jumble. It's getting late for me even in
22 California, Gina.

23 BY MR. MESSING:

24 Q. Within figure 4, you looked around the
25 switch portion. Do you see the switch positions

1 32a, 32b, 32c and 32d?

2 A. I do.

3 Q. You would agree switch position 32a
4 corresponds to 3000 Kelvin CCT?

5 A. That's right.

6 Q. And position 32b corresponds to 4000 Kelvin
7 CCT?

8 A. That's right.

9 Q. Position 32c corresponds to 5000K CCT?

10 A. That's right.

11 Q. And the position 32d corresponds to the
12 auto position?

13 A. I'm sorry, I couldn't hear which number you
14 called out.

15 Q. 32d corresponds to the auto function?

16 A. Yes, that's right.

17 Q. You would agree 3000 Kelvin, 4000 Kelvin
18 and 5000 Kelvin are distinct color temperatures?

19 MR. DORSKY: Object to form.

20 THE WITNESS: That's correct.

21 BY MR. MESSING:

22 Q. So with respect to the first three
23 positions, 32a, 32b, 32c, those three positions
24 correspond to three discrete CCT values?

25 MR. DORSKY: Object to form, relevance.

1 THE WITNESS: That's correct.

2 BY MR. MESSING:

3 Q. Could we please go to page 23 of the PDF.
4 Looking at column 17, about line 35. I'll be
5 directing you to line 39 of this declaration.

6 Do you see here where Halliwell states
7 that: "For example, the remote switch 40 may be a
8 wall and/or junction box mounted toggle switch,
9 dimmer switch and/or the like in wired communication
10 with the switch control unit 35"?

11 A. Yes, I see that.

12 Q. Could we please go over to column 18, up to
13 line 18. Starting here do you see Mr. Halliwell
14 discloses: "For example, the user may select the
15 remote selector 44 to cause the operating color
16 temperature of the LED lamp 10 or lighting device 20
17 to change from color temperature A to color
18 temperature B, from color temperature B to color
19 temperature C or from color temperature C to color
20 temperature A. In another example the remote
21 selector 44 may comprise a button and/or the like
22 for each of the first, second and third color
23 temperatures and the user may select, press,
24 interact with and/or the like the button
25 corresponding to the desired color temperatures."

1 Do you see that disclosure?

2 A. Yes, I see that.

3 Q. Halliwell goes on to disclose that: "In
4 another example the remote selector 44 may comprise
5 a switch or a dial having a switch or dial position
6 corresponding to each selectable color
7 temperatures."

8 Do you see this disclosure?

9 A. Yes.

10 Q. Do you see that Halliwell also discloses
11 that: "The remote selector 44 may be a slide, push
12 button, rotary, passive infrared and/or other type
13 of interactive element that the user may interact
14 with, press, select, touch, voice activate and/or
15 the like"?

16 A. Yes, I see that.

17 Q. Halliwell then discloses that: "The remote
18 selector 44 may be configured to allow a user to
19 select a desired operating color temperature,
20 brightness, CRI and/or other operating light aspects
21 or qualities and/or a combination thereof during
22 operation of the LED lamp 10 or LED lighting device
23 20, e.g., when the LED lamp 10 or LED lighting
24 device 20 is in the configureable operating mode."

25 A. Yes, I see that.

1 Q. Can you go to page 18 of the PDF, around
2 line 7. Column 7, I direct your attention to around
3 line 12. Here Halliwell discloses that: "In
4 example embodiments, the electrical components of
5 the LED lighting device 20, e.g., the driver
6 circuitry 19, switch control unit 35, and/or the
7 like may be configured to be directly wired to line
8 voltage, e.g., through a junction box, or may be
9 configured to be connected to line voltage through
10 power cord comprising a two- or three-prong
11 polarized plug."

12 Do you see that?

13 A. I see that.

14 Q. Go to page 29, claim 13, Halliwell.

15 Dr. Krames, do you see here that Halliwell
16 discloses in claim 13 that a "signal indicating user
17 selection of the modified light qualities is
18 received through a wired connection with the remote
19 switch"?

20 A. I see that's what it says.

21 MR. MESSING: We are at exactly an hour
22 since our last real break. Now is a good time to
23 take our last ten-minute break.

24 (Recess taken.)

25 MR. MESSING: Back on the record.

1 BY MR. MESSING:

2 Q. Ben, could you please pull up 1013 again.
3 Dr. Krames, I would just like to talk
4 through a few more statements in the Reiff
5 reference. If we could please go to page 7 of the
6 PDF, column 3 around line 28.

7 This paragraph here discloses that Reiff's:
8 "Light sources 28 used in the embodiments of the
9 lights described herein may include fluorescent
10 lamps 30 and LEDs 32. The fluorescent lamps 30 are
11 conventional lamps which emit white light. In
12 general, florescent lamps produce significant
13 amounts of light, approximately 63 lumens of light
14 per watt, sufficient to illuminate any of the above
15 described areas."

16 Do you see this disclosure?

17 A. I do.

18 Q. Do you agree, Dr. Krames, that starting at
19 line 35, Reiff disclosures that its LEDs 32 have a
20 life that is much greater than that of a fluorescent
21 or incandescent lamp? LEDs which emit white light
22 generate approximately 12 lumens of light per watt
23 of power, therefore only 5 LEDs are required to
24 produce the same amount of light per rated watt of
25 the conventional florescent lamp?

1 A. I see that's what it says. I don't agree
2 with this text which is factually incorrect, but I
3 agree that's what the specification says.

4 Q. If we go down to the very bottom line, you
5 can see where it starts to say "when electrical
6 current is," and then if we go up to column 4, that
7 continues. So Reiff states: "When electrical
8 current is applied to electrode 48 of LED 34
9 illuminating material 36 is excited and LED 34 emits
10 a first color, red or white for example."

11 A. I see that.

12 Q. If you could please go to page 9 of the
13 PDF, I would like to direct your attention to
14 Claim 1 of Reiff.

15 Do you agree, Dr. Krames, that Claim 1 of
16 the Reiff patent states: "A light fixture
17 comprising a base, two light sources mounted on said
18 base, wherein one of said two light sources is one
19 of incandescent light and a fluorescent light, each
20 of said light sources emitting a different color of
21 light; an enclosure substantially surrounding said
22 light sources, at least a portion of said enclosure
23 formed from a transparent material to allow the
24 passage of light there-through; and a control for
25 selectively energizing one or another of said light

1 sources, whereby said light fixture emits one or
2 another color of light"?

3 A. I see that.

4 Q. Do you see claim 2 which states: "The
5 light fixture according to Claim 1 wherein said
6 light colors are selected from the group consisting
7 of white, red, green, blue, infrared and ultraviolet
8 light"?

9 A. I see that.

10 Q. We can put away Exhibit 1012.

11 Dr. Krames, you mentioned earlier an LED
12 device, the Philips Hue. Do you recall discussing
13 that briefly earlier?

14 A. Yes.

15 Q. Are you aware that Philips as of 2015 was
16 also selling other LED lighting fixtures with
17 adjustable CCT spectrum?

18 MR. DORSKY: Objection, relevance.

19 THE WITNESS: Not off the top of my head.

20 BY MR. MESSING:

21 Q. Can we please pull up tab "I" and we'll
22 mark that as the next Exhibit Number.

23 VERITEXT CONCIERGE: Marking that as
24 Exhibit 9.

25 (The document referred to was marked as

1 Exhibit 9 for identification and is attached
2 hereto.)

3 BY MR. MESSING:

4 Q. Dr. Krames, I've shared what's been marked
5 as Exhibit 9. It's a Philips Lighting catalog for
6 the year 2015/16. Do you see the cover page of
7 Exhibit 9 on the screen?

8 A. Yes, I see the cover page.

9 Q. And the cover page states it's a Philips
10 Lighting catalog 2015/16?

11 A. Yes, I see that.

12 Q. Now please go to the very last page of this
13 PDF, and if we zoom in on the bottom there's some
14 white text down there. That last line on the last
15 page of Exhibit 9 states: "Release date April
16 2015."

17 Do you see that?

18 A. I see that.

19 Q. And the first line says that this was
20 copyrighted in 2015 by Philips electric NV?

21 A. I see that.

22 Q. If you please go to page 128 of the PDF.
23 Page 128 of Exhibit 9 shows a product titled Ledino.
24 Do you see that?

25 A. Yes, let me bring it up on my end. What

1 page?

2 Q. This is page 128 of the PDF.

3 A. Okay.

4 Q. The first paragraph describing this light
5 states: "Minimalist and elegant. Simple yet
6 versatile. Philips Ledino injects a natural sense
7 of purity and beauty into your home."

8 Do you see that?

9 A. Yes.

10 Q. Next paragraph states: "With a linear
11 design and an integrated LED light source, it's
12 ideal for the sophisticated living room, dining area
13 or bedroom. And perfect for the savvy urbanite."

14 Do you see that?

15 A. I see that.

16 Q. The next statement says: "You'll enjoy
17 natural white light adjustable to the preferred
18 atmosphere thanks to its state-of-the-art Power
19 LEDs"?

20 A. Yes.

21 Q. And then the last portion of the page is
22 titled Tunable White. "A simple key lets you choose
23 between four different white light color
24 temperatures, 3450, 3100, 2700, 2500 Kelvin, on
25 selected fittings."

1 A. I see that.

2 Q. And if we go to the next page, this page
3 lists three different pendant light bulbs. Do you
4 see that?

5 A. I do.

6 Q. And these three pendant lights include a
7 circle that says "tunable white" to the right of the
8 picture?

9 A. I see that.

10 Q. We can put Exhibit 9 away. Can you please
11 pull up tab "J" and mark that as Exhibit 10.

12 (The document referred to was marked as
13 Exhibit 10 for identification and is attached
14 hereto.)

15 VERITEXT CONCIERGE: Marking Exhibit 10.
16 BY MR. MESSING:

17 Q. This is a CNET article titled "A bigger
18 brighter Lightstrip makes its Philips Hue debut.
19 The longer-than-before Philips Hue Lightstrip Plus
20 puts out more light, including a new spectrum of
21 white tones."

22 Do you see that?

23 A. I do.

24 Q. And do you see the publishing date of
25 September 3, 2015 below the title?

1 A. I do.

2 Q. If we could please go to page 2 and then
3 zoom in on what is the second complete paragraph. I
4 would like to direct your attention to the second
5 sentence here begins with: "Unlike the first
6 Lightstrips."

7 Do you see that?

8 A. Yes.

9 Q. You see this description states: "Unlike
10 the first Lightstrips, which shine in RGB colors
11 only, the new one also offer shades of natural white
12 light ranging from an orangey 2000 Kelvin to a
13 bluish 6500 Kelvin."

14 A. Yes, I see that.

15 Q. You can put this away and please pull up
16 tab "K."

17 VERITEXT CONCIERGE: Marking that as
18 Exhibit 11.

19 (The document referred to was marked as
20 Exhibit 11 for identification and is attached
21 hereto.)

22 BY MR. MESSING:

23 Q. Here we have another CNET article. This
24 one is titled "Osram Lightify Starter Kit review:
25 Osram's smart lights dial in on quality, With a

1 killer color-tuning feature you won't get from
2 Philips Hue Lux or Belkin WeMo, Osram's new smart
3 bulbs look like a smart play."

4 Do you see that?

5 A. Yes.

6 Q. Do you see this was published on February
7 20, 2015?

8 A. I do.

9 Q. Could you please scroll down to the top of
10 page 3. There is a heading that says "The Good."
11 Do you see this section on the screen, Dr. Krames?

12 A. I see the section that you're seeing on the
13 screen, I think.

14 Q. Underneath The Good, this 2015 article
15 states that: "Osram's tuneable Lightify LEDs offer
16 smart color-temperature controls that you won't find
17 with Belkin, WeMo or Philips Hue Lux bulbs. They
18 are also highly efficient, and they work with WeMo,
19 too." Do you see that?

20 A. I do see that.

21 Q. Can we please go to page 9 of the PDF. If
22 we can zoom in on the description of this figure
23 quickly, and then we'll zoom out.

24 On page 9 there's a figure with two side-
25 by-side application screenshots, and this

1 description states you'll be able to control the
2 brightness and color temperature in the Osram app
3 and also schedule automated lighting changes.

4 Do you see that?

5 A. I do.

6 Q. Do you see on the right there's a dial or
7 circular figure that says "59 percent, 4959 Kelvin"?

8 A. I do.

9 Q. Could you please put this exhibit away and
10 pull up tab "L" and we'll mark that as the next
11 exhibit.

12 VERITEXT CONCIERGE: Marking Exhibit 12.

13 (The document referred to was marked as
14 Exhibit 12 for identification and is attached
15 hereto.)

16 BY MR. MESSING:

17 Q. This is an article titled "LIFX White 800
18 LED Light Bulb Review." Do you see that?

19 A. I do.

20 Q. It states this is published on April 20,
21 2015?

22 A. I see that.

23 Q. Quickly go to page 3 of the PDF, and if we
24 scroll down to where it says: "App in performance."

25 Sorry, might be the next page. Give me a

1 moment here. There we go.

2 Do you see here this 2015 article described
3 that: "Both the Android and iOS versions of the
4 LIFX app offer a simple-to-use color wheel that
5 allows you to select the shades of white you want to
6 display (color temperatures range between 2700 and
7 6500 Kelvin. The wheel of colors runs from brown
8 and beige to gray and pure white. The whites give
9 off cool glow while the darker colors provide warmer
10 light."

11 Do you see that?

12 A. I do.

13 Q. The next paragraph states: [As read] "If
14 you have more than one bulb, the app lets arrange
15 your lights in a group so you can control multiple
16 lights from a single menu. You can create scenes
17 and themes for each bulb or group of bulbs. Tapping
18 a theme like an ocean wave or sunset will change the
19 color temperature and brightness of the light to set
20 a mood."

21 Do you see that?

22 A. Yes. You stopped mid-sentence, but I see
23 all that.

24 Anyway, maybe you can zoom out a little bit.
25 You're showing me many versions of basically Hue-like

1 lamps that presumably came after the Hue lamp and
2 kind of do the same thing. Just to comment on that.
3 So if you have more of these, I wonder if we need to
4 go through them because I think they're all pretty
5 much the same with continuous tuning capability and
6 require an amp and all that stuff. It's a
7 complicated kind of a fun toy gimmick. I don't know
8 that most of these products are still available
9 anymore. But anyway, these all seem very similar to
10 me.

11 Q. You can put away this exhibit. Please pull
12 up tab "M" and mark that as the next exhibit.

13 (The document referred to was marked as
14 Exhibit 13 for identification and is attached
15 hereto.)

16 VERITEXT CONCIERGE: Marking Exhibit 13.
17 BY MR. MESSING:

18 Q. Dr. Krames, what we've just marked as
19 Exhibit 13 is a 2015/2016 LED Lighting Catalog from
20 Cree. Do you see that?

21 A. I do.

22 Q. If we can please go to the last page of the
23 PDF and zoom in on the very last line, the white
24 text at the last bit of the page there.

25 The first entry here, do you see where it

1 says copyright "2015 Cree Inc."?

2 A. Yes, top left.

3 Q. I'm losing my directions here. And the
4 bottom left here states "Rev. Date 06/25/2015"?

5 A. Yes.

6 Q. Could we please go to page 76 of the PDF.
7 If we could zoom in on the right text there. Here
8 the title is "Simplify all you need for optimum
9 lighting performance."

10 Do you see that?

11 A. I do.

12 Q. And this states in 2015, "Cree luminaires
13 and dimmers enabled with SmartCast Technology
14 deliver essential lighting control without the
15 complex design, installation and setup of today's
16 lighting control systems. And now the CR Series
17 troffers with Cree SmartCast Technology offer a
18 field-adjustable color temperatures that enable
19 simplified specification, ordering and installation
20 to provide a new level of configuration options."

21 Do you see that?

22 A. I do.

23 Q. We can put this exhibit away.

24 Dr. Krames, during any of the breaks during
25 today's deposition, did you discuss the substance of

1 your testimony with your counsel?

2 A. I did not.

3 MR. MESSING: Thank you for your time, we
4 appreciate it, and I'll pass the witness.

5 MR. DORSKY: Thanks. Can I have maybe --
6 let's say five minutes just to gather my notes. I
7 don't think it should take long.

8 (Recess taken.)

9 MR. DORSKY: Back on the record.

10

11

EXAMINATION

12

BY MR. DORSKY:

13

14

15

Q. Hi, Dr. Krames. This will be brief so I
don't think you should worry about taking up too
much more of your time. Just a few quick questions.

16

17

Do you recall earlier today you discussed
the Chaimberg reference, Exhibit 1003?

18

A. Yes.

19

20

Q. And do you recall that you were asked about
figure 3 of Chaimberg?

21

A. Yes.

22

23

Q. And if I could, would it be possible to put
figure 3 up on the screen. Thank you.

24

25

I believe you testified that you found
figure 3 confusing; is that right?

1 A. That's right.

2 Q. Why did you find figure 3 confusing?

3 A. I don't know where to start. There's -- at
4 a high level, it's confusing because this is
5 allegedly driver circuit 20 which is in the junction
6 box, and yet there is an element 18 here which is
7 supposed to not be in the junction box. Which raises
8 question about the labeling. Because there's errors
9 in the labeling in this figure which are very clear
10 from the text.

11 I don't know if we want to go into it for
12 time, but I think even on the figure here itself
13 there's duplicate numbers.

14 For example, 32 in the top of the figure is
15 one of the purported conducting arms, but then
16 there's a 32 which is coming off of pin 3 connected
17 to the diodes as part of the circuit. So at a
18 minimum, it's in kind of a sloppy design here.

19 Another thing I'll point out, as I mentioned
20 before, this is not a full driver because there's no
21 bridge rectifier, and there's no AC mains being
22 delivered to the circuit. So you have to make an
23 assumption about where all that is.

24 And then we have to kind of make an
25 assumption about power. Now, there is what appears

1 to be a minus sign near number 38 to the top left,
2 and so we could maybe assume that's a negative
3 terminal for DC power. And then we have to look
4 where's the positive power? So it's not clear here.

5 We do see here down at the bottom two
6 terminals labeled 3K and 5K that are purportedly
7 where the strings of LEDs, 3000 Kelvin and 5000
8 Kelvin are. So presumably they drop from there, and
9 they must connect to the positive power, so they
10 would be kind of upside down in its design.

11 So knowing that, you can then immediately --
12 just looking at the 3000 Kelvin terminal, you have
13 current flow straight up from there, and right
14 beneath where it says number 1, there's a connection
15 there towards the left to another wire that turns and
16 goes up and connects right to the right of resistor
17 37 which, unless it's an open circuit, which it's
18 not, allows current to flow to the left, through the
19 resistor, to 38 and to the negative terminal.

20 So the bottom line is those 3000 Kelvin LEDs
21 are on all the time no matter what. It doesn't
22 matter if the purported switch 18, which is again in
23 the wrong location according to the rest of the
24 specifications, so I don't know what this is exactly,
25 but no matter what happens here, if that truly is a

1 slider switch, it has no bearing on what I just
2 described. You will always have current flowing
3 through the 3000 Kelvin LEDs, which means it's
4 impossible to achieve 5000 Kelvin with this design.

5 So the description, which also doesn't match
6 the elements and I'll spare us the time to go
7 through, the mislabeling here, the incorrect
8 positioning of this entire circuit, or at least 18
9 with respect to it, and the fact that it doesn't
10 function, these are all complaints that I have with
11 figure 3 of Chaimberg.

12 Q. And you mentioned I believe 46 [inaudible].
13 Did you consider 47 as well?

14 A. Let's have a look at 47. Yes, thank you for
15 the reminder here.

16 This one looks like it's on all the time,
17 too. Let's go through it.

18 So the 5000 Kelvin will have power. It will
19 go straight up. There's a connector to the left.
20 Let's ignore that for a second because short wires
21 will dominate.

22 You go up to just before the number 4
23 there's a connection through 47, like you said. And
24 when the switch, the alleged switch, is in the
25 position now that it is in, that current will flow

1 all the way through resistor 43 and out the top.

2 So in this case, at least with switch in the
3 position, it is now you're going to see current flow
4 from the 5000 Kelvin, too. But that one could change
5 if we change the position of the slider switch.

6 The thing that's a little bit more clear
7 about the one on the left is due to the nature of the
8 connections, that you can never turn that off. That
9 was going to be on there forever.

10 I have to think a little bit about 47. But
11 I will argue that this circuit does not function the
12 way that the patent application is describing the way
13 it should function.

14 Q. Is it your opinion that a POSITA would
15 likewise not find it to function the way the
16 application described it to function?

17 A. I think a POSITA would be very confused
18 about this for all the reasons I described. You're
19 not sure where this is. It says it's in the driver
20 box, but then 18 is not supposed to be in the driver
21 box. There's no reference to mains voltage, so you
22 don't know where the rest of the driver is which is
23 not described, and you have these issues with the
24 turning on and turning off of the LEDs which are not
25 going to work the way that is described.

1 Q. Did any of the questions or documents you
2 considered or addressed today change any of the
3 opinions set forth in your declaration?

4 A. No.

5 MR. DORSKY: Thank you, Dr. Krames.
6 I have no further questions. Pass the
7 witness.

8 MR. MESSING: No recross.
9 Thank you again, Dr. Krames, for your time.
10 And Gina and Ben, for dealing with our
11 technical hiccups and everything else that came
12 along with it.

13 THE REPORTER: Does anybody need a rough?
14 And Jason, do you need a copy?

15 MR. DORSKY: I'll follow up with you
16 separately if I do, but since this will be filed
17 anyway, I think we're all set.

18 THE REPORTER: So no copy?

19 MR. DORSKY: Can I follow up with you
20 separately?

21 THE REPORTER: Sure.

22 (The deposition concluded at 5:45 p.m.)
23
24
25

1 I, GINA M. CLOUD, a certified shorthand
2 reporter for the State of California, do hereby
3 certify:

4 that prior to being examined, the
5 witness named in the foregoing deposition, was by me
6 duly sworn to testify the truth, the whole truth,
7 and nothing but the truth pursuant to Section No.
8 2093 of the Code of Civil Procedure;

9 That said deposition was taken before
10 me pursuant to notice, at the time and place therein
11 set forth, and was taken down by me in shorthand and
12 thereafter reduced to typewriting via computer-aided
13 transcription under my direction;

14 I further certify that I am neither
15 counsel for, nor related to, any party to said
16 action, nor in anywise interested in the outcome
17 thereof.

18 IN WITNESS WHEREOF, I have hereunto
19 subscribed my name this 14th day of March, 2025.

20
21
22 

23 _____
GINA M. CLOUD

24 CSR No. 6315
25

1 Jason Dorsky, Esquire

2 jmdorsky@venable.com

3 March 14, 2025

4 RE: Luminex International Company LTD v. Signify Holdings BV

5 3/13/2025, Dr Michael Krames (#7190944)

6 The above-referenced transcript is available for
7 review.

8 Within the applicable timeframe, the witness should
9 read the testimony to verify its accuracy. If there are
10 any changes, the witness should note those with the
11 reason, on the attached Errata Sheet.

12 The witness should sign the Acknowledgment of
13 Deponent and Errata and return to the deposing attorney.
14 Copies should be sent to all counsel, and to Veritext at
15 cs-midatlantic@veritext.com.

16 Return completed errata within 30 days from
17 receipt of testimony.

18 If the witness fails to do so within the time
19 allotted, the transcript may be used as if signed.

20
21
22 Yours,

23 Veritext Legal Solutions
24
25

Luminex International Company LTD v. Signify Holdings BV
Dr Michael Krames (#7190944)

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REASON_____

Dr Michael Krames Date

Luminex International Company LTD v. Signify Holdings BV
Dr Michael Krames (#7190944)

ACKNOWLEDGEMENT OF DEPONENT

I, Dr Michael Krames, do hereby declare that I
have read the foregoing transcript, I have made any
corrections, additions, or changes I deemed necessary as
noted above to be appended hereto, and that the same is
a true, correct and complete transcript of the testimony
given by me.

Dr Michael Krames

Date

*If notary is required

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

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