UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BIOFRONTERA INC., BIOFRONTERA BIOSCIENCE GMBH, BIOFRONTERA PHARMA GMBH, and BIOFRONTERA AG

Petitioners

v.

SUN PHARMACEUTICAL INDUSTRIES, INC.

Patent Owner

_____

Case IPR2024-01312

U.S. Patent No. 11,697,028

_____

REMOTE DEPOSITION OF

ROBERT E. GROVE, PH.D.

May 13, 2025

10:58 a.m. EST

Reported by:

Janice M. Kocek, CSR, CLR

Job No. 56990

IPR2024-01312
Biofrontera Inc. et al v. Sun Pharmaceutical et al
Sun Pharmaceutical's Exhibit 2084
EX2084, Page 1

The videotaped deposition of ROBERT E. GROVE, PH.D., via Zoom videoconferencing, reported stenographically by Janice M. Kocek, License No. 084-002871, Certified Shorthand Reporter, Certified LiveNote Reporter, and Notary Public of the state of Illinois, commencing at the hour of 10:58 a.m. EST, on the 13th day of May, 2025.

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REPORTER'S NOTE: All quotations are used for clarity and are reflected in the manner in which they were read into the record and do not necessarily indicate an exact quote from the document.

THE STENOGRAPHER: My name is Janice Kocek. I am the court reporter.

Can you please state your appearances for the record.

MS. HIGGINS: My name is Gabrielle Higgins of Desmarais LLP representing the patent owner, Sun Pharma. And with me today is my colleague, Bridget Belcher, also with Desmarais LLP. 10:58

And I do have to make an objection before we start the deposition. But I'll let counsel for petitioner introduce themselves. 10:58

MR. LANDMON: My name is Chad Landmon with Polsinelli. With me are my colleagues James Murphy and Megan Hart. We are here on behalf of the Biofrontera petitioners. 10:58

MS. HIGGINS: The patent owner is lodging an objection.

We object to Mr. Chad Landmon defending the witness in today's deposition. As far as we can tell, Mr. Landmon is not registered with the USPTO. He is not on the power of attorney for this proceeding, which is IPR2025-0028 10:59 10:59

-- excuse me, IPR2024-01312. And we haven't seen a pro hoc motion from Mr. Landmon either.

MR. MURPHY: Yes. This is James Murphy. Let me just respond for a minute. 11:00
I'm the lead attorney representing petitioner.

Chad has been assisting me in this case. So he's here under sort of my authority and direction on this case. And 11:00
we think that's sufficient.

If you, you know, believe he needs to be entered into the case, we can discuss that afterwards and, you know, we can figure out if we want a pro hoc or 11:00
enter him into the case if needed.

MS. HIGGINS: Okay. Well, I'm going to object as Mr. Landmon proceeding in defending the witness.

Mr. Murphy, as you know, the 11:00
rules here, 37 C.F.R. Section 42.10(c), state that if Mr. Landmon is not a member of the -- the -- registered with the USPTO that he does need to pro hoc in and there's a procedure for that. 11:01

And so we make that objection up front and you can proceed as you wish subject to patent owner's objection.

MR. LANDMON: Okay.

MR. MURPHY: Okay. 11:01

(Witness remotely sworn.)

ROBERT E. GROVE, PH.D.,

called as a witness herein, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MS. HIGGINS:

Q. Good morning. Can you please state your full name for the record?

A. Yes. My first name is Robert. My middle name is Earle, E-a-r-l-e. And my last name is Grove, G-r-o-v-e. 11:01

Q. And what is the city and state of your residence?

A. I reside in Pleasanton, California. That's P-l-e-a-s-a-n-t-o-n, California. 11:01

Q. Is that where you are today?

A. No, I am in Danbury, Connecticut -- or close by Danbury. I'm not exactly sure if I'm in Danbury but I'm close by. 11:02

MR. LANDMON: It's Danbury.

BY MS. HIGGINS:

Q. And have you been deposed before today?

A. Yes, I have. 11:02

Q. Approximately how many times?

A. Within the last few years, just one time.

Q. And before then?

A. Perhaps four to six times. I don't recall specifically. 11:02

Q. You're familiar with the general deposition process for today?

A. Yes, I am.

Q. You understand that you've taken an oath to tell the truth, just as if we were in a courtroom in front of a judge or jury, correct? 11:02

A. Yes, I do.

Q. Is there any reason you can't give full and truthful testimony today? 11:03

A. There is no reason I cannot give full testimony.

Q. Have you ever been deposed by videoconference like we're doing today?

A. I don't believe so. 11:03

Q. Okay. It's obviously a bit different than in person. So I'm going to ask just a few questions because I'm not there in the same room with you.

So you said you're in Danbury, Connecticut, today, right? 11:03

A. Correct.

Q. And is there anyone there in the room with you?

A. Yes. 11:03

Q. And who is that?

A. Chad Landmon is across the table from me.

Q. Is anyone else in the room there with you? 11:04

A. No.

Q. Do you have any documents there with you?

A. I do. I have a binder that was prepared for me containing the relevant -- the documents relevant to this case that include my declaration and some of the patents and so on. 11:04

Q. About how many documents are there in that binder?

A. Looks like one, two, three -- it 11:04

looks like there are approximately eight documents.

Q. Okay. And you said that there's a declaration.

And that's the declaration in this proceeding, the 1312 proceeding; is that correct? 11:04

A. The declaration I'm referring to is the -- my expert declaration for the IPR of US patent -- ends in '028. 11:05

Q. Okay. And do you have an understanding that that's the IPR proceeding IPR2024-01312?

A. I would presume so. Although I -- I couldn't say off the -- the top of my head. It -- in the introduction of my declaration it says that I'm submitting the declaration in support of a petition for IPR of U.S. Patent '028. 11:05

Q. Okay. So if I refer to that declaration as the '028 declaration, your '028 declaration, you'll understand what I'm talking about? 11:05

A. Yes.

Q. Okay. And you said there were seven other documents. 11:05

Can you just let me know what they are?

A. Sure. The first document is the '028 patent file history.

The second document is a patent by Bansal, which is the '305 patent. I can give you the full number if you'd like but it's by Bansal.

Q. Can you spell that first -- the name?

A. Yes. The invent -- the inventor in this patent is Vineet Bansal. First name, V, as in Victor, i-n-e-e-t, as in Thomas. Last name Bansal, B, as in boy, a-n-s, as in Samantha, a-l.

Q. Got it.

A. Yeah. It's actually -- I apologize. I have in front of me a -- it's a patent publication.

Q. Got it. What else do you have there?

A. The next document is the expert declaration that we just discussed.

And the document following that is a patent -- it's patent 5,079,262 by James Kennedy.

Q. Okay. What else?

A. And then after that I have a patent application publication, U.S. 2005/0075703 with the named inventor Eric Larsen, E-r-i-c, last name, L-a-r-s-e-n.

And following that I have a U.S. patent. It's U.S. Patent No. 6,223,071. And the -- it's listed as Lundahl, et al. The first inventor Lundahl is -- it's actually Scott Lundahl. First name Scott, last name Lundahl. And it's spelled L-u-n, as in Nancy, D, as in David, a-h, as in Harry, -l, as in light. 11:08

Then the next document is entitled -- excuse me, Expert Declaration of Michael Ehrenreich, M.D., for IPR of U.S. Patent 11,697,028. And Dr. Ehrenreich's last name is spelled E-h, as in Henry, r-e-n, as in Nancy, r-e-i-c-h. 11:09

And then the final document is U.S. Patent 11,697,028 by Boyajian, if I'm pronouncing it correctly. Thomas Boyajian, first name, T-h-o-m-a-s, last name spelled B, as in boy, o-y-a-j, as in Jack, i-a-n. 11:09

And I also have a table of contents from my declaration.

Q. Are those all the documents in the 11:10

room with you today?

A. Those are the only documents on the table. I brought my computer bag, which has other stuff in it that I intend to have zipped closed through the entire proceeding. 11:10

Q. Is there any highlighting or markup or flags on any of those documents that you just went through?

A. The only flags are the document dividers that list, for example, Grove dec or Lundahl or Kennedy and so on. And the document that is the expert declaration of Dr. Ehrenreich is labeled PTAB IPR2024-01312-1016. 11:10

The others are labeled as you would expect, considering the document behind the tab. 11:11

Q. So besides those tabs, there's no other notes or any aids for your testimony today, right?

A. That's correct.

Q. Okay. And you said you have a computer in your zipped bag in the room with you, correct? 11:11

A. No, actually, I have a laptop that I brought with me, which is on the conference table, and I'm viewing you on my laptop. 11:11

What I mentioned with respect to my computer bag is that there are other documents, mostly copies of the documents in here and some other stuff, personal -- personal items.

But as I said, it's my intention to keep my computer bag closed. And if for any reason I feel it's necessary to go in there, I'll certainly ask you ahead of time. But there's -- there's no plan to access anything in my computer bag for this deposition. 11:12

And on the table, in addition to the binder that I just referenced, there's another copy of the binder across from me in front of Mr. Landmon.

Q. You're not going to access that binder? 11:12

A. No.

Q. And you have no intentions, as you said, of accessing any further documents that you have in the bag, correct? 11:12

A. I have no intention and I will not. And if for some reason I feel that I need to, I'll certainly say so ahead of time. But I -- I do not have any expectation of going anywhere near my computer bag during the deposition. 11:13

Q. Okay. Well, if you feel the need, you'll let me know first, correct?

A. Absolutely.

Q. Okay. And in terms of the computer, the laptop that you're using to -- to view this deposition on that computer, do you have any other files related to your work in this case on that computer? 11:13

A. Yes, I do. However, for this Zoom meeting I have my laptop in full screen mode. So the only thing that's visible on my screen is your video, my own, James, Chad, Janice, and Megan and nothing else. The rest of the screen is blank -- is black. 11:13

Q. And you're not going to reference any other documents or communications using that computer during this deposition, right? 11:13

A. Yes, I -- I do not plan to access that. And I don't believe anything could come up on my computer. I suppose if there's a phone call it might have a number. But I'm not expecting anything to come up on my screen other than the -- the six video images that I have currently. 11:14

Q. Do you have any text messaging or 11:14

other open communications with any other person active?

A. Not that I'm aware of. I -- I do have an iPhone, which I've turned off. And I believe my laptop has text capability but I'm not anticipating any texts coming in.

Certainly if something pops up on my screen, I'll let you know immediately. But I'm not -- I don't expect any texts to appear.

Q. So the answer is yes, correct? 11:14

A. I'm sorry. Could you repeat the question, please?

Q. Do you have any text, messaging, or other open communications with any other person active? 11:15

MR. LANDMON: Objection. Asked and answered.

THE WITNESS: I don't believe so. I can take a moment if you like and see if I can turn off or -- turn off any sort of messaging. But I don't believe that they're active. 11:15

BY MS. HIGGINS:

Q. And will you agree with me to limit your review of documents during the deposition 11:15

to the documents that we discuss and the documents that are marked as exhibits or shown to you during this deposition?

A. Yes, I do.

Q. Okay. I think we covered it already, but will you refrain from using any email or text or other forms of communication while you are giving your deposition testimony today? 11:15

A. Yes, I absolutely will. Once again, this is my first Zoom deposition and so I -- well, I can't guarantee you with my life that nothing will pop up on my screen. But we can either take five or ten minutes and I can go and look and see if I can disable those things. 11:16

But if anything pops up other than the video or I just see here I moved my cursor and it now says -- there's a green shield and it says recording and it has a little view label. But other than that, my screen is completely black. 11:16

I do have -- I see that at the bottom of my screen it has audio and video and participants and chat, which I'm not -- obviously not intending to use and will not use. I do see that it has a 3 and a red circle. So 11:17

it may mean that there was some chat on my screen. But I will not click on that box. And I don't expect any chat, email, or texts to show up on my screen. And if they do, I will let you know immediately.

Q. And you're going to refrain from communicating by chat, for instance, with -- with the lawyers that are here today, correct?

A. Absolutely.

Q. Okay. And you understand that now that you have been sworn in you cannot communicate with anybody about the substance of your testimony during the course of your deposition, even at breaks, right?

A. Yes, I understand that.

Q. What did you do to prepare for your deposition today?

A. I have read, I believe, all of the documents here. I don't know if I read every word of the 680-page file history. But with the exception of that document, I believe I've read every page of the documents that I listed in this binder by way of preparation.

And I have met, either in person or on Zoom, with Mr. Landmon and with a couple of

other attorneys representing Polsinelli.

Q. And by the binder that you referenced and the documents that you referenced, you're talking about the eight documents that you identified earlier today, correct? 11:18

A. Yes, that's correct.

Q. When did you meet with Mr. Landmon and the other attorneys from Polsinelli that you mentioned to prepare for your deposition today?

A. I met with Mr. Landmon in person yesterday. And as I recall, Cory Casey and Kendall Gurule from Desmarais were participating by Zoom. So that was one preparation. 11:19

And then toward the end of last week there were one or two meetings entirely by Zoom during which I was asked questions about my understanding of the various documents in the binder, these eight documents that we've mentioned. 11:19

And so those were Zoom meetings. And as I mentioned, there was one in-person meeting with Mr. Landmon yesterday. 11:19

Q. And Dr. Grove, I believe you may have misspoke. You referenced attorneys from Desmarais. 11:20

You meant that you met with attorneys from Polsinelli, correct?

A. I'm sorry. Yes. Polsinelli, yep. The only meeting that I'm aware of where there were attorneys representing Desmarais were at a previous deposition on this -- related to this case.

Q. And that previous deposition related to this case, that was related to an ITC proceeding between Sun Pharma and Biofrontera, correct? 11:20

A. That's my understanding.

Q. And you're an expert who's given testimony in that ITC proceeding, correct?

A. Yes, I believe that that deposition was related to the ITC case and I gave my expert testimony in that deposition. 11:21

Q. And that ITC proceeding relates to Sun Pharma's '028 and '512 patents, correct?

A. That's my understanding, yes. 11:21

Q. Okay. You mentioned an in-person meeting with some Polsinelli lawyers and one or two meetings entirely by Zoom to prepare for your deposition today.

Approximately how much time was that? 11:21

A. The in-person meeting yesterday was perhaps -- well, let's see, from maybe 9:00 in the morning until 4:00 in the afternoon. So basically with the exception of an hour or so lunch break, an all-day meeting in person with Mr. Landmon from Polsinelli.

And the Zoom sessions, which I believe were on -- if I recall correctly, on Wednesday or Friday of last week or something like that, each of those Zoom meetings was approximately 90 minutes.

Q. Did anyone other than Polsinelli attorneys attend the in-person meeting or those Zoom meetings?

A. Not to my knowledge. There was just myself and the Polsinelli attorneys.

Q. Did you speak with anyone other than Polsinelli attorneys to prepare for today's deposition?

A. No, I don't believe so.

Q. Have you spoken with anyone from Biofrontera over the course of your work in this case?

A. Not that I recall, no.

Q. Did you talk with any other experts

over the course of your work in this case?

A. No, I don't believe so.

Q. Now, in terms of documents, you referenced the eight documents that you identified in your binder that you reviewed in preparation for your deposition today. 11:23

Did you review any other documents during your meetings with counsel to prepare for today's deposition?

A. Not that I recall. 11:23

Q. Did you review any documents that are not cited in your declaration in preparation for your testimony today?

A. I'm sorry. I missed the question.

Q. Sure. I can repeat it. 11:24

Did you review any documents that are not cited in your '028 declaration in preparation for your testimony today?

A. No.

Just to clarify a previous answer, there -- I believe that this binder has the relevant prior art. There may be one or two other patents, for example, that might be more relevant to the ITC case, for example, that I reviewed. And I guess to some extent then they 11:24 11:24

would be relevant.

But virtually all of my preparation and review was centered around the documents -- the eight documents that are in this binder.

Q. Did you review any other documents in preparation for today's deposition besides those in that binder? 11:25

A. No, I did not.

Q. And so I'll ask the question again.

Did you review any documents that are not cited in your declaration in preparation for your testimony today? 11:25

A. No, I don't believe I did.

Q. Did you review any materials to prepare for today that you hadn't reviewed before you submitted your declaration in this case? 11:25

A. The -- I believe the question that you asked was that have I looked at any documents -- relevant documents after I submitted this declaration. 11:26

The reason that I was taking a few moments there was that I see that this declaration was signed by me on August 21st of 2024. I've been retained as an expert for 11:26

Polsinelli since that time.

And in part because of the -- perhaps the ITC case, there are certainly -- it's certainly possible I may have looked at another patent as -- or prior art that are not in this binder. But as I said, the -- my preparation has centered around the documents that I mentioned in the binder in front of me.

Q. But specifically to prepare for your deposition today, did you look at any other documents? 11:27

A. No, I did not.

Q. And just so the record is -- the record is clear, what were you just referencing?

A. I was referencing the binder in front of me that has the documents that I listed. And as I recall, I think I said there were eight tabs. One, two, three, four, five, six -- yes, there are eight -- eight documents in the binder in front of me. 11:27

Q. And what were you just -- you just turned to something.

What were you looking at?

A. Yeah. This is -- I can hold it up. This is the binder that has those (indicating). 11:28

Q. I understand. But you were looking at a specific document, right?

What were you looking at?

A. Well, a few moments ago I was looking at the expert declaration -- my expert declaration for the IPR of U.S. Patent No. 11,697,028 to refresh my memory on when it was fully submitted, which was last August.

11:28

Q. You're aware that in this IPR proceeding there was a petition submitted by Biofrontera?

11:28

A. I'm sorry. Can you say that again?

Q. Are you aware that in this proceeding, which I may refer to as the 1312 proceeding or the '028 proceeding, that there was a petition submitted in this proceeding by the -- the petitioner, Biofrontera?

11:28

A. I -- I presume there -- there was. I'm -- I'm not an attorney so I -- and I'm not familiar with exactly what steps Biofrontera has taken.

11:29

I understand that there is an IPR proceeding, which is -- as I understand it, is the topic of this deposition. There's also an ITC proceeding. And I -- I do not know exactly

11:29

what Biofrontera has submitted or not submitted as it relates to these two cases.

Q. And did you review any petitions that Biofrontera submitted in any IPRs?

A. The -- the documents that I have reviewed are the ones that I described in this binder. If there is something else from Biofrontera that's a petition, I may have seen it. But at the moment I don't recall. 11:29

Hold on. Sorry. You're on -- on mute. 11:30

Q. Sorry. Did you review any patent owner submissions such as the patent owner preliminary response in connection with this proceeding? 11:30

A. I assume you're referring to the patent owner of the '028 patent.

Q. Yes.

A. I have not -- I have not reviewed any document that -- I think that's Boyajian. I have not reviewed -- I don't recall reviewing any document that he submitted. 11:30

Q. Have you reviewed any documents that the lawyers submitted, such as the briefs --

A. This would be -- 11:31

Q. -- from the patent owner preliminary response?

A. I don't recall seeing that. I may have seen it. But I don't recall at the moment.

Q. Okay. Are you aware that there was a prior IPR proceeding on the '028 patent before this 1312 proceeding? 11:31

A. Yes. My attorney -- attorneys mentioned that there had been an earlier IPR proceeding. 11:31

Q. What did they tell you about that proceeding?

MR. LANDMON: Objection.

And I'll instruct the witness not to answer. 11:31

BY MS. HIGGINS:

Q. Do you have an understanding about the subject matter of that proceeding?

MR. LANDMON: And just pursuant to my objection, Dr. Grove, just instruct you not to disclose the substance of any conversations we may have had. 11:31

MS. HIGGINS: Okay. But if he has an understanding of the subject matter of that IPR proceeding, he can tell me what his 11:32

understanding is.
BY MS. HIGGINS:
Q. So please answer my question.
MR. LANDMON: Dr. Grove, if you have an understanding that is separate from what the lawyers have told you, you can provide that understanding. But if it's only from conversations with the lawyers, then I'm going to instruct you not to answer. 11:32
THE WITNESS: I -- I have no information or understanding other than what I may have learned from my attorneys. 11:32
BY MS. HIGGINS:
Q. So you can't answer my question, correct? 11:32
A. Under the instruction from my counsel, no.
Q. That prior IPR proceeding on the '028 patent, did you review any documents from that proceeding? 11:32
A. I have not.
Q. So sitting here today, you have no understanding of that proceeding other than what your lawyers told you?
A. That's correct. 11:33

Q. Are you relying on anything they -- they told you in connection with rendering your opinions in this proceeding?

A. No.

Q. Do you understand that there was an institution decision in that prior proceeding in the '028 patent? 11:33

A. Yes.

Q. What is your understanding of the institution decision? 11:33

MR. LANDMON: Again, just objection to the extent it's asking for communications.

Dr. Grove, if you have an independent understanding, you can give that. But if it's only from what the attorneys have told you, I'll instruct you not to answer. 11:33

THE WITNESS: The only information I have -- the only knowledge I have related to an earlier IPR proceeding related to the '028 patent is information that was shared with me by counsel. 11:33

BY MS. HIGGINS:

Q. So you have an understanding about 11:34

that institution decision but you're -- you're not able to tell me what that understanding is, correct?

A. I have been -- as I understand it, I've been advised by counsel not to share discussions with counsel regarding that -- that first proceeding.

Q. And so you're taking your lawyers's instruction not to answer any questions on the prior proceeding in the '028 patent; is that correct? 11:34

A. I did answer your question related but -- but that it -- but only to the extent that I don't know anything other than what my attorneys told me -- or have told me related to that initial IPR proceeding. 11:34

Q. Did you review the institution decision from that prior '028 proceeding?

A. No, I did not.

Q. Did -- during your preparation were you shown that document? 11:35

A. I don't believe so.

Q. Were there discussions about that document?

MR. LANDMON: You can answer that yes 11:35

or no but --
THE WITNESS: Yes, I -- I -- there were discussions that --
MR. LANDMON: Dr. Grove, you can answer that question yes or no. 11:35
THE WITNESS: Yes.
BY MS. HIGGINS:
Q. What were those discussions?
MR. LANDMON: So objection. Again, for the same reason, calling for attorney work product. 11:35
I'll instruct the witness not to answer.
BY MS. HIGGINS:
Q. Are you taking your attorney's instruction? 11:35
A. Yes, I am.
Q. So you have no plan right now to rely on the institution decision in this proceeding; is that right? 11:36
A. No.
Q. Have you heard of a Dr. Eric Bretschneider?
A. Yes, I believe so.
Q. And when did you first meet Dr. Eric 11:36

Bretschneider or how have you heard of him?

A. If my recollection is correct, he is an M.D. who gave some -- gave a declaration or some other information related to this case for the Desmarais counsel, not for Polsinelli that I'm aware of. 11:36

Q. Okay. So your understanding is that Dr. Bretschneider gave a declaration on behalf of Sun Pharma?

A. I have a recollection of that name and of reading that name. And my recollection is that there was a declaration by a physician, the attorneys representing Sun. And I believe that that is where I saw his name. 11:37

Q. And you said you had a recollection from reading something. 11:37

Do you recollect what you were reading?

A. I don't recall -- no, I don't recall reading the declaration, if there was one. I don't recall reading it. 11:37

Q. Okay. So you didn't review any declaration of a Dr. Eric Bretschneider on the '028 patent in connection with this case or in connection -- in any connection. 11:37

So you haven't reviewed any declaration of Dr. Bretschneider; is that correct?

A. Not that I recall.

Q. Do you know that Dr. Bretschneider gave a declaration -- submitted a declaration on the '028 patent in the prior IPR proceeding on the '028 patent? 11:38

A. That may have been where I heard the name. But I can't say for sure that he did or he didn't. 11:38

Q. Did you discuss Dr. Bretschneider in connection with your preparation for this deposition?

A. No. 11:38

Q. Did you discuss a declaration by Dr. Bretschneider in connection with your preparation for this deposition?

A. No.

Q. Do you have any opinions of Dr. Bretschneider in mind as you sit here today regarding the '028 patent? 11:39

A. No.

Q. And you didn't review Dr. Bretschneider's declaration on the '028 11:39

patent in connection with this IPR prior to submitting your declaration, correct?

A. Correct.

Q. Okay. I believe we may have already published an expert declaration of Robert E. Grove, Ph.D., for inter partes review of U.S. Patent No. 11,697,028. 11:39

MS. HIGGINS: Can folks see that up on the screen?

THE WITNESS: Not yet. 11:39

BY MS. HIGGINS:

Q. Okay.

A. I have a copy in front of me, which I can --

Q. Yeah. We're going to -- Dr. Grove, given that you told me that it's not marked up, I don't have an objection once we mark this exhibit to you referencing the hard copy in the room with you. 11:40

Let's just first go through the procedure of getting the exhibit marked and then we can proceed. 11:40

A. Of course.

MS. HIGGINS: So how do we publish this thing? 11:40

MS. BELCHER: If you refresh the box link, it should show up.

MR. LANDMON: Give me a minute, counsel. When I did that it kicked me back out. 11:40

MS. HIGGINS: It's doing that to us, too.

MR. LANDMON: Yeah. Apparently I can't identify --

THE WITNESS: Can I say, Ms. Higgins, 11:40 that I can empathize with your -- I have seven grandchildren whom I daily consult for my technological issues.

MS. HIGGINS: I don't have the grandchildren yet. But I have a daughter 11:40 in grad school and one who's a freshmen in college and they are the IT in our household. My husband's even better than me at it. But that's why we choose to work in high tech, right? It's fine. 11:41

THE WITNESS: Grandpa, it's easy, you just push this, this and this and move that here and it's exactly what you wanted. Why is that so --

MS. HIGGINS: That's why Dr. Bridget 11:41

Belcher is with me here today, but not only for that reason.

BY MS. HIGGINS:

Q. All right. Can you guys see the declaration up on the screen? 11:41

A. I cannot. I'm looking -- there is a -- a green box that says share but I don't think that's what I need. Give me a moment. I'll call my grandkids.

MS. HIGGINS: You know what, I'm going to suggest this, Mr. -- I'm going to suggest this. 11:41

Why don't we take a few-minute break and Mr. Landmon, maybe you can get us situated with -- with the exhibit. And perhaps Ms. Kocek might be able to help us, too. And then we can return in a few minutes. 11:41

Does that make sense?

MR. LANDMON: Yes. 11:42

THE WITNESS: Sure.

THE STENOGRAPHER: We are off the record at 11:42.

(Whereupon, a recess was taken from 11:42 a.m. to 11:51 a.m.) 11:51

BY MS. HIGGINS:

Q. So I had been asking some questions about documents reviewed in this matter.

Are you aware that there was also an institution decision by the judges in this proceeding? 11:51

A. Are you referring to the IPR proceeding?

Q. Yeah, this proceeding --

A. The first -- 11:52

Q. This proceeding, the 1312 IPR proceeding that you're here to testify about today.

A. Okay. And I'm sorry. With regard to this IPR and this deposition, your question was? 11:52

Q. Have you reviewed an institution decision in this IPR, the 1312 IPR?

A. I have not reviewed a decision.

Q. Okay. So we're going to bring up your declaration, which I may refer to as the '028 declaration or the 5 -- excuse me, the 1312 declaration in this case. 11:52

MS. HIGGINS: And we're going to ask the court reporter to mark as Deposition Exhibit 1015 the Expert Declaration of 11:52

Robert E. Grove, Ph.D., for Inter Partes Review of U.S. Patent No. 11,697,028.

(Deposition Exhibit 1015 was marked for identification.)

BY MS. HIGGINS: 11:53

Q. And Dr. Grove, do you have a clean copy of that declaration there with you today?

A. Yes, I do. I'm just double-checking that there were no notes. But this -- this was provided to me by counsel so I certainly have made no notes. And I don't see any other notations that anyone else may have written in the -- in this copy of the declaration, Exhibit 1015. 11:53

Q. And so with respect to Exhibit 1015 that you have in front of you, you signed a declaration containing the opinions you are offering in this case, right? 11:54

A. Yes, that's correct.

Q. And 13 -- this 1312 IPR declaration, which is Exhibit 1015, this is your declaration for inter -- in connection with inter partes review of the '028 patent, correct? 11:54

A. Yes.

Q. And as I said, I may refer to this 11:54

declaration as the 1312 declaration or your 1312 declaration.

If I do, will you understand what I'm talking about, Exhibit 1015?

A. Yes, I -- I understand that when you refer to 1312 you are referring to Biofrontera Exhibit 1015. 11:54

Q. Okay. And will you turn to page 93 of your 1312 declaration, please?

A. Page 93? 11:55

Q. 93, correct.

A. I have it.

Q. And on the page 93, paragraph -- that's your signature on page 93, correct?

A. That is my electronic signature. 11:55

Q. And paragraph 280 on that page states: "Signed on this 21st day of August, 2024."

Do you see that?

A. Yes, I do. 11:55

Q. And so you eSigned this declaration, your 1312 declaration, on August 21, 2024?

A. Yes, that's my recollection and that's what's stated here.

Q. And you signed your 1312 declaration 11:56

under oath on that date, August 21, 2024, correct?

A. Yes.

Q. And your 1312 declaration accurately reflects your testimony, correct? 11:56

A. Yes.

Q. Is there anything you want to change in this 1312 declaration?

A. No.

Q. Okay. We're going to put that aside for a second and we are going to bring up the '028 patent, which should also be on -- in the box there. 11:56

A. May I mention that I do have, as I described before -- discussed before, a hard copy of that. It may be easier for me to refer to the hard copy of the '028 patent if that's permissible. 11:57

Q. That is fine. Please go ahead and do so. 11:57

A. Okay. I have in front of me the hard copy in this binder, the last document, which is the U.S. Patent 11,697,028 by Boyajian, or something, however his name is pronounced. And I have that in front of me. It's listed in the 11:57

copy in my binder as Biofrontera Exhibit 1001.

Q. And that's -- can you see it also up on the screen?

A. I can if I -- oh, actually, no. I have in front of me at the moment, I have my expert declaration behind my Zoom. I can try to switch over to the -- the other documents. I need to get into -- let me see here. It's showing only the -- maybe Mr. Landmon -- there we go. 11:58

MR. LANDMON: Back again.

THE WITNESS: Okay. And the 00 -- 1001. Okay. I now have that in front of me on my screen.

BY MS. HIGGINS: 11:58

Q. Okay. Thank you.

MS. HIGGINS: So I would like to mark as Exhibit 1001 U.S. Patent 11,697,028.

(Deposition Exhibit 1001 was marked for identification.) 11:59

BY MS. HIGGINS:

Q. And you have that in front of you, correct, Dr. Grove?

A. Yes, I do.

Q. And you reviewed the '028 patent, 11:59

which is Exhibit 1001, in connection with your work in this IPR, correct?

A. Yes, that's correct.

Q. And you're familiar with the '028 patent that is the subject of this IPR, correct? 11:59

A. Yes.

Q. You reviewed the '028 patent in detail in your work coming to your opinions in this IPR, right?

A. Yes. 12:00

Q. And the IPR -- excuse me, the '028 patent at issue in this case is about a five-panel adjustable illuminator for use in photodynamic therapy.

You know that, right? 12:00

A. I do.

Q. And if I refer to the Sun Pharma patent as the '028 patent today that you have in front of you, you'll understand what I'm talking about, right? 12:00

A. Yes.

Q. Were you aware of the '028 patent before this case?

A. I was not aware of the '028 patent before I was reached out to by Polsinelli. 12:00

Q. When was that?

A. In August of 2024 or perhaps late July of 2024.

Q. And that's when Polsinelli reached out to you in connection with this matter? 12:01

A. Yes, they reached out to me first to see if I might be available to work with them as an expert on this case. And that -- it was about that time, yes.

Q. And were you aware of the '028 patent before that July/August 2024 time frame? 12:01

A. No, I was not.

Q. You mentioned earlier that you also are serving as an expert on behalf of Biofrontera in the related ITC proceeding; is that correct? 12:01

A. Yes.

Q. And when were you first retained by Polsinelli in connection with the ITC proceeding? 12:02

A. It's my understanding that I was retained, as I mentioned, in very late July or early August of 2024 to serve as a technical expert on whichever patents they inquired about. And I don't recall specifically if it was the 12:02

'028 and the '512. But I -- I believe it was, yes.

Q. Were you retained in the July/August 2024 time frame to work on the ITC matter? 12:02

A. In the -- in that time frame I was asked to -- to work with Polsinelli and to review various patents. I was just coming up to speed on what sort of cases were pending.

I don't recall specifically if it was discussed that there was an IPR or an ITC or whether or not my reading of one patent or another was related to one case or the other. 12:03

But I'm aware that -- or at least it's my understanding that the -- this IPR proceeding relates to solely the '028. And the ITC hearing, if I understand correctly, involves both the '028 and the '512 patent. 12:03

Q. Do you know whether you were retained to work on the ITC matter first or whether it was at the same time? 12:03

A. I don't recall.

Q. So your recollection is that you were retained generally in connection with the '028 and '512 patents in the July/August time frame; 12:04

is that correct?

A. It's my recollection that I was retained because of litigation or pending litigation between Sun Pharma and Biofrontera and that the case involved one or more patents. 12:04

Q. But you can't put a date on when you were retained. You said you were retained for this matter in the July/August 2024 time frame.

Do you know when you were retained for the ITC? 12:04

A. I believe it was the same time.

Q. I understand.

A. As I said, the retention, the signing of the contract was for me to assist Polsinelli in their legal matters related to the Sun Pharma/Biofrontera. And I don't recall any distinction or distinguishing at that time between whether my work was for -- related to solely one patent or both. 12:04

Q. But that July/August 2024 time frame, was that the first time that you knew of the '028 and '512 patents? 12:05

A. Yes, that's correct.

Q. And you mentioned that the ITC proceeding involves both the '028 and the '512 12:05

patents, correct?

A. That's my understanding. But I'm -- I'm a technical expert, not an attorney. So -- but that's my understanding.

Q. And you've -- you've submitted both testimony and written opinions in the ITC proceeding with respect to both the '028 and the '512 patents, correct? 12:05

A. I believe so.

Q. And you've also submitted a declaration in an IPR proceeding on the '512 patent; is that right? Have you? 12:05

A. I'm -- I'm trying to recall. So you're asking me if I submitted a declaration related to the ITC case. And I believe that a previous declaration that I made was directed toward that litigation. 12:06

Q. Okay. Now, specifically let's -- let's talk about IPRs.

So we've -- we've looked at what we've marked here as Exhibit 1015 as your declaration submitted on the '028 patent here in this IPR, right? 12:06

A. Correct.

Q. In addition to that, have you also 12:06

submitted a declaration in support of Biofrontera in another IPR on the '512 patent?

A. I don't believe so.

Q. Okay. All right.

Well, returning to the '028 patent, you see on the front of the patent -- of the '028 patent that it says that it's assigned to DUSA Pharmaceuticals, Inc.

Do you see that? 12:07

A. Yes, I do.

Q. Have you ever -- prior to that July/August time frame, had you heard of DUSA Pharmaceuticals?

A. Yes.

Q. In what context had you heard of DUSA Pharmaceuticals? 12:07

A. My professional career over the last 40 years has involved light-based devices for dermatologic use. And the DUSA device, which was called the BLU-U, was well known to both dermatologists and the industry for many years prior to my being contacted by Polsinelli. 12:08

Q. And when was your first awareness of the BLU-U?

A. I have attended the American Society 12:08

for Laser Medicine & Surgery annual meetings since probably the mid-1980s. And the -- in the exhibit halls of those annual conferences, companies proudly showed their equipment.

And so I can't recall when I might have walked by a DUSA booth and -- but I would say that it -- whenever it was -- the original BLU-U was commercially available, I think it's very likely that I would have seen it in the exhibit hall of one of those annual meetings. 12:09

Q. Prior to the July/August 2024 time frame, had you ever operated a BLU-U?

A. No.

Q. Since that time have you operated a BLU-U? 12:09

A. The BLU-U, as I understand it, from now what is Sun, has an embodiment that was the original embodiment using fluorescent tubes. And a more recent version -- I believe it might be the model 1470E (verbatim), I think -- which is an LED version, light-emitting diode version, of the original BLU-U. 12:10

I have never operated the original BLU-U containing the fluorescent tubes. But I have had an opportunity to turn on the LED 12:10

version, which I believe is still called the BLU-U even though it's a different technology.

Q. And that BLU-U, which is a different technology, that is the 4170E?

A. I believe it's 1470, 1-4-7-0-E. I believe that that's correct, although don't hold me to that. I think that the -- I recall that there's a 1470D and a 1470E.

But among people who are experts in the field, the -- when people refer to the BLU-U, what comes to mind mostly is the fluorescent tube version, and the LED version, which I believe I'm correct in saying is the model 1470E, is less well known.

But it is an attempt to replicate the fluorescent tube version of the BLU-U using LEDs instead of fluorescent tubes.

Q. So your understanding is that there was an original BLU-U with fluorescent tubes, right?

A. Yes, there -- there in fact was a -- and it may still be available for sale. I don't know.

But yes, the BLU-U in the industry, that name, which is somewhat unusual, was widely

known both among dermatologists and industry people for a good portion of my career.

Q. And it was widely sold, too, correct?

A. That I don't know. I can't speak to the sales of that model because I don't know. 12:12

Q. And this newer version that you mentioned has LEDs; is that correct?

A. Yes.

Q. And if that newer version were the 4170E, not the 1470E, would that surprise you 12:13 that you might have the numbers transposed?

A. It's certainly quite possible that I have the numbers transposed.

I think for the sake of clarity, perhaps referring to one as the fluorescent tube 12:13 **version and the other as the LED version, there will be no confusion. But it could very well be 4170 instead of 1470. If I was incorrect, I apologize.**

Q. And you also mentioned Sun Pharma. 12:13 You understand that -- I'll simply state it this way, that DUSA became part of Sun Pharma.

Do you have an understanding of that?

A. It's my understanding that -- I think the way you said it is fine, that DUSA became 12:14

part of Sun Pharma. I would have described it as DUSA having been acquired by Sun Pharma. But perhaps it was a merger. I don't know.

But I did -- it's the understanding -- my understanding now that what was DUSA has now been incorporated into Sun Pharma.

Q. And when's the first time that you were aware of Sun Pharma, was it prior to the July/August 2024 time frame?

A. I don't believe so. 12:14

Q. And you've heard of Sun Pharma in connection with this matter now, correct?

A. Yes.

Q. Okay. On the front of the '028 patent, Exhibit 1001, it lists inventors Thomas Boyajian, Mark Carota, and Brian Mazejka. 12:15

Do you see that?

A. Yes, I do.

Q. Did you know any of the inventors on the '028 patent before this case? 12:15

A. No.

Q. So prior to the July/August 2024 time frame, you hadn't heard of the inventors on this '028 patent; is that correct?

A. That's correct. 12:15

Q. And prior to July/August 2024, that name Bretschneider came up.

Did you know Dr. Eric Bretschneider?

A. No, I did not.

Q. So let's turn back to your declaration, which is Exhibit 1015 in this matter. 12:16

A. I have it.

Q. So your declaration in this 1312 proceeding, this is about 100 pages, correct? 12:16

A. Yes, that's approximately correct.

Q. Did you draft all 100 pages of your declaration?

A. I created this declaration in consultation and discussion with my attorneys, yes. 12:16

Q. Who did the first draft?

A. The draft was provided to me after discussions with the attorneys. So they certainly printed it. But -- 12:16

MR. LANDMON: I'm just going to object based on attorney work product.

And instruct you not to provide any details on the drafting process.

MS. HIGGINS: Well, I think I'm 12:17

entitled to ask.

BY MS. HIGGINS:

Q. Did you draft any of the sections of your declaration?

MR. LANDMON: Counsel, I think he already answered that question. 12:17

BY MS. HIGGINS:

Q. Well, did you draft any sections of your declaration, Dr. Grove?

MR. LANDMON: Dr. Grove, I'm going to -- well, Dr. Grove, you already testified in part to this. And feel free if you want to repeat that testimony and answer the question again. But otherwise not -- 12:17

MS. HIGGINS: Yeah. And I -- 12:17

MR. LANDMON: Otherwise --

MS. HIGGINS: Please limit your objections, counsel.

MR. LANDMON: I'm giving objections based on attorney work product and I'm allowed to -- 12:17

MS. HIGGINS: That's fine. Limit your objections. We don't do speaking objections here.

BY MS. HIGGINS:

Q. So Dr. Grove, the question is did the -- did -- did you draft any of the sections?

MR. LANDMON: Dr. Grove, I'm going to object based on attorney work product and instruct you not to provide details on the drafting process.

I do think you can answer yes or no or provide the detail that you've already provided in answering the last question. 12:17 12:18

THE WITNESS: There is content of this expert declaration that certainly involves my input.

BY MS. HIGGINS: 12:18

Q. What content is that?

MR. LANDMON: Same objection and same instructions.

And Dr. Grove, if you have questions about that, we can go off the record and have a conversation about that. 12:18

THE WITNESS: I would simply choose not to answer and -- based on my counsel.

BY MS. HIGGINS:

Q. Did you personally decide which 12:18

arguments to include in your declaration?

A. I was involved in all of the content in my expert declaration. The -- I'll just stop there.

Q. But you can't tell me which sections you drafted, correct? 12:19

A. I don't recall specifically which sections I drafted or -- or not.

Q. Are there any arguments in your declaration that were suggested to you by the lawyers? 12:19

MR. LANDMON: Again, Dr. Grove, I can -- you can answer yes or no but you can't provide the details of any of our conversations. Yeah. 12:19

THE WITNESS: I'm sorry. Would you repeat the question, please?

BY MS. HIGGINS:

Q. The question is: Are there any arguments in your declaration that were suggested to you by the lawyers? Yes or no? 12:19

A. The arguments in the declaration were developed in consultation with counsel.

Q. Are there any arguments in your declaration that were suggested to you by the 12:20

lawyers?

A. I don't recall.

Q. Your declaration discusses certain prior art in this case, correct?

A. Yes, it does. 12:20

Q. Was that prior art provided to you by the lawyers? Yes or no?

A. Yes.

Q. And by prior art, I'm referring to the -- the Larsen reference, the Lundahl references, and the Bansal reference. 12:20

Were those references provided to you in connection with this matter?

A. Yes.

MS. HIGGINS: Okay. Let's just go silent for a quick sec. 12:21

Okay. We have just added to the folder another declaration of Dr. Grove on the '512 patent, which we're going to display now if you're able to bring it up on the screen. 12:21

A. So do I look in the public shared file?

MR. LANDMON: It's going to kick us back out. 12:22

THE WITNESS: She said it wouldn't if there were multiple documents in there.

MS. HIGGINS: It can kick us out.

MR. LANDMON: All right. Counsel, give us a couple of minutes. 12:22

THE WITNESS: Do you want me to go into this ShareFile?

THE STENOGRAPHER: Do you want to go off the record for this?

MR. LANDMON: No, we can wait on the record. 12:22

THE WITNESS: Okay. I presume it's the EX2081. No?

BY MS. HIGGINS:

Q. Yes. 12:23

A. Is that correct?

Q. Yes.

A. Okay. I'm going to pin that or try anyway.

Okay. Yes, this is the -- I have in front of me on my laptop Expert Declaration of Robert E. Grove, Ph.D., for Inter Partes Review of U.S. Patent No. 11,446,512. 12:23

Q. So Dr. Grove, I had asked you earlier if you had submitted a declaration in an IPR 12:23

proceeding regarding the '512 patent.

Do you remember that?

A. Yes, you did ask me.

Q. Does this refresh -- refresh your recollection that you did submit a declaration regarding the '512 patent in IPR proceeding IPR2025-00287? 12:23

A. Yes. It is refreshing my memory, yes. I see that it was signed in December of 2024. 12:24

MS. HIGGINS: We're going to go ahead and mark as Exhibit 2081 the Declaration of Expert Robert E. Grove, Ph.D., for Inter Partes Review of U.S. Patent No. 11,446,512. 12:24

(Deposition Exhibit 2081 was marked for identification.)

BY MS. HIGGINS:

Q. And Dr. Grove, this is your declaration for inter partes review of the '512 patent, correct? 12:24

A. Yes, it is.

Q. And if I refer to that as your declaration for the '512 patent in the 287 IPR, you'll know what I'm talking about? 12:24

A. In the 287 IPR, I assume you'll be referring to this declaration, one of which is the IPR for '512. The one which I understand is the subject of this deposition is my expert declaration for the IPR related to the '028 patent.

Q. And I believe you turned to the signature page.

Can you turn to page 97 of the declaration? 12:25

A. Yes, I'm there. I believe it's page 97, yes.

Q. And that's your signature on page 97 of your '512 declaration in the 287 proceeding, right? 12:25

A. That is my electronic signature, correct.

Q. And you signed your 287 declaration, which is Exhibit 2081, on December 18, 2024, correct? 12:25

A. Correct.

Q. And this declaration accurately reflects your testimony in that proceeding, correct?

A. Yes. 12:26

Q. And it accurately reflects your opinions regarding the subject matter that you've discussed in this declaration, correct?

A. Yes.

Q. Is there anything that you want to change in this declaration, the '512 declaration? 12:26

A. No.

Q. Okay. We're going to publish another document, which is a document that's not in your binder. So you may require assistance of Mr. Landmon. 12:26

And while we're bringing that up, we discussed before that you've given testimony in the ITC proceeding regarding the '028 and '512 patents, correct? 12:27

A. If you're referring to my deposition, yes.

Q. Okay. We just brought up deposition testimony from February 26, 2025, from the related ITC proceeding. That does have certain redactions on other parts of the case. 12:27

Do you have that in front of you?

MR. LANDMON: Counsel, if you can give us a minute. If you go up here and 12:27

refresh this browser. It didn't kick me out this time.

THE WITNESS: What do I do now, return?

MR. LANDMON: You can go back up. No, you were there. 12:28

THE WITNESS: This one.

BY MS. HIGGINS:

Q. Okay.

A. One moment. 12:28

Q. Sure.

A. I have in front of me -- it says at the top "Robert E. Grove - February 26th, 2025."

Q. Okay. And you should feel free to scroll through -- through the transcript if -- if you'd like. 12:28

MS. HIGGINS: Let's mark what is the deposition transcript of Dr. Robert E. Grove dated February 26th, 2025, in the ITC matter 337-TA-1411 as Exhibit No. 2036, Deposition Exhibit No. 2036. 12:28

(Deposition Exhibit 2036 was marked for identification.)

BY MS. HIGGINS:

Q. And this deposition transcript, which 12:29

has just been marked as Exhibit 2036, this contains deposition testimony that you gave on February 26th, 2025, in the related ITC proceeding; is that correct?

A. Yes. 12:29

Q. The deposition testimony that you gave in the ITC proceeding set forth in this deposition transcript is truthful and accurate, correct?

A. Yes. 12:29

Q. And you had the opportunity to review this deposition testimony and provide any errata, correct?

A. Correct.

Q. And your deposition testimony in 12:30 Exhibit 2036 accurately reflects your opinions regarding the '512 and '02 (verbatim) patents and the prior art at issue, correct?

A. The '512 and '028 patents, yes.

Q. And so the testimony that you gave on 12:30 February 26, 2025, was -- was accurate, correct?

A. Yes, to the best of my knowledge.

Q. Besides any -- any errata that you may have identified, you don't have anything to correct regarding the testimony that you gave on 12:31

February 26th, 2025, correct?

A. I do not.

MS. HIGGINS: Okay. We're going to publish one more.

THE WITNESS: I should be getting better at this. 12:31

MS. HIGGINS: I think you are.

THE WITNESS: Thank you for the compliment, however undeserved.

MS. HIGGINS: I am not getting better. 12:31

MR. LANDMON: Open there.

THE WITNESS: Go there.

MR. LANDMON: Now hit return.

THE WITNESS: Oh, return to refresh it. 12:31

MR. LANDMON: Yeah.

THE WITNESS: I see. There's something down here.

We are looking for Exhibit -- and what is the number? I have six in front of me. 12:31

BY MS. HIGGINS:

Q. So this should be an expert report. It's Exhibit 2034. 12:32

(Deposition Exhibit 2034 was marked for identification.)

THE WITNESS: I have an Exhibit 2034. So I will attempt to open that, I guess. Looks encouraging. 12:32

This is the expert report, my expert report. And I'm looking at the signature block?

BY MS. HIGGINS:

Q. Yes. So turn to page 240. 12:32

A. Yes. That has my electronic signature over my name on page 240.

Q. Okay. So let's -- let's back -- back up.

So you provided an expert report in the ITC proceeding on the '028 and '512 patents, correct, at least one? 12:32

A. Yes.

Q. And this is a copy of your expert report from the ITC proceeding on the '028 and '512 patents, right? 12:33

A. I believe so.

Q. And as we already discussed, on page 240 of your expert report from the ITC proceeding, that's your electronic signature on 12:33

-- on page 240, correct?

A. Yes.

Q. In this report the opinions -- and feel free to scroll, scroll through -- the opinions you provided in this ITC report, which we've marked as Exhibit 2034 -- 12:33

A. Yes.

Q. -- those opinions are truthful and accurate, correct?

A. To the best of my knowledge, yes. 12:33

Q. And your ITC report, which is Exhibit 2034, still accurately reflects your opinions today, correct?

A. Yes, I believe so.

MS. HIGGINS: Okay. One more. 12:34

So we're going to publish Exhibit 2082, which is a declaration from the IPR proceeding 2024-00874, Exhibit 1003 from that proceeding.

And we have it up on the screen here. Let us know when you can see Exhibit 2082. And I'm going to ask the court reporter to mark as Exhibit 2082 the Expert Declaration of Eric Bretschneider, Ph.D., for Inter Partes Review of U.S. 12:34 12:35

Patent No. 11,697,028.

(Deposition Exhibit 2082 was marked for identification.)

MS. HIGGINS: And Madam Court Reporter, you did mark the prior ITC expert report as Exhibit 2034, correct? 12:35

THE STENOGRAPHER: Correct.

MS. HIGGINS: Thank you.

BY MS. HIGGINS:

Q. So Dr. Bretschneider, do you have what has just been marked as Exhibit 2082 in front of you? 12:35

A. This is Dr. Grove.

Yes, I have the --

Q. Sorry. 12:35

A. That's all right. Now we have one -- one misstatement each.

So I have in front of me the expert declaration of Eric Bretschneider, Ph.D., for IPR of U.S. Patent 11,697,028. 12:35

Q. And my question is: Have you seen this declaration before?

A. I don't -- I was aware of the declaration. I don't believe I have -- I don't recall reviewing it prior to looking at it now. 12:36

I think I read through it. I don't recall.

Q. And you don't recall having read through this?

A. Correct.

Q. Okay. Turning back to your declaration in this matter, which is Exhibit 1015, if we can bring that up. And you can also look at it in your hard copy if you'd like. 12:36

A. Yes. 12:36

Q. We've marked your declaration in this proceeding, so your 1312 declaration, Exhibit 1015.

On page 98 you have an Appendix A. If you would please turn to that. 12:37

A. I would be happy to.

Q. And in -- in your 1312 declaration, if you can turn to page -- it's page 98 of your declaration. It's -- excuse me, I have the wrong document. Excuse me. 12:37

So we might be even now, Dr. Grove.

A. My declaration in the '028, it's numbered through page -- the last page, which is the page containing my signature, electronic signature? 12:38

Q. Yes. And so if you can find that page. So it's PDF page 94 and it's Appendix A.

A. Yes, I see that.

Q. Okay. So you have Appendix A in front of you? 12:38

A. I -- I do. The page numbering in this hard copy ends at 93. But I'm looking at Appendix A, Materials Considered, which would be page 94 of the PDF, correct.

Q. And these are the materials that you considered in connection with the opinions set forth in this '512 declaration, which is Exhibit 1015, correct? 12:38

A. Correct.

Q. And I don't see a declaration of Dr. Bretschneider there, right? 12:38

A. I do not see it either. I -- I do not see that either.

Q. And so you didn't review the declaration of Dr. Bretschneider, which I just showed you, in connection with preparing your declaration for this proceeding on the '512 -- on the '028 patent, correct? 12:39

A. That's correct. I don't recall reviewing that declaration. 12:39

Q. Okay. With this Appendix A in front of you, which includes a few more exhibits than I think you have in your binder, is there anything else that you reviewed in connection with preparing this declaration, the '512 declaration? 12:39

A. No, not that I'm aware of in preparing this declaration.

MS. HIGGINS: Okay. We're going to -- we're going to change course here. Hold on one second. 12:40

(Whereupon, a discussion was had off the record at 11:39 a.m.)

MS. HIGGINS: My colleague tells me that I referenced the '512 declaration. So I'm going to go ask -- I apologize. I'm going to ask the question again. 12:40

BY MS. HIGGINS:

Q. So we're looking at Appendix A.

And my question -- in -- in the 1312 declaration. And my question is: Are there any other materials that you reviewed in connection with rendering your opinions on the '028 patent in this proceeding regarding the '028 patent? 12:40

A. Not that I recall. 12:40

MS. HIGGINS: Okay. Let's go off the record, take a quick break, because we're going to change topics.

How long do you guys want to break for? 12:40

MR. LANDMON: Five minutes is probably good with us.

THE WITNESS: Sure. Five, ten, whatever you'd like.

MS. HIGGINS: It's at your request, Dr. Grove. Is five minutes enough? 12:40

MR. LANDMON: Five minutes should be enough. Just -- counsel, given like the time in the East Coast, it's -- probably after another hour or so we might take a somewhat longer break for lunch. But even then, we won't need -- we won't need a long time so we can keep it going. 12:41

MS. HIGGINS: That's good. We'll eat breakfast here out in sunny California. 12:41

MR. LANDMON: Exactly.

MS. HIGGINS: Okay. We'll see you in five.

THE WITNESS: Okay.

(Whereupon, a recess was taken from 12:41 p.m. to 12:47 p.m.)

BY MS. HIGGINS:

Q. I think that you told me that in your binder you have a copy of the '028 patent. So you should feel free to grab the hard copy. We're also going to publish the '028 patent, which we've already marked as Exhibit 1001. 12:47

A. Yes, I have the hard copy in front of me. 12:47

Q. Okay.

A. Of the '028.

Q. Do you also have it up on the screen?

A. Not at the moment. So I can attempt to get there. 12:47

Okay. '028, yeah, that is Exhibit 1001. Let me see if I can bring that up. Yes, I have it up on my screen. And I have a hard copy to my right.

Q. And I'm fine with you, Dr. Grove, referring to your hard copy if that helps. 12:48

A. Thank you.

Q. Can you please turn to Claim 1 of the '028 patent, which is in column 10?

A. I have Claim 1 in front of me. 12:48

Q. Okay. Claim 1 requires the illuminator being configured to uniformly illuminate a treatment surface of the patient via the light sources, correct?

A. Yes. It says (as read): Light sources disposed on surfaces of the five panels, the illuminator being configured to uniformly illuminate a treatment surface of the patient via the light source. 12:48

Q. And if you would turn to independent Claim 16, 20, and 21. 12:49

And this limitation is also in independent Claims 16, 20, and 21, correct?

A. It appears to be. The phrase you referred to, could you repeat that phrase that you mentioned in Claim 1? 12:49

Q. Sure. And I'll -- I'll read it from Claim 16 as well, the same -- same phrase.

A. Yes.

Q. (As read): Illuminator being configured to uniformly illuminate a treatment surface of the patient via the light sources. 12:49

Do you see that?

A. I see that in Claim 16 and I see it also in Claim 20 and I see it, yes, in 21 also. 12:50

Q. Okay. So independent Claims 1, 16, 20, and 21 require the illuminator being configured to uniformly illuminate a treatment surface of the patient via the light sources, correct? 12:50

A. Yes.

Q. Okay. Can you look at Claim 5 of the '028 patent?

A. I have it.

Q. Claim 5 requires (as read): 12:50
Uniformly illuminating a treatment surface of the patient with light sources disposed on the five panels of the illuminator.

Correct?

A. Yes. 12:51

Q. Okay. If I refer to the limitations we just discussed as the "uniformly illuminate" limitations of Claims 1, 5, 16, 20, and 21, you'll know what I'm talking about?

A. Yes, I believe so. 12:51

Q. We're going to turn to the '512 patent now, which we've put in the exhibits.

A. Yes. Okay. I'll have to pull that one up on the screen.

Q. That's fine. 12:51

MS. HIGGINS: While you're doing that, I'm going to ask the court reporter to mark as Exhibit 2083 --

THE WITNESS: I'm trying to refresh this, Chad. 12:52

MS. HIGGINS: -- U.S. Patent No. 11,446,512. And it's taking a while to refresh on our end, too.

THE WITNESS: That's Exhibit 2083?

MS. HIGGINS: Correct, yes. 12:52

THE WITNESS: 2083, okay. Yes, I have in front of me the '512 patent on my laptop.

(Deposition Exhibit 2083 was marked for identification.) 12:52

BY MS. HIGGINS:

Q. And you're familiar with the '512 patent, which is U.S. Patent 11,446,512, correct?

A. Yes. 12:53

Q. And in fact you've reviewed the '512 patent in detail in connection with rendering opinions in the IPR2025-00287 that we referred to before, correct?

A. I've reviewed in detail both the '512 12:53

and the '028 patents.

Q. Okay. Has the '512 patent come up on your screen yet?

A. It has.

Q. Okay. And if you can turn to the claims of the '512 patent, we can start with independent Claim 1, which is on column 10. 12:53

A. I have Claim 1.

Q. And the '512 patent Claim 1 also contains the "uniformly illuminate" limitation. And I'll read it for you here. 12:53

(As read): The illuminator being configured to uniformly illuminate a treatment surface of the patient via the light sources.

Do you see that? 12:54

A. Yes, I do.

Q. Now look at Claims 8 -- independent Claims 8 and 20, please.

The question --

(Simultaneous speaking.) 12:54

BY MS. HIGGINS:

Q. Sorry to interrupt.

The question is: Claims 8 and 20 also contain the "uniformly illuminate" limitation, correct? 12:54

A. I see in Claim 8 where it says "uniformly illuminating a treatment surface of the patient with light sources disposed on the at least five panels" in Claim 8.

And the subsequent claim was which one?

Q. 2-0, 20.

A. 20, okay. And I see in 20 also "illuminator being configured uniformly to illuminate the treatment surface."

Q. So Claims 1, 8, and 20 of the '512 patent also contain the "uniformly illuminate" limitation, correct?

A. That -- yes, that appears to be correct.

Q. You understand that Sun Pharma and Biofrontera have agreed that "uniformly illuminate a treatment surface" and "uniformly illuminating a treatment surface" are to be construed as "irradiating light over the active emitting area such that the measured irradiance of the patient is at least within 60 percent of the measured maximum," correct?

A. That's my recollection, yes.

Q. And you understand that in the ITC

proceeding that the Administrative Law Judge Moore has adopted the parties' agreed-to construction as "uniformly illuminating a treatment surface," the construction as "irradiating light over the active emitting area such that the measured irradiance of the patient is at least within 60 percent of the measured maximum," correct? 12:56

A. Yes.

Q. And that construction of the "uniformly illuminate" limitations is the construction that you are applying in this IPR on the '028 patent, correct? 12:56

A. I believe that's the case. Again, I'm not an attorney. I'm a technical expert. But I believe that's the case. 12:57

Q. But you certainly were applying an understanding of the term "uniformly illuminate" when you were rendering your opinions in this matter on the '512 patent -- excuse me, on the '028 patent, correct? 12:57

A. Yes.

MR. LANDMON: Objection, counsel. I don't know which matter we've been talking about now. We have been going 12:57

back and forth between the --

MS. HIGGINS: Okay. So we are in this IPR.

BY MS. HIGGINS:

Q. And the question is: The parties have an agreed-to construction of the "uniformly illuminate" limitations, which I just read to you. 12:57

And my question is: That is the construction that you are applying in this proceeding, which is the 1312 proceeding, correct, on the '028 patent? 12:57

A. That's my understanding.

Q. And that agreed-to construction is also the construction that you applied in connection with the opinions that you rendered on the '512 patent in the other IPR proceeding, the -- the '512 IPR proceeding? 12:58

A. That's my understanding.

Q. Okay. So in this proceeding on the 1312 IPR, you understood the "uniformly illuminate" claim terms, those are the claims that we just reviewed in the patent, to mean "irradiating light over the active emitting area such that the measured irradiance at a treatment 12:58 12:59

surface of the patient is at least within 60 percent of the measured maximum," correct?

A. That's my understanding, yes.

Q. Okay. We're going to turn back to the '028 patent. 12:59

A. Okay.

Q. And if you would please turn to Claim 1 of the '028 patent.

A. I have it.

Q. Claim 1 -- and I'm going to refer you to the last limitation of the claim, Dr. Grove. 12:59

Claim 1 recites (as read): Wherein each of the five panels has two first edges and two second edges shorter than the two first edges, and the light sources are arranged such that a higher intensity of light is emitted proximate to the second edges compared to the intensity of the light emitted not proximate the second edges. 01:00

Do you see that? 01:00

A. I do.

Q. And if I refer to this as the "higher intensity" limitation, would you know what I was talking about?

A. Yes. I assume you would be referring 01:00

to this clause.

Q. And this limitation is also in independent Claims 5, 6, 16 -- excuse me, 5, 16, 20, and 21, correct?

A. I will take a look. 5. 16, I believe was the next one. 01:00

Q. 5, 16, 20, and 21.

A. Give me a moment, please.

(Witness reviewing documents.)

THE WITNESS: Yes, I see it that. 01:01

BY MS. HIGGINS:

Q. So the "higher intensity" limitation appears in independent Claims 1, 5, 16, 20, and 21, correct?

A. Yes, I believe so. Those were the ones I just reviewed. 01:01

Q. And you understand that the administrative law judge in the related ITC proceeding has construed the "higher intensity" limitation as "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges," correct? 01:01

A. Yes, I'm aware of that.

Q. And that construction that I just 01:02

read to you, that is the understanding of the "higher intensity" limitation of the '028 patent that you applied in rendering your opinions regarding the IPR proceeding on the '028 patent?

A. I indicated that those phrases were in the claims that you listed. And I understand that the administrative law judge came to the conclusion that you cited. And to the extent that the claim is clear or not clear, I used that understanding from the judge in my opinions. 01:02 01:03

Q. So you used the understanding "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges" in rendering your opinions in this proceeding, the '028 proceeding, correct? 01:03

A. Yes, I -- I took his -- the judge's definition, if that's the correct term, in my -- in consideration in coming to my opinions. 01:03

Q. And that's -- that's -- that's the construction that you used in connection with your opinions here, correct?

MR. LANDMON: Counsel, just 01:04

objection.

You may provide some context to the witness for the dates when all this happened.

MS. HIGGINS: I'm asking the question, counsel. 01:04

Do we need to read the question back?

And that's a speaking objection that you should not be making. 01:04

I ask the court reporter to read the question back.

MR. LANDMON: We can clarify it later.

(Record read as requested.) 01:04

THE WITNESS: And my advice of counsel is --

BY MS. HIGGINS:

Q. There is no advice of counsel here. Either counsel makes an objection or he doesn't. 01:04

MR. LANDMON: To the extent you know, you can answer the question.

THE WITNESS: To the extent that I know. I'm aware of -- of that ruling or decision on the part of the judge. And my 01:05

-- certainly was aware of that when I made my opinions in this declaration.

BY MS. HIGGINS:

Q. Okay. So when -- when you provided your declaration on the '028 patent, you applied an understanding of this claim limitation, the "higher intensity" limitation, right? 01:05

You had an understanding at that time, correct, when you signed -- signed your declaration, correct? 01:05

A. I had an understanding that that was the ALJ description or definition or ruling as to the meaning of that phrase.

Q. In -- in the ITC did you submit declarations regarding your understanding of the "higher intensity" -- "higher intensity" limitation? 01:05

A. I would have to go back and review that, the -- my understanding that this deposition involves the '028 patent. 01:06

Q. That's correct. And that's what I'm trying to find out here.

I'm trying to find out for your declaration in this proceeding on the '028 patent that contains the "higher intensity" 01:06

limitation, what claim construction did you apply?

A. I took into account in my comments and my opinions the ruling of the administrative law judge. 01:06

Q. And what was your understanding of the meaning of this wherein clause, the "higher intensity" limitation that I just read to you, in connection with your opinions rendered in this IPR? 01:07

A. If I go back to the '028 patent and look at the claims where it says -- I believe the phrase you're addressing is "wherein each of the five panels has two first edges and two second edges shorter and the first" -- "the two first edges, and the light sources are arranged such that a higher intensity of light is emitted proximate to second edges," I -- I understand the judge's ruling. 01:07

Q. I understand that. 01:07

What I'm asking you is: What claim construction did you apply here in connection with rendering your opinions for the declaration that you assigned -- you signed here?

Did you apply an understanding that 01:08

the "higher intensity" limitation means "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges? 01:08

A. Yes.

Q. Okay. And is that the construction, Dr. Grove, that you applied for the proceeding on the '512 patent?

A. I have not reviewed in detail my '512 declaration. So I simply will say that I'm aware of the judge's interpretation of that claim, which to the extent it's clear or unclear I can follow. 01:08

Q. Did you apply the meaning of the "higher intensity" term "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges" in the opinions that you rendered in the IPR proceeding on the '512 patent? 01:09

MR. LANDMON: Objection. Beyond the scope of the deposition.

BY MS. HIGGINS:

Q. You can answer if you know. 01:09

A. I'm aware of that definition by the judge, which was an effort to clarify the claim language. And I used his definition as well as the -- what I could infer from the claim language to make my decisions. 01:10

Q. What did you infer from the claim language?

A. The claim language uses the word, if I recall, "proximate." Yes, it says "such that the higher intensity of light is emitted proximate to second edges." 01:10

I believe that the word "proximate" is indefinite. I understand that the -- ALJ Moore interpreted that as "close." I have the same uncertainties about what "close" means as I have -- my understanding of what "proximate" means. 01:10

But to the extent that I can interpret that as close or take a sort of general understanding of the word "close," I made my decisions based on my understanding of "close." 01:11

Q. And this definition, if you will, that the ALJ ordered, that "higher intensity" limitation means "a higher intensity of light is 01:11

emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges," do you understand that was patent owner's construction, Sun Pharma's construction -- proposed construction? 01:11

A. I -- I don't recall exactly. But I believe that was the -- was the case. I don't have the judge's -- I know there were a number of claims or words that were subject to his ruling. And I don't recall offhand that "close" was Sun Pharma's proposal to the judge. But it -- it could very well have been the case. 01:11

Q. Okay. Sorry about that. We were just looking for the claim construction order in the ITC proceeding, which we have now published as Exhibit 2033. 01:13

Can you let me know when you have that on the screen?

MS. HIGGINS: And I'm going to ask the court reporter to mark as Exhibit 2033 the Order No. 18 construing certain claim terms dated March 4, 2025, from ITC proceeding 337-TA-1411. 01:13

(Deposition Exhibit 2033 was marked for identification.)

BY MS. HIGGINS:

Q. And Dr. Grove, can you let me know when you have Exhibit 2033 in front of you? 01:14

A. I see it, Exhibit 2033. And that is -- it says "Public Version, Order No. 18: Construing Certain Claim Terms," March 4th.

Q. Have you seen this claim construction order before? 01:14

A. I'm aware of some of the content but I don't believe I've actually seen this document.

Q. I'm going to direct your attention first to page 13. 01:14

A. Okay. Give me a moment. 12. 13. Okay. I have page 13.

Q. And it states on that page that (as read): The parties have agreed to the following construction. 01:14

Do you see that right above the box?

A. There's no box on my page 13, ma'am. On my page 13 it begins with "solutions to those problems."

Q. Try PDF page 15. 01:15

A. Oh, okay. That might work better.

Yeah, so I see this is Roman numeral VI, Claim Construction, Construction of Agreed-Upon Claim Terms, (as read): The parties have agreed to the following page constructions. 01:15

Q. You see there the "uniformly illuminate" phrases that we went over before in the '028 and '512 patents, correct?

A. Yes.

Q. And in that chart on page 13 of the 01:15 claim construction order is the parties' agreed-to construction, correct?

A. Yes, yes, it's on page 15 of the document I'm looking at. But it has a claim construction for "uniformly illuminate" and 01:15 **"uniformly illuminating." And it's my -- and I can see the parties' agreed construction, which I believe is what you stated a while ago.**

Q. Right. And that construction is (as read): "Irradiating light over the active 01:16 emitting area such that the measured irradiance at a treatment surface of the patient is at least within 60 percent of the measured maximum."

You see that, right? 01:16

A. I do.

Q. And that's the construction for both the'028 and '512 patents, correct?

A. That appears to be what's stated in this box, yes. 01:16

Q. And that's what we were talking about earlier when we were discussing the "uniformly illuminate" limitations, correct?

A. Yes.

Q. Okay. We're going to scroll down now to what I believe you'll call page 16 of Exhibit 2033. 01:16

A. Okay. What I have as page 16 has the -- in the box Sun Pharma's interpretations where it says "a higher intensity of the light is emitted close to the second shorter edges" and in the Biofrontera -- in the Biofrontera box it simply says "indefinite." 01:17

Q. And this is the "higher intensity" limitation that we looked at in the -- in Claims 1, 5, 16, 20, and 21 of the '028 patent, correct? 01:17

A. In the -- on those claims, the -- the claim language is actually that "a higher intensity of light is emitted proximate to the 01:17

second edges as compared to the intensity of light emitted not proximate to the second edges."

I see that Sun has proposed a -- a construction, if that's the correct word, of the claim where it looks essentially the same except that the word "proximate" has been replaced by "close." 01:17

Q. And I just brought it up because you didn't recall whether Sun Pharma's proposed construction had the word "close." And so I'm bringing this up to just show you that that was Sun Pharma's construction. 01:18

Do you see that?

A. Yes, I do now. Thank you. 01:18

Q. Okay. And then the Court -- if you can scroll down to where the Court has construed that term.

A. Is it on that -- that same page?

Q. It's going to be in this -- in this same document. 01:18

A. Okay.

Q. And I will direct you --

A. Actually, I see page -- I have the page numbers that are printed on the form and 01:18

then the page 16 with the PDF numbering. So I have both.

Q. So the stamped page in the lower right-hand corner, which says Exhibit 2033, page 25, can you turn to that page? 01:19

A. That's very helpful. Thank you.

Okay. I am on the page that says Exhibit 2033, page 25. And the top of the page has the letter d) followed by Construction.

Q. Okay. And if you go down right above number 2 where the paragraph starts with "Accordingly." 01:19

Do you see that paragraph?

A. Yes.

Q. The judge says that (as read): Accordingly, in this investigation, the term "a higher intensity of light is emitted proximate the second edges compared to the intensity of light emitted not proximate the second edges" will be construed as "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not close to the second shorter edges." 01:19

Do you see that?

A. Yes. 01:20

Q. And so the -- the administrative law judge in the ITC proceeding adopted the patent owner, Sun Pharma's, construction of the "higher intensity" limitation, correct?

A. Yes, that appears to be the case. 01:20

Q. And in this proceeding -- IPR proceeding 1312, that's the definition that you applied in rendering your opinions in this IPR proceeding, correct?

MR. LANDMON: Objection. 01:20

THE WITNESS: Can we go off or not?

BY MS. HIGGINS:

Q. No, I need -- I'm sorry, the way this works, Dr. Grove, is you need to answer my question. 01:21

A. Okay.

Q. We can read it back to you if you'd like.

A. No, I -- I understand the question. If -- if my counsel is in agreement that I need to answer the question, I'll answer the question. 01:21

MR. LANDMON: Subject to my objection to form.

THE WITNESS: I'm sorry? 01:21

MR. LANDMON: Subject to my objection to form.

THE WITNESS: Subject to your -- yes, the -- the answer to your question is, yes, to the extent that -- that -- I understand the judge's ruling. I understand it was Sun Pharma's construction. 01:21

And I used that interpretation as best I could as a person of at least ordinary skill in the art to understand the meaning of those claims. 01:21

BY MS. HIGGINS:

Q. And you used that understanding in connection with the '028 patent claims in this proceeding, correct? 01:22

MR. LANDMON: Same objection.

THE WITNESS: Yes.

BY MS. HIGGINS:

Q. And you used that same understanding of the "higher intensity" limitation in rendering your opinions in the IPR proceeding on the '512 patent, correct? 01:22

MR. LANDMON: Same objection. Beyond the scope of this deposition.

THE WITNESS: Yeah. But it's my 01:22

understanding that this deposition is -- involves the '028 patent. And I'll respond to questions that are on that matter.

BY MS. HIGGINS:

Q. Well, my question stands. So please answer it. 01:22

MR. LANDMON: Subject to my objections, you can answer.

THE WITNESS: It's -- I have used the judge's interpretation in evaluating my declarations, correct. 01:22

BY MS. HIGGINS:

Q. And you used the judge's interpretation in rendering your opinions on the -- in both this proceeding and the '512 proceeding, correct? 01:23

MR. LANDMON: Same objections.

THE WITNESS: Yes.

BY MS. HIGGINS:

Q. Okay. Let's turn back to the '028 patent, Claim 16. 01:23

A. One moment. Okay. I'm going to try to get the video back here on my screen if I can. There we go. Okay. I have it.

Yes, I have your video, Ms. Higgins, 01:23

and I have the claims of the '028 in front of me.

And so you're directing me to which claim?

Q. Please turn to the '028 patent, Claim 16, which is in column 11. And let me know when you're there. 01:23

A. I'm there.

Q. Okay. And specifically I'm directing your attention to the fact that the Claim 16 recites (as read): Wherein the five panels are individually configurable to control illumination from each of the five panels. 01:24

Do you see that?

A. (As read): Wherein the five panels are individually configured both to control illumination from each of the five panels. 01:24

Yes, I see that.

Q. And are you aware that the ALJ construed this term in the related ITC proceeding? 01:24

A. I don't recall specifically which terms were ruled upon by the ALJ. But if you have it handy, I certainly would -- could take another look. 01:25

Q. Okay. We'll bring back up the claim construction order, which we've marked as Exhibit 2033. If you could bring that back up.

A. Okay. Oh, go forward.

What do I do to get rid of this? 01:25

MR. LANDMON: Counsel, what number was it again?

MS. HIGGINS: 2033.

THE WITNESS: I have -- X2033, I have it in front of me. My apologies for taking undue time to pull it back up. 01:26

Yes, I have it. And I have the...

BY MS. HIGGINS:

Q. And if you could you please turn to page 42 in the bottom right-hand corner of Exhibit 2033. 01:26

A. Page 42, I have -- page 41, page 42. I have -- I have in the lower right-hand corner it says EX2033, page 42. 01:26

Q. And on that page right above number 5 there's a paragraph starting with "Accordingly."

Do you see that?

A. Yes, I do.

Q. And do you see that it has the term 01:26

that I just read you from independent Claim 16 of the '028 patent?

(As read): The five panels are individually configurable to control illumination from each of the five panels. 01:27

Do you see that?

A. Yes, I do.

Q. And the administrative law judge in the related ITC proceeding construed that term as (as read): "The power output and/or light intensity of each panel can be individually controlled." 01:27

Do you see that?

A. Yes, I do.

Q. And that construction, "the power output and/or light intensity of each panel can be individually controlled," is the construction that you applied in rendering your opinions in connection with this IPR proceeding, correct? 01:27

MR. LANDMON: Objection to form. 01:28

THE WITNESS: In a number of cases my interpretation of the claim was not necessarily perfectly aligned with the administrative law judge.

I see that the judge is -- has 01:28

said that it will be construed in accordance with its plain and ordinary meaning. And in evaluating my comments, I took that -- the judge's ruling into consideration. 01:28

BY MS. HIGGINS:

Q. My question is: Is that the construction that you applied in rendering your opinions on the '028 patent limitation in this IPR proceeding? 01:28

MR. LANDMON: Same objections.

THE WITNESS: I don't recall whether the -- my comments were provided by me before or after learning of this ruling. So I don't know the answer to that question. 01:29

BY MS. HIGGINS:

Q. Do you understand that this construction, "the power output and/or light intensity of each panel can be individually controlled," that that was the proposed construction of the patent owner, Sun Pharma? 01:29

A. I -- I don't recall if that was the case. It might very well have been.

Q. Okay. I'm going to direct your 01:29

attention to page 37, if you can turn up there. And there is another chart for this -- I'm going to call it the "individually configurable" limitation.

Are you okay with that? 01:29

A. Yes. At page 37?

Q. 37.

A. Yes, I see that the -- apparently it looks here -- yes, I see here where it says "plain and ordinary meaning" on the Sun box and 01:30 **I see where it says "indefinite" in the Biofrontera box.**

Q. So for the "individually configurable" limitation, "the five panels are individually construed to control illumination** 01:30 **from each of the five panels," Sun Pharma proposed "plain and ordinary meaning," "the power output and/or light intensity of each panel can be individually controlled," correct?

A. That was Sun Pharma's proposed -- 01:30 **proposed definition, if you will.**

Q. And that's the construction that the Court adopted in the ITC proceeding, correct?

A. Apparently so.

Q. And that's the construction -- that's 01:30

the understanding that you applied when you rendered your opinions in the '512 IPR proceeding in this case, correct?

Excuse me. Let me rephrase that because I referred to the wrong patent. 01:31

That's the understanding that -- that you had in rendering your opinions in connection with this matter on the '028 patent, correct?

A. When I rendered my -- there's a timeline associated with my opinions. And there was a timeline associated with the administrative law judge's rulings. 01:31

I cannot recall if I rendered any opinions that were prior to my learning of the administrative law judge's definition. If I -- if I did, then clearly they were my own interpretation. If they were after, I would certainly take the judge's definition into consideration. 01:31

Q. Okay. What was your interpretation that you applied in this proceeding for this -- for this claim limitation? You had to have one. 01:31

A. Yes. And -- okay. So you're referring to -- I have what's in front of me, the -- I think this is the administrative law 01:32

judge's ruling.

Q. Right. So let's go back down -- can we go back down to the page with the administrative law judge's ruling?

A. Which is page what? 01:32

Q. 42.

A. 42.

Q. So I'm asking you what definition did you apply in -- in rendering your opinions.

What -- what definition are you using in this proceeding? You have to -- you have to have a definition that you're using in this proceeding. 01:32

So I'm just asking you: Is this your definition that you're applying in this proceeding? It's a simple question. 01:32

A. It's -- I understand the question is simple. But when I have been asked for my opinion on any of the information involving claims of the '028 or the '512 patent, I have given that answer based on my professional understanding, my being a person of at least ordinary skill in the art. 01:33

I don't know for certain if I rendered my opinions before or after learning of 01:33

the ALJ's ruling.

Q. Okay. What is -- what is your understanding of the term -- of this "individually configurable to control illumination from each of the five panels"? 01:33

What -- what is your understanding?

A. The individually configurable, reading that in the absence of any demand from the law judge to the contrary, I would believe that there are a number of different ways that the illumination could be individually controlled, not limited to those that -- that the law judge or that Sun proposed. 01:33

Q. So you understand that Biofrontera's position here when -- when they filed these IPRs, right, that they were taking a view of the claims consistent with the patent owner's allegations, right? 01:34

Do you have that understanding?

So in other words, you were applying patent owner's understanding of these terms, right? 01:34

A. Normally I would not automatically or arbitrarily take Sun's definition into consideration. I would use my own expertise in 01:34

coming to my decision.

Q. So you weren't applying Sun's -- Sun Pharma's understanding of the scope of the claims when -- when you rendered your opinion with respect to the "individually configurable" limitation? 01:34

A. I believe the "individually configurable" wording is not limited to Sun's definition.

Q. I understand. For purposes of this proceeding, what definition did you apply? 01:35

A. For the purposes of a particular document or a declaration?

Q. In this proceeding you evaluated the claims of the '028 patent, correct? 01:35

A. And when you refer "in this proceeding," are you referring to this deposition or are you referring to --

Q. I'm referring to the declaration that you gave in this proceeding, which we have marked as Exhibit 1015. 01:35

A. My answer is the same, that I -- I -- was aware -- I was informed of the judge's rulings on a number of these terms. I also wrote a declaration. And I simply do not know 01:36

if I was made aware of the judge's or of Sun's, for that matter, definition before or after I wrote the declaration.

Q. Okay. So you don't know what -- what definition of this claim term, "five panels are individually configurable to control illumination from each of the five panels," you don't know what -- what claim construction you applied? 01:36

A. If I was not aware of the judge's ruling at the time I wrote the declaration or signed the declaration, I would have used what I believe is the correct interpretation of "individually configurable." 01:36

If in fact I was aware of the judge's ruling, I might have had a different opinion. My opinion as to what the claims mean, though, is not changed.

Q. Okay. So -- so what -- what understanding did you apply when you gave your opinions in this 1312 proceeding on the term "the five panels are individually configurable to control illumination from each of the five panels"? 01:37

A. And again, you're referring to a 01:37

declaration of mine; is that correct?

Q. I'm asking you, in this proceeding you rendered opinions and you did give a declaration, which is Exhibit 1015.

I'm asking you: What understanding of this claim term "five panels are individually configurable to control illumination from each of the five panels," what meaning did you apply? 01:37

A. I'd like to go back and look at that declaration, if I may. Let me see. 01:37

So you -- you're referring to the -- my expert declaration in this '028 matter; is that correct?

Q. I am.

A. Okay. 01:38

Q. I'm referring to the opinions you rendered here.

And I'm asking you: What -- what definition did you apply for purposes of this proceeding? 01:38

A. And if you'll give me a few moments, I'd like to review my declaration as it relates to this particular matter.

Okay. Just give me a few minutes. It will take me a moment to find it. 01:38

Okay. Okay. Here's the declaration. Just give me a moment, counsel.

(Witness reviewing documents.)

THE WITNESS: In my declaration I state that (as read): I understand that the claim construction is a matter of law. I understand that under the claim construction standard applied by the board, specific claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the art in the context of the entire disclosure at the time of the invention. I also understand that limitations from the specification are not to be read into the claims. The specification, however, can inform a person of ordinary skill in the art as to ordinary and customary meaning, and the subject matter excluded from that ordinary and customary meaning. In addition, I understand that a person of ordinary skill in the art would look to explanations and arguments made by the applicants during prosecution to inform the meaning of the claims of the '028 patent. 01:39 01:39 01:39 01:40 01:40

And I have applied this standard in forming my opinions.

And I'd like to take another moment to look in my declaration to see specifically what might relate to your question. 01:40

So the first -- could you remind me of the first claim that has the "configurable" language in the '028 patent?

BY MS. HIGGINS: 01:41

Q. Yes. It's independent Claim 16.

A. Okay. Claim 16, yes.

So with "individually configurable," my declaration states that (as read): Larsen discloses five panels connected by hinged structures to allow continuous illumination across the five panels, wherein the five panels are individually configurable to control illumination from each of the five panels. 01:41

Excuse me. (As read): Larsen's five panels -- 01:42

Q. Dr. Grove, I'm not asking to you read your declaration. I'm asking you about what claim construction -- so I'm not asking you what your opinions are with respect to Larsen. 01:42

I'm asking you what claim construction you applied in rendering your opinions that you're now reading from your declaration, okay?

I'm not asking you about -- to give me the details of your opinion. I'm asking you what claim construction you applied. 01:42

MR. LANDMON: Objection. Asked and answered.

THE WITNESS: I was attempting to answer the question by refreshing my memory on -- in my declaration. 01:42

BY MS. HIGGINS:

Q. Do you know what claim construction you applied in rendering your opinions with respect to this "individually configurable" limitation term in connection with this proceeding -- 01:43

MR. LANDMON: Objection.

BY MS. HIGGINS: 01:43

Q. -- and this declaration?

MR. LANDMON: Excuse me.

Objection. Asked and answered.

THE WITNESS: I'm making an effort to answer your question by reading my -- the 01:43

paragraphs relevant to this question in my declaration. If you'll give me a couple of minutes.

BY MS. HIGGINS:

Q. Sure.

(Witness reviewing documents.)

THE WITNESS: In my response in my declarations, the -- I state that the -- there are a number of ways that the panels can be individually configurable. And those answers are not limited to the -- controlling the intensity of the panels.

BY MS. HIGGINS:

Q. Okay. So you say in paragraph 73 of your declaration that you read to me, you said that the claim terms are given their ordinary and customary meaning.

So what meaning did you apply when you were rendering your opinions in this declaration?

And you appear to be reading -- am I correct that you're reading paragraphs 228 and so on?

A. Yes.

Q. So what construction were you using

when you gave the opinions in paragraphs 228, 229, 230, 231?

MR. LANDMON: Objection. Asked and answered.

THE WITNESS: I was -- when I wrote this I was responding as an expert or a POSA as to my understanding of the term "individually configurable."

And I understand that my definition as an expert or my understanding as a POSA is not limited to that proposed by Sun. 01:45 01:46

BY MS. HIGGINS:

Q. That's fine. Then please tell me what your understanding was so that the -- the board and Sun Pharma can understand your understanding. We're entitled to know what it was. 01:46

A. My -- sorry.

MR. LANDMON: Same objection. Asked and answered. Argumentative. 01:46

THE WITNESS: I believe I answered the question.

BY MS. HIGGINS:

Q. What was your understanding of this 01:46

claim term when you rendered your opinion in paragraphs 228, 229, 230, 231?

A. My opinion was that the panels are -- that -- that "individually configurable" is -- has the meaning that I stated here. 01:47

Q. And what is that meaning?

MR. LANDMON: Same objections.

THE WITNESS: I'm happy to read 228, 229, and 230 if you'd like.

BY MS. HIGGINS: 01:47

Q. So -- so your understanding of the claim term "individually configurable" is all the words in these paragraphs. That's -- that's your understanding of the term.

You can't tell me what it is? 01:47

MR. LANDMON: Objection to form.

THE WITNESS: My understanding and my interpretation of "individually configurable" is not limited to Sun's proposed definition. 01:47

BY MS. HIGGINS:

Q. Okay. But you had an understanding of the claim term "allow continuous illumination across the five panels wherein the five panels are individually configurable to control 01:48

illumination from each of the five panels."

You had an understanding at the time you wrote these paragraphs, correct?

MR. LANDMON: Same objection.

THE WITNESS: I did. 01:48

BY MS. HIGGINS:

Q. Now, if you would turn to paragraphs 2 -- hold on a sec.

A. In which document, first of all?

Q. In the same document, which is your declaration, Exhibit 1015, I'd like you to turn to paragraph 175. 01:48

A. My declaration, yes.

Q. Yes, your declaration, paragraph 175 of Exhibit 1015. 01:48

MR. LANDMON: I don't want to interrupt your questions. But --

BY MS. HIGGINS:

Q. Down at the bottom -- it's page 64 at the bottom, 64 of 93. 01:49

MR. LANDMON: Counsel, I don't want to interrupt your questioning. But if we can plan for a break sometime in the next few minutes, that would be great.

BY MS. HIGGINS:

Q. Okay. Let's finish up this line of questioning.

A. I have paragraph 174, 175, 176 on pages 64 and 65. 01:49

Q. Okay. So I'm going to ask you about the claim limitation that's being addressed in paragraphs 175 to 181.

Do you see those paragraphs?

A. Yes. 01:49

Q. And in these paragraphs you're addressing Claim 1(g) of the '028 patent, correct?

A. Yes.

Q. And Claim 1(g), as it says on page 64 of your declaration, recites (as read): "The light sources are arranged such that a higher intensity of light is emitted proximate the second edges compared to the intensity of light emitted not proximate the second edges." 01:49 01:50

Do you see that?

A. Yes.

Q. Okay. And you talk about the Lundahl and -- Lundahl reference in connection with that claim limitation, correct? 01:50

A. Yes.

Q. What was your understanding of this limitation in applying this limitation to the Lundahl reference?

What is your understanding of the meaning of the "higher intensity" limitation? 01:50

A. If you -- if by a "higher intensity" limitation you mean this -- what's printed here as Claim 1(g), it's my opinion that it is indefinite as it's written. 01:50

Q. And is that the opinion that you're applying when you rendered the opinions set forth in this declaration, which is Exhibit 1015?

A. Whether I attempt to understand this claim in the context of the word "proximate" or in the context of the word "close," I have the same opinion, which is it's not -- it would not be clear to a POSA what either of those words means in order to understand or opine on whether some other device that infringed or did not infringe on this claim. 01:51 01:51

Q. But you did apply an understanding when -- when you rendered your opinions regarding this claim term in connection with the 01:52

Lundahl reference in this proceeding, right? You applied an understanding.

A. My -- give me a moment to look at my declaration. I made -- I made a -- I had an opinion that this claim is obvious over Lundahl in view of Larsen.

Q. I understand that.

I'm asking you: What was your understanding -- or what is your understanding of the meaning of this claim term, the "higher intensity" limitation that you are applying in this IPR proceeding on the '028 patent?

What understanding are you applying in rendering your opinions?

A. And I stated that -- that I think it's indefinite. But I will point out that Sun alleges that the Biofrontera device, which has three rows of LEDs near the top and the bottom of its illuminators, is very similar to the light distribution disclosed by Lundahl.

And so it's my conclusion that if the Biofrontera device infringes, that Lundahl discloses this claim.

Q. So are you telling me that in this proceeding you were applying Biofrontera's

understanding of the claim term "the light sources are arranged such that a higher intensity of light is emitted proximate the second edges compared to the intensity of the light emitted not proximate to the second edges"?

Is that the understanding that you applied?

A. No.

Q. Okay. Okay. So you're not applying Biofrontera's understanding.

Are you applying Sun's understanding of the claim term "the light sources arranged such that a higher intensity of light is emitted proximate the second edges compared to the intensity of light emitted not proximate the second edges," which the ALJ has construed?

Is that the understanding that you were applying?

A. I'll say again that the -- the claim language is indefinite. It's difficult as a technical expert to understand what the word "proximate" means or what the word "close to" means in terms of making an evaluation.

But it remains clear to me, as I

said, that the light distribution of Lundahl and the light distribution of Biofrontera's device are very similar. And if Sun's allegation that Biofrontera's RhodoLED XL infringes, then this limitation has been disclosed or was disclosed by Lundahl.

Q. So you were applying Sun Pharma's understanding then of this term, is that correct, in connection with this proceeding?

MR. LANDMON: Objection. 01:55

BY MS. HIGGINS:

Q. I'm trying to understand -- I just -- I don't -- I don't want to hear about comparisons. We can get to that later. I don't -- I'm not looking for comparisons between devices right now. 01:55

What I'm looking for is what is your understanding that you are applying in this proceeding regarding the '028 patent regarding the "higher intensity" limitation. 01:56

I'm entitled to know what is the understanding that you applied.

MR. LANDMON: Objection. Asked and answered. And argumentative.

BY MS. HIGGINS:

Q. Is the understanding that the term was indefinite?

Is that -- is that what you applied?

A. I believe the term is indefinite. If I accept the ALJ's definition that it means "close to," then my conclusion about -- my conclusion is the same, that -- that Lundahl in view of Larsen renders obvious this claim limitation. 01:56

Q. And so in rendering your opinion on "the light sources are arranged such that higher intensity of light is emitted proximate to the second edges compared to the intensity of light emitted not proximate the second edges," you are applying the ALJ's construction in this proceeding; is that correct? 01:57

MR. LANDMON: Objection. Mischaracterizes testimony. And asked and answered. 01:57

THE WITNESS: The effort on the part of the ALJ judge -- the ALJ to clarify the meaning of the word "proximate" does not in my professional opinion clear up the indefiniteness of the word "proximate." 01:57

But using my best efforts and professional experience, I have looked at the Lundahl and Larsen references, the Lundahl patent and the Larsen patent application. And based on my experience as a person of at least ordinary skill in the art, I have concluded that the claim is obvious over Lundahl in view of Larsen. 01:57

BY MS. HIGGINS:

Q. And are you able to tell me what was the meaning that you applied in rendering that opinion? 01:58

A. I believe I answered that question.

Q. Okay. I don't think that you have.

Can you repeat it then? Tell me what your understanding was. 01:58

MR. LANDMON: Same objection.

BY MS. HIGGINS:

Q. I'm looking for your understanding of that term -- I'm not asking whether you agree with it or not. 01:58

I'm asking you what was the understanding of the term that you applied in this proceeding.

MR. LANDMON: Same objections. 01:58

BY MS. HIGGINS:

Q. Were you applying the ALJ's conclusion?

MR. LANDMON: Same objections.

BY MS. HIGGINS: 01:58

Q. Which is that under the plain and ordinary meaning the term means "the power" -- excuse me, "a higher intensity of light is emitted close to the second shorter edges compared to the intensity of light emitted not 01:58 close to the second shorter edges"?

MR. LANDMON: Same objections.

THE WITNESS: As a POSA, I found the judge's terminology to not resolve the indefiniteness of the word "proximate." 01:59

But in an effort to come to a professional conclusion as to whether or not the claim is obvious, I looked at the Lundahl patent and I looked at the Larsen patent. And my opinion is that the -- as I 01:59 said, that Claim 1 is obvious over Lundahl in view of Larsen.

BY MS. HIGGINS:

Q. Okay. So in this proceeding you're not going to go forward and give another 01:59

definition, right?

Because if you are, I would like to know what it is right now.

MR. LANDMON: Objection to form. And argumentative.

THE WITNESS: The --

MR. LANDMON: And objection to the extent it calls for a legal conclusion.

THE WITNESS: I gave you my best attempt to explain my position with respect to the word "close" and with respect to the word "proximate." And I will continue to apply my best understanding of both those words as I make further -- or provide further opinions.

BY MS. HIGGINS:

Q. Okay. But you -- as of right now, you've given me your -- your best understanding, correct?

A. The word is -- if the word "proximate" is indefinite, it's difficult to -- if you're asking me to define a word that's indefinite, I cannot do that. If you're asking me to define what "close" means, I cannot do that either. I am not giving you a definition.

MS. HIGGINS: Okay. Let's break for lunch.

MR. LANDMON: Thank you.

Janice, at some point can you put into the chat how long we've been on the record? Thank you. 02:01

THE STENOGRAPHER: We are off the record at 2:01.

(Whereupon, a lunch recess was taken from 2:01 p.m. to 2:36 p.m.) 02:01

AFTERNOON SESSION

THE STENOGRAPHER: We are back on the record at 2:36 p.m.

ROBERT E. GROVE, PH.D.,

was called for continued examination, and having been previously duly sworn was examined and testified further as follows:

EXAMINATION

BY MS. HIGGINS:

Q. Good afternoon, Dr. Grove. 02:36

A. Good afternoon.

Q. For the record, it's still morning here in California.

A. I came from California.

Q. I know. I know. 02:36

So my first question is: Did you speak with your attorneys on the break regarding the substance of this case?

A. No.

Q. Okay. We're going to switch gears now and talk about the Larsen publication. 02:37

MS. HIGGINS: And so I'm going to ask the court reporter to mark U.S. Patent Publication 2005/0075703, a United States patent publication naming Eric Larsen. And 02:37

I'm going to ask the court reporter to mark this as Exhibit 1004.

(Deposition Exhibit 1004 was marked for identification.)

BY MS. HIGGINS: 02:37

Q. Dr. Grove, do you have Exhibit 1004 in front of you?

A. I have both the digital version and the hard copy in front of me.

Q. And if I refer to Exhibit 1004 as Larsen or the Larsen reference, you'll know what I'm talking about? 02:37

A. Yes, ma'am.

Q. And you're familiar with the Larsen reference? 02:37

A. I am.

Q. And you reviewed the Larsen reference in detail in connection with rendering your opinions in this case, correct?

A. Yes. 02:38

Q. Can you please turn to Figure 1 of Larsen, which is the second page. And let me know when you're there.

A. I have Figure 1 in front of me.

Q. Okay. And so on this page of the 02:38

Larsen reference, at the top we have some Figures 2a through d, correct?

A. Yes.

Q. And in the middle we have Larsen Figure 1, correct? 02:38

A. Yes.

Q. And at the bottom of the page we have Larsen Figure 3, correct?

A. Yes.

Q. And you understand that these are all details that can apply to the device in Figure 1, correct? 02:39

MR. LANDMON: Objection to form.

THE WITNESS: Are you referring to Figures 2a, 2b, 2c, and 2d? 02:39

BY MS. HIGGINS:

Q. I'm referring to everything on this page, Figures 2a, b, c, d, as well as Figure 3.

And I want to know, do you understand that those are details that apply to Figure 1? 02:39

A. That would be my impression looking at the page, yes.

Q. Okay. And in fact, if you turn to -- let me just ask the question.

Is Figure 1 a perspective drawing of 02:40

the Larsen device?

A. Yes. I would say it's a perspective drawing, yes.

Q. And Figure 1 has a machine applicator labeled 13, correct? 02:40

A. Figure 1 has five panels above the console that are labeled as 13, correct.

Q. Okay. My question was: Figure 1 has a machine applicator labeled 13, correct?

A. I would take a moment -- I will take a moment to look and see if that's the language that Larsen uses in the specification and see how he refers to it. 02:40

Q. Okay. For instance, at -- in paragraph 70, as an example, if I direct you to the last sentence on page 11 of Larsen it says -- it says "According to Figure 2a the applicators 13 in the working model." 02:41

So it's referring to applicators 13 in paragraph 70 and also in 69. 02:41

A. Just happened to look at paragraph -- yeah, it says -- yeah, machine applicators 13 in paragraph 69. In paragraph 72 it refers to the applicators 13.

Q. Okay. So the -- in Figure 1 -- 02:41

A. Yes.

Q. -- where the line 13 is pointing to the left-hand side of the figure, line 13 is pointing -- pointing to the applicators -- the machine applicator labeled 13, correct? 02:42

A. My understanding as a POSA is that 13 is labeling the applicators, the panels that produce light. And it could be referred to as an applicator but it is in fact referring to the five panels disclosed by Larsen. 02:42

Q. Okay. And up in Figure 2b, for example, it also refers to that 13, right? At the bottom of Figure 2b there's a 13, a line drawn to --

A. Yes. 02:42

Q. -- 2b?

A. Yes.

Q. And that is the detail of an applicator 13, correct?

A. That's the detail of one of the five applicators. 02:42

Q. Okay. And in fact, in Figures 2a through d there, they illustrate the details of the machine applicator in Figure 1, correct?

A. They appear to show the detail of 02:43

each of the panels that are labeled as 13, which I believe are referred to by Larsen as the applicators, plural, in some -- at least some of the claims.

Q. Okay. Looking at Figure 2b, the machine applicator 13 includes light sources 17, correct? 02:43

A. Yes.

Q. And there's a line drawn from the 17 on the bottom of the applicator there to a dot inside a circle. 02:43

Do you see that?

A. Yes.

Q. And the line 17 is drawn connecting to light sources 17 on -- on the machine applicator of Figure 2b, correct? 02:44

A. Figure 2a and -- and 2b and 2c, they appear to show more detail with regard to each of the five panels, yes.

Q. Right. Figure -- Figure 2a, 2d, 2c, 2d, they're a cross-section with more detail of the panels of Figure 1, correct? 02:44

A. I think that's a fair statement, yes.

Q. And just getting back to the 17.

So the 17 shows that more detail and 02:44

17 is light sources on -- on the applicator 13, right?

A. Let me check in the specification. I believe that's correct. But give me a moment to see how Larsen identifies 17. 02:45

Q. Sure. And if it's --

A. Light source 17, yes.

Q. Okay. And there's a 17 and a 17a in Figure 2a.

And so there -- there's -- 17 is -- 02:45 those light sources are LEDs; is that right?

A. Yes, the light sources are LEDs.

Q. Okay. And at least in 2a, there's another row above that, are those lasers in Figure 2a? 02:45

A. I believe that the black dots with the dotted circles around them are intended to be the LED sources, the light sources. And --

Q. And then 17a in Figure -- excuse me, in paragraph 70, for example, also refers to 02:46 laser diodes?

Is 17a laser diodes?

A. Actually, yeah, I'm looking at paragraph 70.

And paragraph 70 says that (as read): 02:46

According to Figure 2a the applicators 13 -- applicators in the working model are mounted in a shifting order with semiconductor diodes, LED and/or laser diodes 17 and 17a, whereby shifting the order of the light sources, 17 means that the respective light sources -- source 17a of one row is placed on the diagonal.

So yes, it appears that both -- the circles without anything in the middle and also the -- the dotted circles with the black dots, both appear to be LEDs.

Q. So the -- the 17 -- just referring to Figure 2a, the -- let's talk about the bottom row, as you said, with the dark circle with the circle around it. 02:47

A. Yes.

Q. That row contains LEDs labeled 17, correct?

A. Yes.

Q. And then the row above that, there's a 17a. 02:47

That row has laser diodes, correct?

A. That's -- yes, according to the specification, it refers to both rows as LEDs.

Q. Okay. And then returning to that 02:47

first bottom row in Figure 2a, there's a circle around the LEDs labeled 18.

Do you see that?

A. Yes. It's not exactly clear. In Figure 2a 18 looks like it's pointing to the -- to the bottom edge of the rectangle. In Figure 2b it looks like 18 refers to the dotted circle around it. So if I look at the specification, I'm going to see how it is identified. 02:48

Q. Once again, it's referred to in paragraph 70.

A. Here we go, 70. Let's see. Here we go.

Okay. So they're reflectors, yes. 02:48 **Apparently the dotted circle is a reflector around the LED -- the LEDs.**

Q. Okay. And we can see that circle around the LED 17 in each of Figures 2a, 2b, and 2c, right? 02:49

A. Yes.

Q. And that circle around each of the LED 17 is a reflector, right?

A. That appears to be the case, yes.

Q. Now, let's look as Figure 2b. 02:49

Are you with me?

A. Figure 2d?

Q. 2b, as in boy.

A. Oh, boy. Sorry. Yes, I see Figure 2b.

It's the one in the middle, right?

Q. Well, the second one from the left.

A. Okay. You're right.

Q. B, as in boy.

So 2b of Larsen has horizontal rows of LEDs, correct? 02:49

A. Yes.

Q. And the LEDs are 17, correct?

A. Yes.

Q. And those light sources are LED 17 are, according to Larsen, placed in regular row arrangements, i.e., 20, correct? 02:50

A. I.e., 20? Are you referring now to -- I don't see a 20.

Q. If we go back to Larsen's disclosure. 02:50

A. Yes.

Q. Look at -- right underneath the paragraph we've been reading that names all the parts, if you go to paragraph 71.

A. Yes. 02:51

Q. And it says (as read): According to Figures 2b and c the light sources 17 are placed in regular row arrangements, i.e., 20 equidistant from each other.

Do you see that? 02:51

A. Yes, I do.

Q. Okay. So I'm asking you in Figure 2b we have light sources 17 -- those are LEDs -- placed in regular row arrangements, i.e., 20 equidistant from each other, as it says in the 02:51 specification, right?

MR. LANDMON: Objection.

Mischaracterizes the document.

THE WITNESS: Mr. Landmon had a comment. I don't know if you heard his 02:51 comment.

BY MS. HIGGINS:

Q. You can answer the question.

A. Yeah. I'm trying to reconcile Figure 2b with Figure 2a. Give me a moment to 02:51 **read how they're described here in the text so that I can better understand.**

Q. Sure. My question was specific to Figure 2b, though. But go ahead and do what you want. 02:52

A. You'll note in Figure 2a that there are -- we concluded a moment ago that both the circles with nothing in the middle and the black dots with dotted circles around them were both LEDs. 02:52

In Figure 2b, which is the one you're directing me to, I see only the LEDs that are the ones shown in Figure 2a as a black dot with a dotted circle around it. I don't at the moment see what -- where those -- or why the 02:52 **LEDs that are represented by simple black circles in Figure 2a don't appear in Figure 2b. So maybe you can explain that to me.**

Q. Sure. Dr. Grove, I think we had already determined that -- so we talked about -- 02:53 just returning, my question was about 2b.

But for 2a we already determined that the first row at the bottom there, that those were LEDs labeled 17, right?

There's a row of LEDs labeled 17, 02:53 right?

A. Yes.

Q. And if you go up from that bottom row, there are those empty circles, 17a --

A. Yes. 02:53

Q. -- which paragraph 70 says those are laser diodes, right?

A. Let me see what it says about 17a.

No, I think that I -- if you read paragraph 70 correctly, about halfway through, right at the bottom of page 4, the application says (as read): According to Figure 2a the applicators 13 in the working model are mounted in a shifting order with semiconductor diodes (LED) and/or laser diodes 17 and 17a. 02:53 02:54

So I don't believe that Larsen is distinguishing between necessarily the open circles and the dark circles as one being laser diodes and the other being LEDs. It's just not clear from the text. 02:54

Q. Okay. So it's not clear to you what's -- what's an LED and what's a laser in Figure 2a?

A. In Figure 2 -- it's very clear to me -- 02:54

Q. 2a, 2a, I'm asking go about 2a. You were just talking about 2a.

So it's not clear to you what's an LED and what's a laser in Figure 2a, correct?

A. What I said was that in Figure 2a, as 02:54

we know -- I'm just going to call them the black dots or the open circles for simplicity.

And the black dots, which are indicated as 17, if I read the text, it says -- it refers to 17 as the light sources, okay. So it doesn't distinguish. And it also says 17a are light sources. So let's just go with that.

Q. Okay. So you can't distinguish -- I'd like to know what's a laser in Figure 2a and what's a diode if you're able to tell me. 02:55

A. Larsen uses those terms interchangeably. In other words, what Larsen is saying is that these light sources could be either LEDs or laser diodes.

Q. So every light source in every row could be -- could be an LED or a laser diode in Figure 2a? 02:55

A. That's the way I read it just this time. And I think that that conclusion is consistent with the descriptions in paragraph 70. 02:56

Q. So does that mean then that the bottom row that has the dark circles surrounded by an open circle, which you said was the reflector, does that mean that in that bottom 02:56

row in Figure 2a that those are LEDs or lasers, laser diodes?

A. I think in the description in the specification, he refers to 17 and 17 -- sorry, he refers to 17 and 17a as being the light sources. And earlier in that same paragraph he refers to light sources 17 and he refers to respective light sources 17a.

And as an expert in LEDs and laser diode, they're often referred to interchangeably or -- or they are stated to give the -- a person of ordinary skill in the art the understanding that these may be LEDs or they may be laser diodes.

02:56 02:57

Q. Okay. So that bottom row could be either in Figure 2a?

02:57

A. I think that's -- I think that's the way I would conclude it, yes.

Q. Okay. So laser diodes, you actually have a lot of experience with lasers, correct?

02:57

A. I do, yes.

Q. Okay. Do laser diodes operate the same as LEDs?

A. They have different -- they have both different electrical characteristics and

02:58

different optical characteristics. But they both put out light and -- and could conceivably be used in this application.

Q. What are the differences between laser diodes and LEDs that you're referring to? 02:58

These electrical and optical characteristics, what differences do they have?

A. The most important distinction for the -- in the context of this patent is that an LED is an incoherent source of light, just as an incandescent light bulb is an inherent source of light. 02:58

Laser diodes, or alternatively referred to as diode lasers, have what's called optical coherence. So they -- their light tends to be much more forward-directed and not simply radiating in all directions. 02:58

Q. Would you use a reflector with a laser diode?

A. You might, depending on the particular design of the laser diode. Although it would be much more common to put a reflector around an LED. 02:59

Q. Let's turn back to Figure 2b, as in boy. 02:59

A. I have it.

Q. So I asked you what the bottom row was in Figure 2b and you told me it was LEDs; is that correct?

A. I believe I did say that. But reading the text again, it seems clear to me that Larsen is explaining, as the inventor, that these light sources could be either LEDs or laser diodes. And I think that conclusion is supported by his use of the term "light sources," which then would encompass both.

Q. Okay. And in Figure 2b the light sources 17 in each row, each light source has a reflector, correct?

A. In -- in the -- in Figure -- both in Figure -- well, in Figure 2a certainly, they -- they -- the dark dots, as I'll describe them, that are labeled as 17 appear to have reflectors. And the open circles, if the dotted line is to represent a reflector, then they would not have reflectors around them.

So it's possible that the -- this drawing is meant to represent LEDs in the bottom row, for example, in Figure 2a and laser diodes presumably in the row immediately above that, in

other words, the row with the open circles.

Q. Okay. So let me turn your attention now to 2b, as in boy, okay?

A. Yes, yes.

Q. So not talking about 2a anymore. 03:01

So Figure 2b, as in boy, the bottom row of Figure 2b and in Larsen, that has a row of light sources 17, correct?

A. Yes.

Q. And those light sources 17 are placed in regular row arrangements, i.e., 20 equidistant from each other, correct? 03:01

A. The -- I think the 20 is -- is mislabeled actually. I don't know what 20 refers to. 03:02

Q. Okay. Can you go to paragraph 71?

A. Yes.

Q. So paragraph 71 says (as read): According to Figures 2b and 2c the light sources 17 are placed in regular row arrangements, i.e., 20 equidistant from each other. 03:02

Do you see that?

A. Yes, I do.

Q. And that sentence is referring to Figure 2b, correct? 03:02

MR. LANDMON: Objection. Mischaracterizes the document.

THE WITNESS: It says it's -- (as read): According to Figures 2b and 2c the light sources 17 are placed in regular row arrangements, i.e., 20 equidistant from each other.

That makes no sense to me as an expert in lasers and LEDs and laser diodes. It's not clear to me what 20 is referring to, unless it's simply referring to rows of light sources. In which case if it's referring to rows of light sources as is shown in, for example, Figure 2a, then I understand what 20 means. 03:03

BY MS. HIGGINS:

Q. Okay. And it says those rows of light sources are equidistant from each other.

Do you see that in paragraph 21?

A. Paragraph? 03:03

Q. Excuse me. 71. Thank you.

So it says (as read): The light sources are placed in regular row arrangements, i.e., 20 equidistant from each other.

Do you see that "equidistant from 03:03

each other"?

A. I do.

Q. And what does that mean to you that these "light sources 17 are placed in regular row arrangements, i.e., 20 equidistant from each other"? 03:04

What does "equidistant" mean there?

A. Equally distant is what equidistant means. And one can see -- a POSA would look at Figure 2a, for example, and see that the -- the light sources are spaced at equal distances from each other. 03:04

And so if for the moment we refer to 17 and 17a collectively as light sources as Larsen does, then a POSA would conclude looking at Figure 2a that those light sources are spaced at distances from each other that are approximately equal. 03:04

Q. How much space is there between the light sources in, let's say, the bottom row of Figure 2b? 03:05

A. It's my understanding that these drawings -- there's no scale given. So without having in front of me the dimensions of the panel indicated by the black rectangle in 03:05

Figure 2a, I couldn't tell you how far or how close those light sources are to each other.

Q. And is that same answer true also with respect to Figure 2b?

A. In Figure 2b you'll note that -- actually, give me a moment. Let me -- let me look at one other item here. 03:05

Q. Sure. And -- and -- and the question is specific to Figure 2b.

I want to know how much space there is between the light sources in the bottom horizontal row. That's my question. 03:06

A. I understand your question. I'm looking to -- just for my own edification what -- yeah, okay. So 32 is a sensor. 03:06

Okay. So if you look at Figure 2b you'll see that the black dots with the dotted circles around them are replicated in Figure 2b. But the open circles are missing and replaced by a rectangular box of lines. I was just trying to understand what Larsen was conveying with that information. 03:06

But to come back to your question, I can't tell from this drawing how close or how far the -- for example, the -- the light sources 03:06

that are the black dots with the dotted circle around them are -- how close they are or how far apart they are.

I could speculate based on my guess as to the size of the panels and then see that there are five -- one, two, three -- one, two, three, four -- five light sources and come up with some guess. But it would be only a guess based on my estimate of the dimensions of each of these panels. 03:07

Q. Larsen doesn't give you dimensions of the panels, correct?

A. I -- I don't know offhand. I don't recall seeing that. But as long as we're on Larsen, I'd like to take a moment to refer to my declaration. 03:07

Q. Sure. I think you answered my question, though.

A. Okay. Nonetheless, I will take a look at -- if you give me just a few minutes, I want to refer to my declaration here. So just give me a moment. 03:08

Okay. And I'm just going to take one more minute to take a quick look at my declaration. 03:08

Q. And can you let me know what you're referring to?

A. Yes.

Q. Are you looking for the spacing of the light sources? 03:08

A. No, I was referring -- I was looking generally for the portion of my expert declaration where I discussed the Larsen reference. So if you can give me one more minute, I will refresh my memory in what I have said about Larsen. 03:09

Q. And let me know what paragraph you're looking at.

A. Well, I'm looking at the moment beginning with paragraph 91 of my declaration, which is on page 34, where I discuss the Larsen application. 03:09

(Witness reviewing documents.)

THE WITNESS: Okay. I was just checking if I had indicated in there that there was anywhere within Larsen that stated the size of the panels. And I see none. 03:09

BY MS. HIGGINS:

Q. And you don't see the -- anything 03:10

regarding Larsen's spacing of the light sources either, right?

A. At the moment I haven't seen anything that refers to the -- the spacing of the LEDs. I mean, as I said, I could -- I could make an educated guess based on the drawing. But I don't see anything that would give me any sort of definitive information as to what that spacing might be. 03:10

Q. What's your educated guess? 03:10

A. Well, again, it's purely speculation. But as a professional in this field, I would say that if the panels were maybe 8 inches wide, that the LED sources could be an inch apart, something of that scale. 03:11

Q. And -- and --

A. It's a guess.

Q. And by an inch apart, you're talking about the space between each of the light sources in the same row? 03:11

A. Yes. But again, it's just a guess. I'm trying to make some guesses as to what the -- Larsen was envisioning in terms of the size of the panel. And I'm also going back to Larsen's patent application looking at 03:11

Figure 2a, which shows six black dots.

So if that panel is 7 or 8 inches wide and the lights are an inch apart -- actually, one, two, three -- they're five spaces between the six light sources. So I don't know, maybe they're a little bit more than an inch apart. But again, it's just a guess.

Q. And how about let's look at Figure 2b and let's look at the bottom row and then the row directly above that. 03:11 03:12

What -- what is the spacing between rows in -- in Figure 2b?

A. Are you referring to the vertical spacing?

Q. I'm referring -- I'm referring to the -- to the vertical spacing between the first row at the bottom and then the second row directly above it, horizontal rows. 03:12

A. Right.

Q. Between the horizontal rows in Figure 2b. 03:12

A. Yeah, yes. I understand.

Again, without a scale drawing or without knowing the dimensions of the panels, I -- I -- it's possible that spacing of the lowest 03:12

horizontal row and the horizontal row immediately above might also be an inch.

And if that's the case, then there would be more horizontal rows -- given that this panel is obviously rectangular there would be more horizontal rows. And in fact, if you look at the left edge of Figure 2b, there are one, two, three, four, five, six -- seven light sources shown in the vertical direction -- or I should say seven rows. One, two, three, four, five, six -- seven rows in the vertical direction. But there are only five -- seven rows counting in the vertical direction.

You get the idea. There are five -- there are one, two, three, four -- five LEDs in the lowest row in the horizontal direction. And I can count seven light sources in the vertical direction, which correspond to a rectangle.

Q. Does Larsen tell you -- does Larsen disclose the spacing between the rows of LEDs? 03:14

A. I don't believe so.

Q. Let's --

A. Well, let me -- let me correct that answer. The -- the only information that I have seen from Larsen is that he makes the statement 03:13 03:13 03:13

that the LEDs are equidistant from each other.

So he doesn't say whether that equal distance between rows, for example, is a half a centimeter or -- or 2 inches. He simply says that they're spaced at equal distances from each other.

Q. Let's go to Figure 2c.

A. Okay.

Q. So Figure 2c is also illustrating the details of the machine applicator 13 in Figure 1, right? 03:14

A. I'm going to take a moment and look at the specification again to refresh my memory on what item 19 is, or object 19.

Q. And what I just said to you, Figure 2c also illustrates the details of the machine applicator in Figure 1. It says that in paragraph 41. 03:15

Do you agree with that?

A. I'm sorry. In Figure -- in Figure -- 03:15

Q. My question was -- was -- was simply looking at Figure 2c, Figure 2c also illustrates the details of the machine applicator in Figure 1.

Okay. And if -- if you want to refer 03:15

to Larsen, you can -- I'm not going to tell you where to go but you could refer to paragraph 71.

That didn't come out right. I'm sorry.

A. I interpreted it in the polite form.

Yeah. The reason that I wanted to look a bit more with regard to Figure 2c is you'll see that there's a shape in Figure 2 -- Figure 2c labeled as 19, which does not appear in Figure 2a or 2b.

So I just wanted to refresh my memory about what Larsen intended about object 19.

Q. Understood. And if you turn to paragraph 71 it says (as read): The light source 19 formed as a tube can be selected for radiating blue light or fluorescent light.

And then it gives some wavelength details.

Do you see that?

A. I do. But it's clear from these three figures that these are different embodiments, if you will, of -- of how the panel might be provided with light sources.

Because clearly this light tube shown as 19 in Figure 2c does not appear in either

Figure 2a or 2b. So these are an attempt by Larsen to provide examples of various means of providing light to a patient depending on the details of the light source.

Q. Right. And that light source 19, that can be a fluorescent tube, right? 03:17

A. I think he describes it, yes, as a radiating blue light or a fluorescent light. Yes, he does say that.

Q. Okay. So Figure 2b on -- it has light sources 17. 03:17

Do you see those?

A. Yes.

Q. Figure 2c has light sources 17.

Do you see that? 03:17

A. I do.

Q. And Figure 2c has a fluorescent tube 19.

Do you see that?

A. Yeah, it's shown in Figure 2c, correct. 03:18

Q. Okay. And you understand that a -- that a fluorescent tube has cathodes, correct?

A. Yes, I do.

Q. Okay. And it's well known that 03:18

fluorescent tubes have dark spaces near the cathodes, correct?

A. Yes, generally that's correct.

Q. And in fact, there are several dark spaces that can be near the cathodes, including an Aston dark space; is that right? 03:18

Did you ever hear of an Aston dark space?

A. Are you referring to a Faraday dark space? 03:18

Q. That was going to be my next question but I was starting with Aston, A-s-t-o-n.

A. I'm not familiar -- I'm not -- I'm not familiar with --

THE STENOGRAPHER: I'm sorry. You froze there.

Did you say you're not familiar with it?

THE WITNESS: I'm not familiar with that term. 03:19

BY MS. HIGGINS:

Q. Okay. Can there also be a dark space known as a Crookes dark space, C-r-o-o-k-e-s?

Are you familiar with that, Crooke dark spaces in fluorescent tubes? 03:19

A. I'm not familiar with that term either. My expertise is in -- primarily in laser -- laser diodes and LEDs. Obviously I have -- as an engineering physicist, I'm aware of fluorescent tubes but I'm not familiar with those terms.

Q. But certainly -- certainly, you know, if we pointed to some academic papers that talked about Aston dark spaces and Crookes dark space, you don't have a basis to disagree that those exist in connection with fluorescent tube technology, sitting here today, correct?

A. They may very well exist. I think that if they were -- if those particular dark spaces were present in Lundahl's fluorescent tubes, he would have explicitly referred to them, since Lundahl was very much interested in obtaining a uniform light -- light output.

The only dark space that I recall Lundahl referring to is the Faraday dark space, which is very near the cathode -- cathodes.

Q. And these Faraday dark spaces -- when we have these multiple dark spaces, Aston, Crookes, and Faraday, the Faraday dark space is typically the one that's furthest from the

electrode, correct?

A. I don't know. All I know is that the -- the Faraday dark spaces are very close to the cathodes. These other dark spaces that apparently have been identified in the academic literature, I don't know whether they are even closer to the cathode or not.

But having read Lundahl, I'm confident that the only dark space that the inventor was concerned about in order -- that might affect uniformity of output was the dark spaces near the cathodes.

Q. Okay. Have you spoken to Mr. Scott Lundahl, the inventor?

A. No.

Q. Okay. Do you know what he was concerned about?

A. I -- I certainly do as -- as -- with respect to his patent, yes.

Q. Okay. So his patent does refer to Faraday dark spaces? You -- your --

(Simultaneous speaking.)

THE WITNESS: I believe that's -- I believe that's correct, yeah. I can check again if you'd like but I believe that's

correct.

BY MS. HIGGINS:

Q. Okay. But you don't -- you don't know anything that Dr. -- excuse me, that Mr. Scott Lundahl was concerned about in connection with his invention, as set forth in the Lundahl patent, right? 03:21

A. I have an understanding of what the primary concerns of Lundahl were in reading his specification. But I certainly could not tell you that that is an exhaustive list of every concern that he ever conceived. 03:21

Q. Okay. But you don't -- you don't dispute that there are dark spaces in fluorescent tubes and those dark spaces can include Aston dark spaces, Crookes dark spaces, and Faraday dark spaces, correct? 03:22

A. I have no knowledge of that information.

Q. Okay. All right. 03:22

Let's turn back to Larsen Figure 1.

A. Yes, yes. I have it.

Q. Okay. I do have -- okay. Larsen Figure 1.

All right. So Larsen Figure 1, do 03:22

you see sort of in the middle of the drawing there's a number 11 and it's connected to --

A. Yes, yes. The main console I would -- I would --

Q. Okay. And number 11 is the stand? 03:22

A. I -- I -- I'm looking to see -- I can look and see if that's what Larsen calls it. But that certainly would be reasonable to call it a stand or maybe a box containing electronics. 03:23

But let me see -- since you've referred to 11, let me look at the -- at the specification and see specifically what -- yeah.

It's referred to as a stand, yes.

Q. Okay. And so in order to figure out what number 11 is, you referred to the specification and the specification told you that -- that Larsen Figure 1 has a stand 11, correct? 03:23

A. Yes, in trying to understand what 11 refers to I would certainly look to the information in the specification to see if that confirms my understanding based on the figure. 03:23

Q. Okay. Let's look below at Figure 1.

Do you see Figure 3 there? 03:24

A. I do.

Q. And Figure 3 is illustrating the jointed arm that we see up in Figure 1, correct?

A. Yes, I believe that's correct.

Q. Okay. And in Figure 3 there is a joint carrier 22 that's connected with the joint carrier 21 with a hinge 26, correct? 03:24

A. Yes. I was going to make a notation, which I will not do.

In Figure 3 it took me a minute to figure out what 12, 21, and 26 were pointing to. But I see that in Figure 3, for example, as you kindly pointed out, the number 26 is intended to be referring to the horizontal line that points to the hinge in those two arms. 03:25

Q. And number 22 is pointing to a joint carrier, correct?

A. It points to an arm of the device, which if Larsen refers to that as -- let me see. I'll just look and see what he says. 03:25

Q. So if Larsen refers to 22 as a joint carrier, that's what it is, right?

A. Unless there's --

Q. That's paragraph 73.

A. 73. Let me see. We're looking at 03:26

22. Three joint carriers, yeah, okay.

So yes, you know, with the exception of occasional mistakes in -- in numbering, I would agree with your statement.

Q. You told me that hinge -- do you see number 26 in Figure 3? 03:26

A. I do.

Q. And number 26 has a line pointing to a circle there.

Do you see that in Figure 3? 03:26

A. Yes.

Q. And you understand that 26 with a line pointing to that circle is hinge 26, right?

A. Yes, I believe -- if it's identified as that, yes. 03:26

Q. And the specification, paragraph 73, identifies that as such, correct?

A. Yes, it says hinge 26.

Q. And you said something about mistakes. 03:26

Is that a mistake?

A. That appears to be correct.

Q. And how do you know that's correct?

A. How do I know that's correct?

Q. Yeah. 03:27

A. Because having done 40 years of engineering and you have two solid arms, the hinge is generally between those two arms.

Q. And what kind of hinge is that?

A. It's an ordinary hinge. 03:27

Q. Does Larsen tell what you kind of hinge that is?

A. No. I'll take a look. I don't recall off the top of my head that he specifies.

Let's see. Referring to -- he says that (as read): Joint carrier 22 is connected with the joint carrier 21 with a hinge 26. 03:27

Can you point me to somewhere else in this specification where he refers to item 26?

Q. I can point you to -- to paragraph 73. 03:27

A. Yes. That's what I just read, I believe, yes.

Q. And that's -- that's what I'm reading to you where it is referencing hinge 26. 03:28

A. Yes. You asked me what kind of a hinge it was.

And I'm saying that if the only place in this specification that mentions item 26 is paragraph 73 and Larsen describes it as a hinge, 03:28

then based on my professional experience and judgment I would say that 26 is indeed a hinge.

Q. And Larsen doesn't tell what you kind of hinge that is, correct?

A. He does not. 03:28

Q. And going back to Figure 1, we already established that number 13, that has a line connecting it to the machine applicator 13, right?

A. It points to the applicators, yes. 03:29

Q. And in Figure 1 that same applicator has a number 10 with a line up pointing to the bottom of the applicator 13.

Do you see that?

A. I do. 03:29

Q. And the line number 10 connected to the bottom of the applicator is hinges 10, correct?

A. It may be stated as that at one place or another. But if you look at -- give me a 03:29 **moment to refresh my memory here. And actually, I'm going to -- well, I'm here. I'm going to go back to my declaration as well. So just give me a moment, please.**

Q. And if it helps, I'll refer you to 03:30

the specification, paragraph 72, where it says that (as read:) According to Figure 1, several applicators 13 are flexibly connected to each other through hinges 10 in paragraph 17.

So my question is the specifications referenced to hinges 10 in paragraph 72, that's the line number 10 in Figure 1, correct? 03:30

Hinges 10 is line 10 in Figure 1, correct?

A. I have to apologize. I have not finished a quick review of the specification. 03:31

Q. Can you answer my question without -- without looking to your report?

MR. LANDMON: Objection.

THE WITNESS: I will answer your question after I look at my report -- after I look at my report and after I look at the specifications. 03:31

BY MS. HIGGINS:

Q. Okay. And what paragraphs are you looking to? 03:31

A. At the moment I am looking at the specification of Larsen. And if you'll just give me a few minutes, I will refresh my memory on this patent application, as I recall. 03:31

(Witness reviewing documents.)

THE WITNESS: Yeah. So I'd like to direct your attention to paragraph 69.

Do you have paragraph 69, Ms. Higgins?

BY MS. HIGGINS:

Q. I do.

A. It says (as read): As shown in Figure 1, the invented device 10.

Okay. So it's clear here that 10 refers to the invented device in -- in Figure 1.

Q. Okay. So please turn to paragraph 72.

So paragraph 72 says (as read): For the treatment of the large-area tissues according to Fig. 1 -- so it's referring to Fig. 1 -- several applicators 13 are flexibly connected to each other through hinges 10.

Do you see that?

A. Yes.

Q. And so hinges 10 is what Larsen is pointing to in Figure 1 by labeling it item 10, correct?

A. No.

Q. What's your basis for saying that

that's not the case?

So you're saying that the Larsen specification is incorrect here, correct?

A. I'm saying that Larsen refers to 10 in two different places with two different descriptions.

He refers to it as an invented device 10. And as you pointed out correctly in paragraph 72, he refers to it as hinges 10. So clearly one of the two is incorrect. 03:33 03:34

Q. And you don't know which one is incorrect, right, it could be either?

A. I do. I do.

Q. And how do you know that?

A. Because if you look at the drawing, it's clear that the hinges would not be at the bottom of each panel. Larsen actually says that the panels are connected.

I believe -- let me go back and look at my specification. I believe that if you were -- in this case -- and believe me, there are many patents where there is a mistake in nomenclature or a mistake in numbering. And so in that case you have to use, as a POSA, your judgment as to what -- which one was correct, 03:34 03:34

which one is correct.

And in this case it is clear to me that -- let's see, he says -- for example -- let's see here. Let me go to -- yeah, in fact in the paragraph you pointed out -- let's go back to paragraph 72 of Larsen. 03:35

Q. And --

A. Just let me finish, please.

It says in paragraph 72 (as read): For the treatment of large-area tissues according to Figure 1, several applicators 13 are flexibly connected to each other through hinges -- let me leave out the number for a moment -- respectively connecting one edge with the other, whereby the applicators are suitable for treatment of, for example, the backs of humans and so become adjustable for an equidistant positioning of the applicators 13 above the skin. 03:35 03:36

What this refers to is that the panels can be tilted, one with respect to the other, so that in principle you could have a completely flat arrangement of applicators or, in order to mimic Lundahl's curvature around a face, for example, each of the panels would be 03:36 03:36

tilted, one with respect to the other by hinges.

And if you read that in paragraph 72, it's clear that he refers to hinges that are between the panels and the -- he also refers to 10 in the drawing as being the applicators. 03:37

And so it's clear to me that -- it's clear to me which one of those two descriptions is correct. And it is the first description, which is the -- the applicator or applicators 10, and not the one that says hinges. 03:37

Q. So in paragraph 72 you're saying everything else about the first sentence is correct but you know that "hinges 10" is incorrect in referring to Figure 1, correct?

That's wrong according to you? 03:37

A. You asked me if everything in paragraph 72 is correct. So I'm going to take a moment and reread it.

Q. I said the first sentence of 72, which you read. You said you wanted to leave 03:37 out the 10.

So I'm asking you is everything else in the sentence correct, you just think that "hinges 10" is wrong, right?

That's your opinion? 03:38

A. I'm going to read the first sentence again if you don't mind.

(Witness reviewing documents.)

THE WITNESS: I believe that the first sentence in paragraph 72 is correct in that there are hinges between the panels. And it's clear where those hinges must be in order to effect the proposed treatment that Larsen describes. 03:38

BY MS. HIGGINS: 03:38

Q. But -- but Larsen -- Larsen doesn't say I made a mistake.

You're -- you're -- that's -- that's your interpretation of -- of -- of paragraph 72, correct? 03:38

A. Larsen -- your first sentence is correct. Larsen does not say, I'm sorry, I made a mistake.

Larsen clearly did make a mistake by describing two different objects or items in his patent with the number 10. So clearly one of them is incorrect. 03:38

Q. Okay. One of them is incorrect.

A. Right.

Q. Okay. That's your opinion, that one 03:39

of them is incorrect.

Let's -- let's turn now -- we're going to turn to the file history of the '028 patent --

A. Okay. 03:39

Q. -- and look at that. And so we're going to bring that up.

A. I believe in the prosecution history --

MR. LANDMON: There's no question. 03:39

BY MS. HIGGINS:

Q. Let's bring it up because I have some questions for you about that, okay?

A. And what would you like me to do?

Q. We're going to bring up the file 03:40 history of the '028 patent, which is Exhibit 1002. And in this --

MR. LANDMON: Counsel, if you could give us an second.

MS. HIGGINS: Yes. 03:40

THE WITNESS: We're refreshing my screen. And unfortunately every time I refresh the screen, I have to prove, once again, that I am not indeed a robot. So give me another 60 seconds here. 03:40

And I'm sorry. The number again, Exhibit?

MS. HIGGINS: So I'm going to ask the court reporter to mark the file history of the '028 patent as 1002. 03:40

So Exhibit 1002.

(Deposition Exhibit 1002 was marked for identification.)

BY MS. HIGGINS:

Q. And let me know when you have the file history in front of you. 03:41

A. I believe I do. The -- it has application number, issue date, patent, eGrant notification.

Yes, I believe this is the file history. Yes, it's 482 pages. So that must be the file history. 03:41

Q. Okay. And you reviewed the '028 file history in connection with rendering your opinions in this proceeding, correct? 03:41

A. I did review it, yes.

Q. I'm going to direct your attention to an office action in the '028 file history, which is at page 324.

A. Okay. I will endeavor to get to 03:42

page 324.

MR. LANDMON: You can look at your binder, too, if that's easier.

THE WITNESS: Oh, that's true. I forgot about that. 03:42

MS. HIGGINS: If you're speaking --

THE WITNESS: No, I have it. I have it.

MS. HIGGINS: If you're speaking to the witness, can you speak up so we make sure we get it on the record? 03:42

MR. LANDMON: I apologize, counsel. I was just saying it's in his binder as well.

THE WITNESS: On page 322 of 42 it just says (as read): The commissioner is hereby authorized to charge any additional fees. 03:42

I assume that's not the page you're referring to. 03:42

BY MS. HIGGINS:

Q. Dr. Grove, if you can refer to two pages later, 324, please.

A. Okay. On here it says -- on my page 324 it says (as read): Please find below 03:42

or -- and/or attached an office communication concerning this application or proceeding.

Is that the page you're directing me to?

Q. Yes. 03:43

A. Okay.

Q. Yes, I am. And you can scroll through a couple of pages here.

But my question to you is: Is this an office action in the '028 prosecution dated November 18, 2022? And that date appears on the file history, page 324. 03:43

A. Yes, I see that.

Q. Okay. And you relied on this office action in rendering your opinion, correct? 03:43

A. The -- the office -- the file history, as I said, is somewhere between 500 and 600 pages. And I know that there was a lot of back-and-forth between the inventor and the -- and the office as to which claim should be denied and for what reasons. 03:43

So I don't recall in particular page 325 as relying or not relying on the information herein.

Q. Okay. And so you don't recall 03:44

whether you reviewed this office action or not in connection with rendering your opinion?

A. I reviewed the -- the file history. I looked through the file history and -- and read sections in a little bit more detail that I thought were pertinent.

Q. And as indicated on page 324 of the file history, the examiner who wrote this November 18, 2022, office action is Tammie Marlen? 03:44

A. On page 322?

Q. 324. It's right above. It's like towards the top on the right.

A. Yes, I see that.

Q. And Examiner Marlen is also the examiner who did the prosecution in connection with the '512 patent. 03:44

Are you aware of that?

A. I'll take your word for it.

Q. So let's go down in this office action to paragraph 12. 03:45

A. Of what page?

Q. If you scroll down into the office action, it is on page 4 of the action. And that is page 328 in the bottom right-hand corner with 03:45

the stamp.

A. Page 328. I have page 328 in front of me. It says page 4 at the bottom.

Q. Correct. And so this is page 4 of the November 18, 2022, office action, right? 03:45

A. I -- I will assume that's correct, yes.

Q. Okay. And in paragraph 12 the examiner is discussing Larsen and Fan.

Do you see that? 03:46

A. I see that Claims 18 and 20 to 22 are rejected. Regarding Claim 18 -- okay. Yeah, I'm in the right -- I'm on the right page.

Q. Okay. And then the examiner goes on to talk about Claim 18 and talks about Larsen there, correct? 03:46

A. If you'll give me a moment, I'll refresh my memory on page 328.

(Witness reviewing document.)

THE WITNESS: I see there's a discussion of the number of wheels and a pillar, or five panels. 03:46

BY MS. HIGGINS:

Q. So the examiner is discussing Larsen, correct? 03:47

A. Yeah, I -- I believe so.

Q. And the examiner is talking about terms that you're familiar with like five panels and light sources, correct?

A. Yeah. Going back in my previous comment it says -- and in paragraph 12, on page 328, it says (as read): Claims 18 and 20 to 22 are rejected under 35 U.S.C. --

(Stenographer clarification.)

THE WITNESS: Sorry. Sorry.

(As read): Claims 18 and 20 to 22 are rejected under 35 U.S.C. 103 as being unpatentable over Larsen.

And then it has a patent number. And what we have been discussing was a payment application. So I'm sorry. I'm a little confused here.

BY MS. HIGGINS:

Q. Okay. We can go -- we can go bring up the Larsen '381 patent. I believe that you did talk about that. But we can bring it up for you to refresh your recollection about what that is.

Do you know sitting here right now whether there's -- whether Larsen '381 relates

at all to the Larsen publication here?

A. I don't recall.

Q. Okay. We are going to try to publish that for you and bring that up.

But in any event, why don't we just establish that the examiner here is talking about the Larsen '381 patent in this -- in this paragraph. 03:48

Do you agree with that?

A. Yes, I would agree with that. 03:48

Q. And that Larsen'381 patent has a Figure 1, correct?

A. I haven't seen the patent.

Q. Well, it's talking about -- it keeps referring to "see base shown in Figure 1 and wheels 31." 03:49

Do you see that?

A. Yes, yes.

Q. And it has an illuminator -- Figure 1 has an illuminator with five panels. 03:49

Do you see that?

And those five panels are 13 in Figure 1.

Do you see that?

A. The five interconnected panels, yes. 03:49

Q. Yes. And Figure 1 of the Larsen publication has five interconnected panels, 13 in Figure 1, right?

A. Yes.

Q. Okay. We're going to go and mark '381. 03:49

MS. HIGGINS: I'm going to ask the court reporter to mark as --

I need a number.

-- Exhibit 1008, U.S. Patent 7,033,381. 03:50

THE WITNESS: And it is Exhibit -- I'm sorry. Was it 2083?

BY MS. HIGGINS:

Q. It is Exhibit 1008. 03:50

A. Oh, sorry. The one that says Larsen 2381. That would have been a better guess.

Okay. I see it.

(Deposition Exhibit 1008 was marked for identification.) 03:50

BY MS. HIGGINS:

Q. If you can take a minute to just scroll through this patent, you'll see a Figure 1.

A. Yes. 03:51

Q. Let me start by saying this a Biofrontera exhibit.

Have you seen this Larsen '381 before?

A. I don't recall if I have or I haven't. 03:51

Q. Can you scroll down in Figure 1 in this patent, please?

A. I'm looking to see -- oh, yeah, there it is. A little difficult to see the figure number references. But in the lower left-hand corner I see that indeed it says Figure 1. 03:51

Q. Okay. And so I'm on page 2 of Exhibit 1008.

Are you there with me looking at Figure 1? 03:51

A. I believe so. I see the three rectangles of light sources along the top and I see the -- the device itself, the applicators, the stand in the lower left-hand corner. 03:52

Q. So in the lower left-hand corner we have a Figure 1?

A. Yes.

Q. And then on the top of the page we have Figures 2a, 2b, 2c, right? 03:52

A. Yes.

Q. And then we have -- on the bottom right we have Figure 3, correct?

A. Yes.

Q. Dr. Grove, can you please look at your declaration, paragraph 223, please? 03:53

A. Yes. Give me a moment.

Yes, I have paragraph 223.

Q. Okay. So you actually referred to the Larsen '381 patent in your -- your declaration, right? 03:53

A. I see it now that it's here. Most of my attention has been directed toward the Lundahl patent and the Larsen application. But I see here that, yes, indeed, I reference the '381 patent of Larsen as well. 03:54

Q. Okay. But you are seeing in Larsen '381 that we have a very similar Figure 3, right?

A. Yes. 03:54

Q. And you're seeing that at the top of the page we have a very similar Figures 2a, 2b and 2c, correct?

A. In the Larsen --

Q. In the '381 patent, they're similar 03:54

to the --

A. Yes.

Q. They're similar to the Figures a -- 2a, 2b, 2c in the Larsen publication, correct?

A. Yes. 03:54

Q. Which we've been referring to as Larsen.

And the same goes with Figure 1 of the '381 patent, right, that looks like Figure 1 of -- of the Larsen publication that we've been 03:54 referring to as Exhibit 1004, right?

A. It's very similar.

Q. Can you turn to paragraph 72 of your declaration?

A. Sure. 03:55

Okay.

Q. And if you look at page 26, you put them side by side and you opine that (as read): As can be seen the figures are identical and the examiner's conclusions regarding the teachings 03:55 of Larsen '381 mirror my own conclusions with respect to the teachings of Larsen in my analysis below.

Do you see that?

A. Yes. I see that I wrote that, yes. 03:56

Q. And that's your opinion, right?

A. In looking at the figure that you mentioned where they're side by side, they appear to be almost identical.

Q. Okay. And you -- and your testimony was, and you don't dispute, that the figures in '381 -- and the Larsen '381 patent and Larsen (as read): "Are" -- and I'm quoting -- "identical and the examiner's conclusions regarding the teachings of the '381 mirror my own conclusions with respect to the teachings of Larsen in your analysis below." 03:56 03:56

You said that and you agree with that, right?

A. I said that. And in looking at the figures I would -- I see now that an inconsequential but very minor difference has to do with the -- what would appear to be the control panel, or control console. And I see that in fact the two figures are not -- not truly identical. 03:56 03:57

For example, the panels are slightly more curved in the left figure than they are in the right figure. But for all practical purposes, it's the same. 03:57

Q. For your opinions as set forth in your declaration you treated them as the same, correct?

A. Yes.

Q. Okay. And you're not taking back your statement that the examiner's conclusions regarding the teaching of Larsen '381 mirrored your conclusions in your declaration, right? 03:57

That's your opinion, right?

A. Yes. 03:57

Q. Okay. All right. So let's go back to the -- to the file history, please. So we're at the '028 file history. We're on -- we're in the office action dated November 18, 2022, and we're at page 328. 03:58

A. Okay. I'm going to look at the -- since I have the Larsen patent up on my screen, I'm going to look in my binder, which has the file history.

And I'm sorry. Tell me again which page. 03:58

Q. 328.

A. 328. I have page 328 of 482 open.

Q. And that -- if you scroll up, that's the page that we were looking at before that has 03:58

a paragraph 12 and is talking about Larsen and Fan, correct?

A. I see paragraph 12 mentions Larsen in reference to Fan. But...

Q. Okay. And the description in paragraph 12, at least on page 328, it's discussing Larsen, correct? 03:59

It says "Larsen discloses a system for photodynamically," et cetera, et cetera.

Do you see that? 03:59

A. Yes, I do. Yeah, I was -- sorry. I started at the beginning of paragraph 12.

"Larsen discloses a system," yes, I see that.

Q. Okay. So let's -- where does it say arm? 03:59

Okay. I'm going to point you to about one, two, three -- about nine lines down in paragraph 12 it refers to an arm 12 mounted to the top portion of the pillar, see Figure 1. 03:59

Do you see that?

A. Yes, I do.

Q. And "arm 12 mounted to the top portion of the pillar (see Figure 1)," do you understand that to be referring to the arm 12 in 04:00

Figure 1 of Larsen?

A. Yeah.

Q. You might -- I mean -- you can look to paragraph -- if it's helpful, you can look to paragraph 72 where you have both figures side by side, if that's helpful to you, Dr. Grove. 04:00

A. I was actually looking at the -- in Larsen's patent publication where he describes the -- the arm a little differently. He describes a hinge and two arms. 04:01

This is -- I think in this case it says -- when it says "an arm 12 mounted to a top portion," I believe that to be referencing the -- the entire arm, the -- both straight portions and the hinge I think are being referred to in the file history. 04:01

Q. Okay. And it says (as read): An arm mounted to the top portion of the pillar (see Figure 1.)

That's -- that's referring to the device. The examiner is referring to the device shown in Larsen Figure 1, right? 04:01

A. The device shown in Figure 1 includes the wheels, the console or the base, the --

Q. Understood. I'm talking about this 04:01

-- this description here where it says "an arm 12 mounted to a top portion of the pillar (see Figure 1)."

And my question is simply the examiner -- when it's referring to an arm mounted to the top portion of the pillar and then she says (see Figure 1), she's saying go look at Figure 1, right?

A. She's absolutely saying go look at Figure 1, right. 04:02

Q. Okay. And the next sentence she says (as read): An illuminator connected to the end of the arm (shown by five interconnected panels 13 in Figure 1).

Again, the examiner is referring there to the five interconnected panels 13 in Figure 1 of Larsen, right? 04:02

A. I believe so.

Q. Yes or no?

A. Let me -- give me a moment and let me read this page. I mean, you're jumping around in this paragraph and we have a Larsen patent and we have a Larsen patent application. 04:02

Q. Right. And we already established that you said that they're identical and now you 04:03

pointed out a minor difference.

So if it's helpful, you have them side by side in paragraph 72 because you opined that these figures are identical.

And it might be helpful to just look at the figures because it has these components that we're talking about here. So you can see the arm 12 mounted. So if that's helpful. But I -- I want to make sure that -- that we're -- that we're looking at the file history here. 04:03

A. Yes. And I would like to try to answer your question as correctly as I can.

Q. So my question is -- I'm referring now to the sentence that says (as read): An illuminator connected to an end of arm (shown by five interconnected panels 13 in Figure 1). 04:03

Do you see that?

A. Yes. This is in the file history, yes.

Q. Right. On page 328 of the '028 file history we've been talking about. 04:04

And -- and the examiner there is referencing Figure 1 there, right?

And she says "five interconnected panels 13 of Figure 1," right? 04:04

A. She says "(shown by five interconnected panels 13 in Figure 1)," yes.

Q. And Figure 1 of Larsen has five interconnected panels 13, correct?

A. It has five interconnected panels 13, yes, that appears to be correct. 04:04

Q. In Figure 1, right? Because she's referencing Figure 1.

A. Are we referring to the Larsen patent or the Larsen patent application? Maybe it doesn't matter. Maybe they're both the same. Yeah, 13 refers to the -- it points to one of the five panel applicators. 04:04

Q. In Figure 1?

A. Yes. 04:05

Q. And the examiner -- so far what we've been discussing here, right, what I called out, the examiner in parentheses is referring to Figure 1, right?

A. The examiner in parentheses? 04:05

Q. The examiner in her statement is referring to Figure 1, correct?

A. The examiner refers to in -- on page 328 the text refers to Figure 1 in quite a number of places, yes. 04:05

Q. And the examiner is referring to Figure 1 of Larsen, right?

A. It appears that --

Q. So the sentence -- just to be clear, the sentence begins in line 3 with "regarding Claim 18 Larsen discloses" and then we have a series of disclosures, right? 04:05

So you agree with me that we're talking about Larsen's disclosures, right?

A. We're definitely talking about Larsen's disclosures. I was checking to see if it references the patent, which it does on the line above on page 328. 04:06

Q. That's right. The Larsen '381 patent, which you've stated is -- is identical to the Larsen publication at issue here, correct? 04:06

A. For all practical purposes, the figures are identical, yes.

Q. Okay. It then goes on to say -- I'm going to -- I'm going to skip down now to where it talks about the illuminator comprising at least five panels. 04:06

Let me know when you're there.

A. Yeah, I'm in the -- 04:06

Q. So it's -- it's one, two, three, four, five, six -- see around line 13 of that paragraph 12 it says "the illuminator comprising at least five panels."

Do you see that? 04:07

A. (As read): The illuminator comprising at least five panels 13 connected by hinged structures.

Q. Okay.

A. Is that the sentence you're referring to? 04:07

Q. Yes. So the examiner says in paragraph 12 that (as read): The illuminator comprising: At least five panels 13 connected by hinge -- hinged structures 10 (see Figure 1). 04:07

Do you see that?

A. Yes.

Q. Okay. So the examiner is referring to "at least five panels 13 connected by hinge structures 10" is referring to Figure 1, 04:07 correct?

A. It says see Figure 1, yes.

Q. And that's Larsen Figure 1, correct?

A. Yes.

MS. HIGGINS: I think it's a good 04:07

time to take a break.

THE STENOGRAPHER: We're off the record at 4:07 p.m.

(Whereupon, a recess was taken from 4:07 p.m. to 4:19 p.m.) 04:19

BY MS. HIGGINS:

Q. Dr. Grove, it's okay if you spoke with your attorneys.

But my question is: Did you speak with your attorneys on the break regarding the 04:19 substance of this matter?

A. No.

Q. Okay. Thank you.

We're going to switch gears to the Lundahl '071 patent. And we can bring it up. I 04:19 think it's also one of the items in your binder.

MS. HIGGINS: We are going to mark as Exhibit 1014 a copy of United States Patent 6,223,071 to Lundahl, et al.

(Deposition Exhibit 1014 was marked for identification.) 04:20

BY MS. HIGGINS:

Q. Dr. Grove, will you let me know when you have the Lundahl patent in front of you?

A. I currently have the hard copy in the 04:20

binder of Lundahl in front of me. And if it's necessary or if you would like me to put the electronic version on my laptop, I can have counsel --

Q. Totally up to you. 04:20

A. I'm perfectly comfortable. The -- the hard copy is actually easier for me.

Q. Okay. So let's -- let's go the way that's easier for you then.

A. Thank you. 04:21

Q. Is the Lundahl '071 patent a patent that's familiar to you?

A. Yes.

Q. And Lundahl that I've just marked as Exhibit 1014, if I refer to that as the '071 patent or Lundahl, you'll know what I'm referring to, right? 04:21

A. Yes, I will. If you refer to it as the '014, I might not immediately recognize it. But if you refer to it as Lundahl or the '071 patent, I'll definitely be on the right page. 04:21

Q. And in the opinions that you rendered in this proceeding you relied on Lundahl, correct?

A. Yes. 04:21

Q. And you relied on Lundahl as the primary reference where you combined Lundahl with Larsen, correct?

A. Lundahl was our primary -- my primary reference, yes. 04:22

Q. And in your combination of Lundahl and Larsen, you used the PDT device of Lundahl, correct?

And if it's helpful, I'm going to refer to you paragraph 118 of your 1312 declaration, which is Exhibit 1015. 04:22

A. I'll take a look since you were kind enough to mention it in my declaration.

And you said that it would be helpful to refer to paragraph what? 04:22

Q. 118.

A. 118. Okay. One moment.

118, I have that in front of me, which is in my declaration, yes.

Q. Okay. And so paragraph 118 of your 1312 declaration states that (as read): A POSITA would be motivated to combine the teachings of Lundahl and Larsen to incorporate the hinged panel LED displays of Larsen into the PDT device of Lundahl. 04:23 04:23

Do you see that?

A. Yes.

Q. And that's your opinion, right?

A. Yes, that's my opinion.

Q. And in your combination of Lundahl -- Lundahl and Larsen, as you state there, you're using the PDT device of Lundahl, correct? 04:23

A. I'm using the device that disclosed in Lundahl where he states this is a device for doing photodynamic therapy, correct. 04:23

Q. Okay. And -- and PDT that's, as you just said, that's Lundahl's photodynamic therapy device, right?

A. Yes.

Q. And in your combination you're making certain modification -- modifications to Lundahl's PDT device, right? 04:24

A. I'm combining the teachings of Lundahl and Larsen in my review here. So there are aspects of Lundahl and aspects of Larsen, which together in my opinion make the '028 patent obvious. 04:24

Q. My question was: Are you making modifications to -- to Lundahl's PDT device? Yes or no? 04:24

MR. LANDMON: Objection to form. Asked and answered.

THE WITNESS: I'm combining the references to -- I'm considering the teachings of Lundahl and Larsen together to form my opinions.

BY MS. HIGGINS:

Q. Okay. Turn to paragraph 129, please.

A. Okay.

Q. Are you there at 129?

A. I am.

Q. It says a POSA -- it says (as read): POSITA was also motivated to modify Lundahl to incorporate LEDs as taught by Larsen rather than the fluorescent tubes.

Right? So in that sentence you say that you're going to be motivated -- or a POSITA is motivated to modify Lundahl, right?

A. That statement I agree with.

Q. Okay. So in fact, your opinion is that a POSA was motivated to modify Lundahl.

That's your opinion, right?

You made modifications?

A. A POSITA would be motivated -- would definitely be motivated to modify Lundahl to

incorporate the LEDs as taught by Larsen.

Q. Okay. Turning to paragraph -- and it's also your opinion that the combination of Lundahl and Larsen replaces the fluorescent bulbs of Lundahl with LEDs. 04:26

That's another modification, right?

A. Yes, it's the combination of those -- the teachings of Lundahl and Larsen, yes.

Q. And so you were modifying Lundahl's PDT device to replace the fluorescent bulbs of Lundahl with LEDs, correct? 04:26

A. I would say that a POSITA would be motivated to do that for many reasons, yes.

Q. And it's also your opinion that Lundahl's system for operating fluorescent tubes would need to be changed to accommodate the electrical needs and design of Larsen's LED panels, right? 04:27

A. Of course.

Q. So let me direct your attention, Dr. Grove, back to the '071 patent. 04:28

A. My placeholder there, yes. I'm back at the '071 patent.

Q. Okay. Which we're also referring to as Lundahl, right? 04:28

A. Correct.

Q. Okay. Please turn to Figure 1 of Lundahl.

A. I have it.

Q. Figure 1 is a front elevation view of Lundahl's illuminator, right? 04:28

A. I would describe it as a top view in Figure 1 of Lundahl's illuminator showing the top in dotted lines of the patient's head with his ears on the left and right. So this is clearly a top view of Lundahl's device. 04:29

Q. Would it be wrong to say that it's a front elevation view of Lundahl's illuminator?

A. I would -- I would not use that term.

Q. Is it a front elevation view of Lundahl's illuminator? 04:29

A. I would describe this as a top view of Lundahl's illuminator.

Q. Okay. That's how you would describe it. 04:29

Do you know how Lundahl described it?

A. If you want to direct me to that paragraph, I can take a look.

Q. Would you agree that Figure 1 is a partial cross-section, front elevation view of 04:29

an illuminator? And I'll point to you column 4, line 60 to 61.

A. Column 4, line 60 to 61.

Yes, I see on column 4 line 59 or 60, I am not sure which, it says that (as read): Figure 1 is a partial cross-section, front elevation view of an illuminator.

I see that, yes.

Q. And you don't dispute that, right?

A. Those -- those are not the words I would use to describe this drawing.

Q. Is that an inaccurate description of Figure 1 in your view?

A. It's certainly a partial cross-section. And perhaps by elevation view Lundahl meant top down. But I would not describe it that way.

Q. Okay. In Figure 2 of Lundahl is a partial cross-section side elevation view of the illuminator shown in Figure 1, right?

A. Figure 2 is the illuminator of Larsen with the figure rotated apparently by the patent drawer to better fit the page.

Q. Does -- does Larsen -- excuse me, does Lundahl say that or is that just your

opinion?

A. If you look at Figure 1, it's clear that the patient represented by the dotted lines is looking into the U-shaped portion of the fluorescent tubes. This is clearly shown in Figure 1 that the U-shaped tubes, which we -- begin at the right ear of the patient, swing around in front of his nose, and then swing around to go behind his left ear, those are all in the plane of the patient's ears. 04:32

And so it's clear that the typical use orientation of the Lundahl device is not as it's shown in Figure 2 with the tubes vertically but as the tubes would be normally used, horizontally. It's a correct figure. It's just rotated unfortunately, apparently to better fit on the page. 04:32

Q. Well, I understand that in your opinion you've rotated the figure.

But I'm asking you, and I pointed to Lundahl column 4 at lines -- looks like 62 where it says (as read): Figure 2 is a partial cross-section, side elevation view of the illuminator shown in Figure 1. 04:33

Is that correct? 04:33

A. That is what the text says, yes.

Q. Do you agree with that?

A. "Figure 2 is a partial cross-section, side elevation view," I think that that description fits a different orientation of the figures. So I would say that that description is not quite correct.

Q. So the Figure 2 description of Lundahl is not correct in your view?

A. It's just not clear. 04:33

Q. What's unclear about it?

A. What's unclear about it is that all of the content of the specification in this patent surrounds a device and a method for treating a patient using photodynamic therapy with the patient oriented so that the tubes wrap around the face and cheeks in order to maximize the uniformity of the illumination. 04:34

Q. I'm not asking about the whole patent. I'm asking about what's shown in Figure 2, okay? 04:34

So is Figure 2 a partial cross-section?

A. Figure 2 is a partial cross-section, correct. 04:34

Q. Okay. And it's a side elevation view of the illuminator shown in Figure 1?

A. No, I don't believe that's correct.

Q. Okay. Is Figure 2 -- Figure 2 has -- let's take tube 10(5). 04:35

Do you see that?

A. I do.

Q. Is Figure 2 showing the whole tube?

A. It shows one end of the tube where the 10(5) is shown. And the -- the other end of 04:35
the tube is apparently indicated by the left-hand portion of the drawing.

Q. What do you mean by that last sentence, that it's apparently indicated by the left-hand portion of the drawing? I'm asking 04:35 about tube --

A. I understand. The -- Lundahl makes it very clear that his device consists of U-shaped fluorescent tubes.

Q. Right. My question is very simply is 04:36 that the full tube? And that's all I want to know.

MR. LANDMON: Objection.

Counsel, he's in the middle of answering your question. You need to let 04:36

him finish his answer.

MS. HIGGINS: I just want to make sure he's answering my question, which is very simply is 10(5) showing the full fluorescent tube? That's the question.

THE WITNESS: It's not clear what is shown in Figure 2 as it relates to the -- the fluorescent tube.

It clearly shows one end as a circle and it shows the other end without a circle. So it -- it is a -- a very unusual representation of a U-shaped tube.

BY MS. HIGGINS:

Q. Okay. I going to call it the -- I'm going to use north, south, east, west, okay?

So the south end of Figure 2, right -- do you know what I'm referring to when I refer to the south end of Figure 2?

A. How about if we refer to the bottom of the page?

Q. Okay. The end of Figure 2 at the bottom of the page, tube 10(5) extends down to the -- to the bottom of the device there, right?

A. Yes, it -- it appears to.

Q. Okay. And do you understand that the

-- the bottom of the tube there has a cathode at that end?

A. That's --

Q. That's one end of the tube there; isn't it? 04:37

A. I don't know what that is. I've been doing mechanical drawings for 40 years. And it's very clear in this patent that Lundahl uses U-shaped tubes that extend from behind one ear of the patient to behind the other end. That is 04:38 **not what I would infer from this drawing.**

Q. Okay. So you don't see any cathodes in Figure 2; is that right?

A. The small rectangle at the bottom of the tube 10(5) may be intended to represent some 04:38 **cathode -- one of the cathode ends. But the drawing is not consistent between the bottom and the top.**

Q. It is -- you would understand, though, that Lundahl's fluorescent tubes are 04:38 going to have electrodes at either ends of them, also known as cathodes, right?

A. Correct.

Q. Okay.

A. At both ends -- 04:39

(Simultaneous speaking.)

BY MS. HIGGINS:

Q. Some end of the tube is going to have -- is going to have a cathode, correct?

A. I'm sorry. I spoke over the first part of your question. 04:39

Q. Sorry. I said the ends of the fluorescent tubes will have a cathode on each end, correct?

A. Yes. 04:39

Q. Is it possible that in Figure 2 that what Lundahl is depicting is a cathode at the bottom of 10(5) in that open circle illustrating that this is only a partial tube because Lundahl Figure 2 says it's a partial cross-section? 04:39

Is that a partial -- a proper reading of this figure?

A. Yeah. Okay. So now -- let's see. If I orient the Figure 2 -- and just give me a moment to help me understand this drawing, which is in a strange orientation. 04:39

If I now interpret Figure 2 as cutting through the Lundahl device in half, as if it were going through the nose of the patient, then I see now that what's intended to 04:40

be shown here is in fact a cathode at one end of the fluorescent tube and a cross-section of that tube at what you might call the top of that figure.

So now I understand the orientation of this drawing and the intention of the draftsman in showing one cathode and only one cathode of this particular tube because it's a cross-section. 04:40

Q. Okay. And so in Figure 2 at the bottom of the figure, take, for example, tube 10(5), there's a cathode at the bottom of Figure 2 in tube 10(5), right? 04:40

A. That would be my understanding looking at the figure. 04:41

Q. And to the left of tube 5, I have tube 6 and 7.

Do you see those?

A. Yes, I do.

Q. And tubes 6 and 7 also have cathodes, correct? 04:41

A. Yes.

Q. And if we could see -- it's obscured. But if we could see tubes 1, 2, 3, and 4, they would also have cathodes at the bottom of 04:41

Figure 2, correct?

A. Yes.

Q. And across the top of Figure 2, we also see the illustrations for the tubes 10(1) through 10(7), right? 04:41

A. In cross-section. That's why you see a circle.

Q. Right. And so I'm seeing -- I'm seeing a part of the fluorescent tubes 1 through 7, right? 04:41

A. Yes, presumably half.

Q. Do you know that it's half or is it less than half?

A. Well, I can -- I can conclude reasonably as an engineer that it is half because the cross-section, which was represented by the circle, is obviously and unquestionably at the top of the arc of the fluorescent tube. And the cathode is unquestionably at the bottom of that tube. 04:42

And therefore this cross-section must have been drawn as if the cut was made through the center of the fluorescent tubes from the top of the arc down to the regions between the cathodes. 04:42

Q. Okay. Let's turn to Figure 4A of Lundahl.

A. I see Figure 4A. Let me -- give me one second here.

Q. And my first question is, Figure 4A is a detailed view of the fluorescent tube shown in Figure 1, right? 04:43

A. Yes. And if you look at Figure 4A, you see a vertical line there that goes through the top of the arc. 04:43

If a cross-sectional drawing were obtained that was a cut through that line, then looking toward that side of the tube you would find a cathode at the bottom and a circle representing the fluorescent tube cut in half at the top, which is exactly what's shown in Figure 2. So the orientation now is clear as to where this cross-sectional view is made. 04:44

Q. Let me see if I can unpack that and understand it. 04:44

So in the arc section of Figure 4A there's a vertical dotted line.

Is that what you were pointing to?

A. Yes.

Q. And you're saying that that's a -- 04:44

that's a cross-section?

A. What I'm saying is that if you do -- if you did a cross-section of that U-shaped tube along that line or if you cut the U-shaped tube along that line and then you looked toward the tube, you would see a representation of the tube where a cathode is at the bottom and an open circle is at the top, which is exactly what's shown in Figure 2. 04:44

Q. Okay. And in your opinion, that would be -- Figure 2 shows half of what is shown in Figure 4A; is that right? 04:44

A. Yes, figure -- Figure 2 shows a cross-section that -- actually shows half of all seven tubes. 04:45

But your statement is generally correct, that the Figure 2 is showing a cross-section that would be the drawing if a cross-section cut were made through, not just one tube, which is all that's shown in Figure 4A, but all seven of the tubes. But yes, you're on the right track here. 04:45

Q. Could it also be the case -- could it be the case that Figure 2 is actually showing not half but less than half of -- of the tube? 04:45

A. No.

Q. Okay. Now, Lundahl's Figure 4A has a central region labeled 10A, right?

A. Yes.

Q. And the central region 10A is the arcuate region located above the horizontal dotted line, correct? 04:46

A. Yeah, the -- the drawing that shows the -- that's indicated by the arrows labeled 10A, I believe was intended by Lundahl to refer to the -- what he calls arcuate or something like that, the curved region of the fluorescent tube. 04:46

And clearly the curved region is longer than just between those two arrows. But the -- I think 10A refers to the arced portion of the fluorescent tubes. 04:46

Q. And that's the portion above the horizontal dotted line, right?

A. Essentially, yes. 04:47

Q. And then Figure 4A also has arms labeled 10A and 10B, right?

Sorry. Sorry. Sorry. I misspoke. Figure 4A has arms labeled 10B, correct?

A. Figure 4A appears to indicate 04:47

portions of the U-shaped fluorescent tube that are straight.

Q. And my question is -- and if it -- if it helps you can look at the patent, column 5.

My question is the tube in Figure 4A has arms labeled 10B, correct? 04:47

A. Okay. I'd have to look and see what 10B is. I'll take you at your word that they say that 10B are arms, which I would interpret to be arms or the straight portions of the fluorescent tubes. 04:48

Q. Okay. And just to make sure here, I'm going to point you to column 5, line 45, of Lundahl.

A. One second. Column 5, line 45. 04:48

Q. And it refers there to (as read): A generally arcuate central region 10A and arms 10B extending from the respective ends of the central region.

Do you see that? 04:48

A. Yes.

Q. So the tube in Figure 4A has arms labeled 10B, right?

A. Yes.

Q. And the arms labeled 10B extend from 04:48

the ends of the central region, as it says in Lundahl, right?

A. Yeah, I would say that the -- that these arms extend from the two cathodes up to the point where the tube begins to curve, which he calls the arcuate region.

Q. And the arms 10B are located below the horizontal line in Figure 4A, right?

A. Correct.

Q. So let's turn back to Figure 1. 04:49

A. Okay.

Q. So in Figure 2 it was referring to 10(1) through 10(7), right?

Tubes 10(1) through 10(7), right, in Figure 2 we saw those labels, right? 04:51

A. Yes.

Q. In Figure 1 there's a 10 -- there's a line to something labeled 10. And when something is labeled -- it's pointing to what it's labeled to, that's a tube, right, that's a fluorescent tube? 04:51

A. Yeah, the --

Q. Item 10.

A. The item 10 points to the U-shaped fluorescent tube and it -- presumably it 04:51

indicates 10 in order to represent I would guess 10(1) through 10(7).

Q. And the cathode's down where it says 42, right?

A. Yes. 04:51

Q. Okay. And Lundahl discloses that it has a reflector 50, right?

And we can see 50 labeled here?

A. Correct.

Q. And Lundahl's reflective 50 is bent 04:51 to approximately conform to the configuration of the tubes 1 through 7, right?

A. Yes.

Q. And Lundahl discloses that the reflector is replaced behind the tubes to 04:52 increase the uniformity of the output distribution, right?

A. As I recall, Lundahl says that the two purposes of the reflector are to -- one, as you said, to improve the uniformity, and the 04:52 **other is to take advantage of the light emitted from the tubes in a direction away from the patient, which are then reflected back onto the patient.**

Q. Please turn to Figure 5B. 04:52

A. I have it.

Q. Figure 5B shows a detailed view of the reflector 50 shown in Figure 1, right?

A. Yes, it does.

Q. And Figure 5B shows bends in the reflector, right? 04:52

A. Yes, they show straight sections of the reflector and then bend points around the arc, correct.

Q. And the reflector is bent into nine sections, correct? 04:53

A. I believe so. One, two, three, four, five, six, seven, eight -- that's correct.

Q. And 5B, Figure 5B, gives a length of each section, right? 04:53

A. Yes. It doesn't indicate the units but it -- I'm guessing that these are units of inches. But yes, it does give a dimension for each of the segments.

Q. Right. And it gives dimensions for each section on the right side. 04:53

And it's your understanding that the left side would mirror those dimensions, right?

A. That I think is a given. The -- the uncertainty at first glance would be whether or 04:54

not the 3.266 dimension at the bottom of this U is 3.266 inches or 3.26 centimeters or 3.266 feet.

But I think based on how it's shown in Figure 1, I think it -- it appears that the units intended for this figure are inches. And it may even say -- I don't know if you look at the description of Figure 5B, perhaps it says that they're shown in inches.

Q. Okay. Do you know -- do you know what the -- what the units are? 04:54

A. I would have to look and see if it -- indeed it says in -- if you point to me where it describes Figure 5B in the specification.

Q. There are -- there are other places where it's pointing to parts of Lundahl and the units are in centimeters. 04:54

Does that indicate to you whether -- what the unit is here?

A. Well, I mean, it's possible. But if the unit 3.266 at the bottom of Figure 5B is in centimeters, that's slightly more than one inch. 04:55

Q. Okay. So you think it's inches; is that right?

A. I think it's inches, yeah. 04:55

Q. Okay. And Lundahl Figure 5 also gives us the angle of each of the bends, right?

A. It gives the angle between segments, yes.

Q. Now, your proposed combination of Lundahl and Larsen and Lundahl, Larsen, Bansal, doesn't include a reflector with nine sections, right? 04:55

A. The combination of -- of Lundahl and Larsen would be the LED panels of Larsen, which have no need for a reflector. 04:56

Q. So in your combination -- it's your testimony that your combination of Lundahl and Larsen and your combination of Lundahl and Larsen and Bansal, that your proposed combinations have no reflector, correct? 04:56

A. If that -- yes, that combination would incorporate the LED panels of Larsen with the particular important aspects of Lundahl. And in that embodiment the use of LEDs rather than fluorescent tubes eliminates the need for any back reflector, as is shown in Figure 5B. 04:56

Q. Okay. We talked about Larsen earlier today. And we went through Larsen's figures and Larsen's Figures 2 showed that there was a 04:57

reflector with each light source, correct?

You're not using Larsen's reflector, right, in your combinations?

A. Those reflectors are totally different for a totally different purpose. The reflector of Lundahl has nothing to do really with the reflectors of the Larsen.

Q. Okay. So you're not using Lundahl's reflector, right?

A. Correct. 04:57

Q. You're changing -- and you're not using Larsen's reflectors?

A. You could put -- sorry. You could put Larsen's reflectors, these little cones, around the LEDs or not. 04:57

In either embodiment, the light out of the LEDs is forward-directed. If you have a fluorescent tube, the light as is -- these are not -- oh, yeah, they are fluorescent tubes -- the light comes out in all directions, in 360 degrees. 04:58

So if you have a patient in front of a fluorescent tube without a reflector, half the light is going toward the patient and the other half of the light is wasted. 04:58

And so what Lundahl correctly identifies and discloses is there's no point in wasting the light heading away from the patient. You can improve the uniformity of the illumination of the patient and you can get all that light that was going the wrong direction redirected toward the patient by putting a reflector, as shown in Figure 5B, behind the curved fluorescent tubes. 04:58

If you have LEDs there's no need for that type of reflector. 04:58

Q. Okay. So you're not using Lundahl's fluorescent tubes in your combination, right, you replace them with LEDs, right?

A. That would be what I believe a POSA would be motivated to do in terms of combining the teachings of Lundahl with the teachings of Larsen. 04:59

Q. Would it -- would it be correct to say that you would include five reflectors matching the number of panels disclosed by Larsen in your combination? 04:59

A. No, there would be no reflectors and no need for reflectors.

Q. Okay. In Lundahl -- if you turn to 05:00

column 9 of Lundahl. There's a section there on -- entitled Cooling Features, which starts at approximately 9.14.

A. Yes.

Q. Is that -- 05:00

A. I see that.

Q. And Lundahl's cooling system has vents in a polycarbonate shield, a reflector, and fans, correct?

A. Yes. 05:01

Q. And in column 7 of Lundahl around lines 25 to 31, Lundahl discloses that it's necessary to heat the -- the fluorescent tubes in Lundahl, right?

A. I'm sorry. Which column and which line? 05:01

Q. So column 7.

A. Yes.

Q. Around line 25.

A. Yes. 05:01

Q. It says that "it's necessary to heat the cathodes to achieve proper tube starting," right?

A. Correct.

Q. So Lundahl's PDT device has a complex 05:02

system of heating and cooling, correct?

A. Those heating and cooling requirements are in -- described in Lundahl as a requirement to maximize the uniformity of the output of the fluorescent tubes. 05:02

Q. And in your combination, you are not using the heating/cooling -- the heating and cooling system of Lundahl as disclosed in column 9, right?

A. As I mentioned, a person of ordinary skill in the art would be motivated to combine these -- the -- the panels of Larsen with some of the important teachings of Lundahl in order to get rid of the complexities of Lundahl. This is one of the complexities that can be eliminated. 05:02 05:03

Q. So you're not -- you're not using -- you're using Lundahl's PDT device but you're not using Lundahl's cooling system, right?

A. We are -- I -- a POSA would not be motivated to -- would have no need for any sort of the cooling system as described or disclosed by Lundahl, that's correct. 05:03

Q. If you changed the heating and cooling system of Lundahl, you're going to 05:03

change how it works?

A. For example, if you eliminated the cooling system described by Lundahl, you would have an increased nonuniformity of emission along the length of the fluorescent tube. And if you eliminated the heating of the cathode, you'd have a much more difficult time initiating light from those fluorescent tubes. Both problems of which are eliminated with LEDs. 05:04

Q. So you're not using any -- you're not using Lundahl's cooling system with -- in your combination, right? 05:04

A. Correct. It's not necessary. Not only is it not necessary, it would be an increase in cost and complexity for no purpose. 05:04

Q. Okay. And that's because Lundahl has a series of features such -- such as the -- the cooling system that has to work -- in order for Lundahl's system to work as he describes in his patent, right? 05:05

A. Lundahl describes the -- the purpose of the cooling to minimize variations in output uniformity along the fluorescent tube. And also the heating I believe is directed toward the cathode regions to improve the ability to start 05:05

the mercury discharge in the fluorescent lamps. None of which is necessary if you have LEDs.

Q. You referred to LEDs.

You would agree with me that an LED's output efficiency decreases as the temperature increases, correct? 05:06

A. That's true.

Q. And change in temperature with respect to a LED can also affect the wavelength, correct? 05:06

A. Only to a negligible extent in this application.

Q. What do you consider negligible?

A. If you have an LED, for example, at 417 nanometers and it gets warm, the wavelength output might shift to 418 or 419 nanometers. 05:06

But for the application of photodynamic therapy, using photosensitizers, the requirement for wavelength specificity is nowhere near that tight. And so the -- the question of heating or cooling -- making sure the LEDs do not overheat is much more directed toward avoiding a reduction in their efficiency. 05:07

Q. Please turn to paragraph 179 of your declaration, which is Exhibit 1015. Actually, 05:09

we'll start with 178.

A. I am at paragraph 178 of my declaration.

Q. And in 178 you have an annotated figure there, correct? 05:10

A. In paragraph 178 I don't see any --

Q. You refer to it in 179 as the annotated figure above.

Do you see that?

A. Oh, yeah. It's actually on the next -- it's at the end of -- sorry, I guess at the end of 178 immediately above 179 on the next page, yes, I see that. 05:10

Q. And this annotated figure, this is a figure that you prepared? 05:10

A. Was prepared for my declaration, yeah.

Q. It was prepared by counsel?

A. Well, no, it was -- it was -- I'm not an artist. It was prepared by a graphic artist in consultation with me and counsel. 05:10

Q. Is that graphic artist somebody who's a member of Polsinelli; do you know?

A. I have no idea.

Q. So you -- you were the one who gave 05:11

the instructions to prepare the annotated figure in 178?

A. There was a discussion between me and counsel as to what a --

MR. LANDMON: Objection. 05:11

Dr. Grove, I just instruct you not to disclose the contents of any communication you had with me.

BY MS. HIGGINS:

Q. You can answer -- you can answer the question. 05:11

MR. LANDMON: You can answer the question yes or no.

THE WITNESS: Okay.

MR. LANDMON: But you cannot disclose the contents of any communications you had. 05:11

BY MS. HIGGINS:

Q. The question was: You were the one who gave the instructions to prepare the annotated figure in 178? That's the question. 05:11

MR. LANDMON: If you can answer the question without disclosing communications you had with counsel, that's -- that's fine.

THE WITNESS: Can I disclose that 05:12

there were -- there were consultations with counsel or is that -- all right. Let me --

MR. LANDMON: I believe you've already disclosed that.

THE WITNESS: Yeah, okay. All right. So --

MR. LANDMON: But I instruct you not to disclose the contents of any communication.

THE WITNESS: Okay.

BY MS. HIGGINS:

Q. So let me just say, so you're following your counsel's instructions not to disclose what counsel told you do to in connection with this figure, right?

A. I'm not saying -- there's nothing that counsel told me to do or didn't tell me to do. I'm not talking about communications at all with counsel.

Q. Okay.

A. I'm telling you that the content of this figure is a result of my belief and my understanding and my motivation and my expectation for success in combining Lundahl and Larsen to combine the LEDs of Larsen and the

panels of Larsen with the light distribution disclosed by Lundahl. That's what's shown in this figure.

Q. Okay. What instructions did you give the graphic artist? 05:13

A. I don't recall any specific instructions, any detailed instructions.

Q. Did you instruct the graphic artist to color the circles yellow?

A. I don't recall any details of that sort of conversation. 05:13

Q. Did you instruct the graphic artist about where to place the yellow circle in the annotated figure?

A. No. 05:13

Q. Did you give dimensions to the graphic artist about the -- the panels or the yellow circles in the figure?

A. No.

Q. In paragraph 178, which contains an annotated figure, you say that you are, number one, incorporating the hinged panels of Larsen into the PDT device of Lundahl. 05:13

Do you see that?

A. I do. 05:14

Q. And that's what you did, you incorporated the hinged panels of Larsen into the PDT device of Lundahl?

A. The paragraph says that (as read:) As discussed in the motivation to combine section, a motivation existed to combine the teachings of Lundahl and Larsen to: among other things, incorporate the hinged panels of Larsen into the PDT device of Lundahl to increase the adaptability of the device. 05:14

And this -- this motivation could result in an illuminator looking something like what is shown at the top of page 67.

Q. Okay. And it says there -- and I'm just -- want to make sure I got this right -- it says that in your annotated figure, you're incorporating the hinged panels of Larsen into the PDT device of Lundahl, right? 05:15

That's what you're doing?

A. That is what's stated here. 05:15

Q. Okay. And then in number 2 you say that you are replacing the fluorescent bulbs of Lundahl with LEDs, right?

A. Correct.

Q. Okay. Are those yellow circles 05:15

supposed to be the LEDs?

A. Yes.

Q. And does the -- are the yellow circles -- is the yellow supposed to indicate the light emitted from those LEDs? 05:15

A. Yep.

Q. And when I asked you the question, you said among other things.

So what were the "among other things" that you were referring to in your combination of Lundahl and Larsen? 05:16

A. I believe when I said among other things I read that (as read): A motivation existed to combine the teachings of Lundahl and Larsen to, among other things, incorporate the hinged panels of Larsen into the PDT device of Lundahl to increase the adaptability of the device.

"The other thing" that I was referring was the second half of that, if you will, is to replace the fluorescent bulbs of Lundahl with LEDs. 05:16

Q. Okay. So below the figure in paragraph 179.

A. The paragraph 179? 05:17

Q. Yes.

A. Yes, I see 179.

Q. It says -- it says there that you are maintaining the same length distribution pattern Lundahl utilized for the fluorescent bulbs. 05:17

Do you see that?

A. I do.

Q. Okay. And you go on to refer to incorporate the uneven spacing of light sources of Lundahl. 05:17

Do you see that?

A. Yes.

Q. Okay. So can you -- can you turn to Lundahl at column 6, line 48, please?

So 48 to 55 -- column 6, 48 to 55, 05:18 that's what I want to ask you about.

A. Give me a moment to read those lines, if I may.

Q. Sure. And the question that I'm going to have for you is this uneven spacing of 05:18 Lundahl that you were referring to.

That's the spacing referred to in column 6 of Lundahl?

A. Yes. The general concept is -- is that, correct. 05:18

Q. Okay. So why don't you keep that in front of you.

And there in column 6 starting at line 48, it -- it gives -- Lundahl gives a disclosure of lateral spacing, right? 05:19

Do you see that?

A. It gives a disclosure. He states the lateral spacing of his tubes in his fluorescent tube version of an illuminator.

Q. Right. And you're saying that you 05:19 are incorporating the uneven spacing of light sources of Lundahl, right?

That's what you say you're doing?

A. Yes.

Q. So you're incorporating Lundahl's 05:19 spacing in your combination, right?

A. I'm incorporating the motivation and the concept of Lundahl's uneven space into LED panels as proposed by Larsen. That does not mean that that's exactly that dimension. 05:19

Q. Okay. Let's look at the dimensions, okay? I want to look at the dimensions here.

A. Are you referring to perhaps --

Q. So I'm referring to column 6.

A. Yeah. Line 50? 05:20

Q. Starting with where it's talking about approximate lateral spacing, okay? And let's -- let's look at Figure 2, if we could bring up Figure 2 of -- of Lundahl.

So we talked about Figure 2 of Lundahl before, right? 05:20

A. We did.

Q. And you're familiar with this Figure 2 and its disclosure, right?

A. Yes. 05:20

Q. So in Figure 2 of Lundahl, if I'm looking at what it tells me about -- about the spacing here, at line 54 it says "the outermost tubes 10(1) and 10(7) are approximately 2.5 centimeters from the edge of housing," 05:21 right?

A. Yes, I believe so. I'm looking at the figure but that looks about right.

Q. Okay. And so on the left-hand side of Figure 2, we have a tube 7, right? 05:21

A. And a tube 6, both, yes.

Q. And a tube 6.

And so when it's talking about -- I want to start with the sentence that says -- let's start with the "outermost tubes 10(1), 05:21

10(7) are approximately 2.5 centimeters from the edges of the housing." So it's talking about tube 1 and tube 7 being 2.5 centimeters from the edges of the housing.

So if I look at tube 7 on the left side, right, it's saying that tube 10(7) is 2-1/2 centimeters from the left of -- of the figure from the -- the left as it says in Lundahl, the edge of the housing, right? 05:22

A. Yes. That corresponds to the top and the bottom of the illuminator.

Q. In Figure 2, which is what I'm asking about --

A. Yes.

Q. -- we're talking about -- I was asking about Figure 10 -- 10(7), right? 05:22

A. Tube 10(7). Tube.

Q. Yeah. And 10(7) is 2.5 centimeters, according to Lundahl, from the edge of the housing, right? 05:23

A. That's right.

Q. Okay. Now on the right-hand side there's a tube 10(1), right?

A. Yes.

Q. And Lundahl says that tube 10(1) is 05:23

2.5 centimeters from the right side of the housing, right?

A. In the orientation of Figure 2.

Q. That's what I'm asking about. I'm asking about the orientation of Figure 2. 05:23

A. And I'm -- to be clear, in Figure 2 the tube 10(7) is the distance you mentioned, I believe 2.5 centimeters from the left edge, and tube 1, 2.5 centimeters from the right edge in the orientation of this illuminator as depicted in Figure 2. 05:23

Q. Okay. And then Lundahl talks about -- discloses that the distance between tubes 1 and 2 is 3.5 centimeters, right?

A. Are you back in tube 6? 05:24

Q. I am. It says 3.5 centimeters between tubes 2 -- 10(2), 10(1), and 10(6), 10(7).

That's what it says in Lundahl?

A. At line 53, that's correct, uh-huh. 05:24

Q. So the distance between Lundahl's 10(1) and Lundahl's 10(2) is 3.5 centimeters, right?

A. If that's what it says. Let's see if I can find -- the outermost tubes -- it says (as 05:24

read): The outermost tubes 10(1) and 10(7) are approximately 2.5 centimeters from the edges.

You were -- you were --

Q. Right above that -- right above that at line 52, it says "3.5 centimeters between tubes 10(2), 10(1)." 05:24

Do you see that?

A. Yes, I do.

Q. So the distance between tube 10(1) and 10(2) is 3.5 centimeters, right? 05:25

A. Right. Not 2.5 but 3.5, yes.

Q. 3.5 centimeters, right?

A. Yeah, correct.

Q. Okay. And then following Lundahl's disclosure, Lundahl -- Lundahl discloses that between tubes 3 and 4 there's a distance of 7 centimeters, right? 05:25

Look at -- look at line -- about line 48 where it talks about the spacing, 7 centimeters between, for instance, the center tube and each of the two tubes 10(3), 10(5)? 05:25

A. Yes, uh-huh.

Q. So between tubes 3 and 4 there's 7 centimeters, correct?

A. Between tube -- yeah, in each of the 05:26

tubes, yes, that appears to be correct.

Q. Between 3 and 4 there's 7 centimeters, correct?

A. That appears to be correct.

Q. And between tubes 4 and 5 there's 7 centimeters, correct? 05:26

A. Correct.

Q. And between tubes 5 and 6 there's 3-1/2 centimeters, correct?

A. I believe that's what it says. 05:26

Q. And between tubes 6 and 7 there's 2-1/2 centimeters, correct?

A. Correct.

Q. Sorry. I have that -- I have that wrong. Let me -- let me do that again. 05:26

So between 3 and 4 there's 7 centimeters, correct?

A. Well, since you misspoke I'm going to read it more carefully this time.

Q. I misspoke at the 2.5. It's 3.5. 05:26

So between tubes 3 and 4 it's 7 centimeters, correct? That's -- that's at line -- column 6, line 48.

A. It says, starting with the sentence above, (as read): Optimum output distribution 05:27

has been found to occur when seven tubes are placed in the chassis in a symmetric pattern with respect to the opposite edges of the unit -- that means the top and the bottom -- with the following approximate lateral spacing. 05:27

And it uses the term "lateral" in connection with the specific orientation of Figure 2. So that means the side-to-side spacing as depicted in Figure 2.

(As read): 7 centimeters between the center tube and each of the two tubes 10(3) and 10(5). 05:27

That's 7 centimeters.

Q. So between tubes 3 and 4, that's 7 centimeters, right? 05:27

A. Yeah, that's correct.

Q. And between 4 and 5, that's 7 centimeters, right?

A. That's correct.

Q. And then between 1 and 2, we already said that's 3-1/2 centimeters, right? 05:28

A. I believe so, yeah.

Q. And then between 6 and 7, that's 3-1/2 centimeters, right?

A. Yeah, correct. 05:28

Q. And then we said from tube 1 to the edge it's 2-1/2 centimeters, right?

A. Right.

Q. Okay. Now, so those are the distances between tubes that are -- that are disclosed in Lundahl, correct? 05:28

A. Those are the distances, the spacing, between the tubes disclosed in the specification of Lundahl, correct.

Q. Did you use that spacing in your combination of Lundahl and Larsen? 05:28

A. We did not use those specific spacings between fluorescent tubes for the obvious reason that we're not using fluorescent tubes. 05:29

What we did draw from Lundahl is his understanding that in these U-shaped tubes around a patient's head, that near the top and the bottom of that illuminator you would want to have a higher intensity from the light sources. 05:29 **And Lundahl achieves that with his fluorescent tubes by having the two tubes along the top and the two tubes along the bottom be close together near the top and bottom edges.**

Q. Lundahl says that -- I'm sorry. Are 05:30

you finished?

A. No.

Q. Okay.

A. The way to implement that with LEDs is to put more LEDs along the top edge of an arced section of panels and along the bottom edge of an arced section of panels to gain the benefit of the insight of Lundahl to improve uniformity by having a greater output of light near the top part of the arc and the bottom part of the arc around a patient's face and head.

Q. Okay. And the way that Lundahl achieves what you just said is through the number of tubes used and the spacing between them. And I'm reading from column 6, line 43.

That's one of the things that Lundahl does to achieve that, right?

A. The spacing of the tubes, yeah. I'm not at column 6, line 43. Let me take a look.

(As read): The number of tubes used in the spacing between them were chosen to achieve desired uniformity.

Yes.

Q. And that's the spacing that we just discussed, right?

A. The spacing of the fluorescent tubes, correct.

Q. And you're not using that spacing in your combination?

A. We're not using fluorescent tubes. 05:31

Q. I understand you're not using fluorescent tubes.

Your opinion is that you're replacing them with LEDs, correct?

A. We're replacing the seven tubes -- the seven fluorescent tubes of Lundahl with an LED panel. And we're incorporating the insights of Lundahl to design the LED panel so that it has a greater output near the top and bottom of the panels. 05:31 05:32

Q. So you -- as you say in your report, you're modifying Lundahl's PDT device to replace the fluorescent tubes with LEDs, right?

That's what you're doing?

A. Yes. 05:32

Q. Okay.

A. And to incorporate the teachings of Lundahl into the placement of those LEDs.

Q. Okay. But those teachings don't include the spacing as disclosed in Lundahl is 05:32

what you just told me, right?

A. No, that's not what I said.

Q. Okay.

A. When I said --

Q. Are you using the spacing of Lundahl that we just went over in your combination of Lundahl and Larsen? 05:32

A. It wouldn't be possible to use the spacing of fluorescent tubes of Lundahl given that this device that combines them doesn't have fluorescent tubes. 05:32

Q. Okay. So it's not possible to use the distances -- so -- so in your combination, you took seven -- you took seven tubes, right, tubes 1 through 7, and you replaced them with seven rows of LEDs, right? 05:33

A. No, no.

Q. That's not what you did?

A. No.

Q. Okay. Can you go to your annotated figure in paragraph 178? 05:33

A. Yes.

Q. Okay. Your annotated figure in 178, that's -- that's your depiction of your combination of Lundahl and Larsen, right? 05:33

A. The figure shown here shows LEDs that are more closely spaced at the top and the bottom of the illuminator. And in this particular depiction of how Lundahl and Larsen might be most effectively combined, it happens to show two, five -- seven horizontal rows of LEDs, which that number happens to correspond to the seven horizontal U-shaped fluorescent tubes of Lundahl. 05:33

But that does not mean that -- that in order to combine the teachings of Lundahl with Larsen there would have to be seven rows of LEDs. There could be eight rows or nine rows. Presumably some -- yeah, could be -- could be any number of rows. 05:34

The point of -- of Lundahl is to have a higher intensity near the top and bottom edges of this arc, whether that arc is created by -- if it's with fluorescent tubes, they are U-shaped fluorescent tubes that are separated by the spacing taught by Lundahl. 05:34

And if they are LED panels that are folded to mimic this U-shaped -- U-shape of Lundahl, then either more LEDs would be placed along the upper and lower edges of those hinged 05:35

panels or you could even have uniform spacing of LEDs that drive the LEDs along the upper region and the lower region of those panels with a higher current to produce the same result, which is a higher intensity near the top and bottom of the illuminator.

Q. Okay. I want to talk about the figure -- the annotated figure that you put in your report that you indicated demonstrates a rendering of the combination of Lundahl and Larsen. So let's -- let's talk about the annotated figure in paragraph 178. 05:35

The annotated figure in 178 has seven horizontal rows of LEDs, right?

A. Correct. 05:35

Q. Right. You don't have another figure in here that has eight or nine rows, like you just said, in your opinion? That -- that sounds like something I haven't heard before.

Is that in your report? 05:36

A. I don't believe so. This is a depiction it says in 179.

It says (as read): The annotated figure above demonstrates a rendering where the -- whereby the hinged panels and LEDs taught by 05:36

Larsen are incorporated into the device of Lundahl while maintaining the same light distribution pattern Lundahl utilized for the fluorescent bulbs, as shown in Figure 2 above and in the accompanying disclosure. 05:36

It does not say that this is the only way that LEDs could be distributed to achieve the light distribution pattern of Lundahl.

Q. So when you opine that you were incorporating the uneven spacing of light 05:36 sources of Lundahl, that didn't involve -- it didn't involve taking -- taking the seven -- the seven tubes and making seven rows of LEDs as shown in the annotated figure, right?

MR. LANDMON: Objection. 05:37 Mischaracterizes testimony.

THE WITNESS: It could. The figure in 178 is a potential embodiment of this concept of combining the teachings of Lundahl with -- with Larsen. But it was 05:37 never intended, nor is it stated, that this is the only means that that could be achieved.

BY MS. HIGGINS:

Q. Certainly in your opinion, this 05:37

embodiment and, as I just heard you refer to it, this annotated figure --

A. Yes.

Q. -- represents what you are saying you would get when you combine in your view Lundahl and Larsen, right? 05:38

A. No, that's not what I said.

Q. Okay. So it's not -- it's not a depiction of the combination that a person would get when combining the teachings of Lundahl and Larsen. 05:38

A. That's not my --

Q. That's not why this is here?

A. That statement is also incorrect.

Q. What is -- what are you showing in -- in your annotated figure? 05:38

A. I am showing a concept of a set of five hinged panels with LEDs, which are the teachings of Larsen. And I'm showing in the drawing closer spacing of the top and bottom pairs of rows in that figure, which mimics quite reasonably the tube spacing of Lundahl. 05:38

There's actually a figure in my -- a photograph in my declaration I think that shows that, that makes it clear that that's the case. 05:39

But as I said now twice, this was never intended to mean that it is the only possible arrangement of LEDs that could effect the hinged -- a combination of the hinged panels and LEDs taught by Larsen as incorporated into a device of Lundahl. 05:39

Q. Okay. I think you're just referring to paragraph 177. And there's a picture there of the Lundahl device.

Do you see that? 05:39

A. I do.

Q. Do you know what the spacing is between the tubes there?

A. Yes, I have every reason to believe that they are precisely the spacings disclosed by Lundahl in his patent. 05:40

Q. And that's the spacing that we just reviewed in column 6 of Lundahl, right?

A. Yes, I -- yes, that's correct.

Q. And so the number of tubes in the spacing is one of the factors that goes into how Lundahl achieves his invention, right? 05:40

A. The crux of Lundahl's invention is that, you'll see in that photograph, that the tubes are more closely spaced at the top and the 05:40

bottom of the illuminator as described in the dimensions disclosed by Lundahl.

If you look at the -- the concept of an LED panelled version that incorporates those teachings of Lundahl, you'll see that there are two rows of LEDs close together at the top and the bottom of the hinged panels, which looks remarkably similar to the close spacing of the fluorescent tubes at the top and the bottom of Lundahl's device. 05:40 05:41

Q. Okay. Let's look at your annotated figure in paragraph 178.

A. Yes.

Q. You were meaning to depict that -- I'm going to start at the -- what you have -- what is the bottom of the device on the left-hand side, okay? So the left-hand panel, I'm going to start at the south end.

Are you with me?

A. I'm looking at the figure at the end of paragraph 178. And you're referring, I gather, to the bottom portion of that left-hand panel that has a notation of second edge.

Is that what you're directing me toward? 05:41 05:41

Q. Yeah. And so let's just say that on that left-hand panel there's seven horizontal rows, right?

A. There are depicted in this representation seven rows of LEDs, right. 05:42

Q. Okay. Let's start at the north end, if I call that row 1 and I go down and I say row 2, row 3, row 4 -- there's seven rows there and I can think of them as row 1 through row 7, going from the north end to the south end, 05:42 right?

A. Rather than refer to the compass orientations, since we are both aware that this panel is wrapped around a patient's head, I would prefer to call the top of the panels and 05:42 **the bottom of the panels.**

And analogously in Lundahl's device, the top of the U-shaped illuminator, which is where the tubes are close together, and the bottom of the illuminator, where the tubes are 05:42 **all close together, just so we have the same nomenclature.**

Q. Does Lundahl use the word "top"?

A. I don't -- I don't recall. I think Lundahl uses the words -- he uses some words, 05:43

for example, lateral spacing, only to correlate with the rotated figure in Lundahl's patent.

But the way that that figure is oriented is 90 degrees from the -- the cover figure of Lundahl's patent, which shows a person's head from the top down with the tubes wrapped around his head. 05:43

So because the figure, Figure 2 I believe it was, was oriented by someone on its side, it forced Lundahl to refer to lateral spacing of the tube. But if you look at this figure, you'll see that -- 05:43

Q. It's very simple. I'm willing to adopt what you're calling it.

But to be clear, that's your words, top and bottom, not Lundahl's, right? 05:43

A. Yeah, I believe that's correct.

Q. So let's just -- let's just call these, starting -- starting from your words, the top of the left-hand panel, that's row 1. 05:44

I have through row 7, okay?

A. Yes.

Q. Okay. Now, at what you're calling the top of the panel row 1, we have, as you've depicted it, five LEDs there, right? 05:44

A. Yes.

Q. Okay. And in row 1, what is the dimension in your combination between row -- row 1 and the top edge of the panel?

A. In this drawing, which is -- 05:44

Q. In your combination, as -- as you would like the board to consider it, what is the dimension between row 1 and the top edge of the panel?

A. The distance between row 1 and row 2 is the same distance as between row 6 and 7. And the -- the key point here is that rows 1 and 2 are much closer together than rows 3, 4, and 5, as is depicted in this drawing. 05:44

There are no dimensions in this drawing. But what is clear from the drawing, that there is an increase in light output by putting those two top rows close together near the top edge and the two bottom rows close together near the bottom of this illuminator, which is the placing of the LED rows that mimics very closely the spacing of the tubes in Lundahl's device. 05:45

Q. Okay. That's exactly what I want to talk about. I want to talk about the spacing 05:45

here, okay? So I asked you about the row 1 and the top of the device, okay?

In Lundahl there is 2.5 centimeters from row 1 to the edge of the device, as we discussed, right? 05:46

A. Yeah, yes.

Q. In your combination, between row 1 and the edge of the device, are there 2.5 centimeters?

A. There could very well be. 05:46

Q. Okay. Between rows 1 and 2, Lundahl says there's 3.5 centimeters?

A. There -- yeah, between rows 1 and 2, between his fluorescent tubes --

Q. Yeah. 05:46

A. -- that same dimension -- that same separation could be incorporated into LED panels consisting of rows, yes.

Q. And that's -- that's what you had in mind in your combination, 3.5 centimeters 05:46 between rows 1 and 2, right?

A. No. This is not an engineering drawing of a -- of a schematic to build an illuminary.

This is a conceptual drawing that 05:47

highlights the key concept of Lundahl, which is a greater intensity of light near the top and the bottom edges of the illuminator. Whether the spacing is 2.5 centimeters or 2 or 1.9 is not the point of this drawing. 05:47

Q. Okay. I'm still going to ask my questions, though.

So you don't agree that the spacing between rows 1 and 2 in your depiction of the combination of Lundahl and Larsen is 3.5 centimeters? 05:47

MR. LANDMON: Objection. Asked and answered.

THE WITNESS: I didn't say that.

BY MS. HIGGINS: 05:47

Q. What is -- what is the distance between rows 1 and 2 in your proposed combination of Lundahl and Larsen?

MR. LANDMON: Same objection.

THE WITNESS: The dimensions -- or the distances, perhaps a better word -- between the top edge and the row of LEDs closest to the top edge, the distance between the first two rows and the other analogous distances between the rows is not 05:47 05:48

defined in the drawing.

What is defined in the drawing or what is shown, and the intent of the sketch, if you will, is to show that to combine the teachings of the LEDs of Larsen and the device of Lundahl, LEDs should be placed with the rows concentrated -- with two rows or three rows concentrated near the top and the bottom edges of the panels and a wider spacing of perhaps three rows in the middle portion of the panel. 05:48

That is the intent of this drawing, which I think very clearly highlights this combination. Whether the -- the two top rows of LEDs, for example, are any particular distance is not relevant and not shown in the drawing. 05:49

BY MS. HIGGINS:

Q. Okay. But I'm still going to ask the question. 05:49

So -- so it would be incorrect to say that in your combination of Lundahl and Larsen, the spacing between LED rows 1 and 2 is not 3.5 centimeters?

MR. LANDMON: Same objection. 05:49

THE WITNESS: That statement is not correct. That is not correct.

BY MS. HIGGINS:

Q. In your annotated figure, what is the spacing between rows 2 and 3? 05:49

MR. LANDMON: Same objection.

THE WITNESS: It's not -- it's not shown.

BY MS. HIGGINS:

Q. And do you have an opinion of what that spacing is in your combination of Lundahl and Larsen? 05:49

MR. LANDMON: Same objection.

THE WITNESS: I could give you an example of the spacings. 05:50

BY MS. HIGGINS:

Q. Okay. Lundahl teaches that the spacing between 2 and 3 is 5 centimeters.

Is -- is that distance a distance that works for LEDs? 05:50

A. The -- the -- so are you asking would it be possible or reasonable to have the spacing between row 2 of the LEDs and row 3 of the LEDs to be the same spacing as the spacing between fluorescent tube 2 and fluorescent tube 3 in 05:50

Lundahl?

Q. My question -- yes.

A. Yes, it very well could be.

Q. So move down to rows 3 and 4.

A. Okay. Of the LEDs? Yes. 05:51

Q. Yes.

Lundahl's spacing in the LEDs -- Lundahl's spacing between 3 and 4 is 7 centimeters.

A. You mean the spacing between the fluorescent tubes? 05:51

Q. Yes.

A. If the spacing between the third tube from the top and the fourth tube from the top is 7 centimeters disclosed in Lundahl, then that would be a reasonable spacing between rows 3 and 4 of the LEDs. 05:51

Q. So we talked about a spacing of 7 centimeters between rows 3 and 4 and 5 centimeters between rows 2 and 3. 05:52

Is that how you've depicted it here in your drawing with different spacing? So it looks to me like your spacing between rows 2 and 3 and 3 and 4 are similar.

A. Not quite. But again, this is not 05:52

intended to be an engineering drawing. The -- the intent is to highlight the key aspect of Lundahl, the teaching of Lundahl, to produce a higher intensity from the illuminator near the top and bottom edges. 05:53

And Lundahl does that with the spacing that you've described of his tubes. And the drawing showing the yellow circles representing rows of LEDs closely approximates that spacing. 05:53

Could it be exactly Lundahl's spacing? Sure. Could it be somewhat different from that spacing? Yes, absolutely. As long as the LEDs are arranged either so that there is bunching of the rows near the top and the bottom, as is depicted in this figure, or by having a uniform spacing of LEDs but driving the LEDs along the top and the bottom edges at a higher current to produce the same result, that is a higher intensity of the illuminator near the top and bottom edges of the illuminator. 05:53

Q. Now, you're not -- you're not doing what you just said with a uniform panel of LEDs, right?

You say to maintain the light 05:54

distribution pattern of Lundahl, right?

So that's not -- that's not a uniform grid of LEDs, right? Let's just make sure of that.

A. The drawing here that I depict at the bottom of 178, you are absolutely correct, does not show a uniform distribution of LEDs.

But the concept of Lundahl --

Q. Let's stop right there, okay? 05:54

MR. LANDMON: Counsel, I mean, you need to let him answer your questions.

Assuming you were just striking your last question, I'm okay stopping right there.

MS. HIGGINS: I'm not -- I'm not striking my last question. 05:54

BY MS. HIGGINS:

Q. If you have more to say, go ahead and say it.

A. Yes. Can you repeat the question, please, or the comment? 05:54

Q. Right. My -- my question is -- you -- you were giving two examples and my question is, as you say -- so can you turn to paragraph 179, please? 05:55

A. I'm there.

Q. Okay. And 179 is talking about your annotated figure above, correct?

A. Yes.

Q. And in that paragraph you say that you're maintaining the same light distribution pattern that Lundahl utilized for fluorescent bulbs, correct? 05:55

A. Yes.

Q. And you state that you're incorporating the uneven spacing of light sources to Lundahl, correct? 05:55

A. Yes.

MS. HIGGINS: Let's take a break if it's a good time for you guys. It's a good time for me. 05:55

THE WITNESS: All right. Thank you.

(Whereupon, a recess was taken from 5:55 p.m. to 6:06 p.m.)

MS. HIGGINS: We have no further questions and -- we have no further questions at this time. 06:06

MR. LANDMON: Why don't we go off the record. But it should be like no longer than a few minutes. 06:06

THE STENOGRAPHER: We're off the record at 6:06 p.m.

(Whereupon, a recess was taken from 6:06 p.m. to 6:09 p.m.)

THE STENOGRAPHER: We're back on the record at 6:09 p.m. 06:10

MR. LANDMON: Thank you. We have no questions.

MS. HIGGINS: Then I guess we are done at this time. 06:10

Thank you very much, Dr. Grove, for your attendance and cooperation with us today. It's appreciated.

THE WITNESS: Thank you very much as well. 06:10

(Time concluded: 6:10 p.m.)

ACKNOWLEDGMENT OF DEPONENT

I, _____, do hereby. acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct and complete transcription of the testimony given by me, and any corrections appear on the attached Errata Sheet signed by me.

_____ _____

(DATE) (SIGNATURE)

NOTARIZATION (If Required)

State of _____

County of _____

Subscribed and sworn to (or affirmed) before me on this _____ day of _____, 2025, by _____, proved to me on the basis of satisfactory evidence to be the person who appeared before me.

Signature: _____

(SEAL)

CERTIFICATE OF REPORTER

I, Janice M. Kocek, Certified Shorthand Reporter, Certified LiveNote Reporter, and Notary Public in and for the State of Illinois, County of Cook, the officer before whom the proceedings were taken, do hereby certify that the foregoing transcript is a true and correct record of these proceedings; that said proceedings were taken in Stenotype notes by me on the 13th day of May, 2025, via Zoom videoconferencing commencing at 10:58 a.m. EST and ending at 6:10 p.m. EST.

I further certify that present on behalf of Petitioners Biofrontera Inc., Biofrontera Bioscience GMBH, Biofrontera Pharma GMBH, and Biofrontera Ag were Chad Landmon, James Murphy, Corey Casey and Megan Hart of Polsinelli PC; and present on behalf of Patent Owner Sun Pharmaceuticals Industries, Inc. were Gabrielle Higgins and Bridget Belcher.

I further certify that I am not related to, nor associated with any of the parties or their attorneys, nor do I have any disqualifying

interest, personal or financial in the actions within.

Dated this 15th day of May, 2025, County of Cook, City of LaGrange Park, Illinois.



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CSR NO. 084-002871

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