

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 -----

5
6 CAMBRIDGE INDUSTRIES USA, INC.

7 Petitioner

8 v.

9 APPLIED OPTOELECTRONICS, INC.

10 Patent Owners
11 -----

12
13 Case: IPR2025-00437

14 VIDEOTAPED VIDEOCONFERENCE DEPOSITION OF

15 ALAN E. WILLNER, PHD
16

17 THURSDAY, FEBRUARY 19, 2026
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23 Reported by: Monice K. Campbell, CRR, RMR,

24 NV CCR No. 312, CA CSR No. 14171

25 Job No.: 7827856

Page 1

1 VIDEOCONFERENCE DEPOSITION OF ALAN E. WILLNER,
2 PhD, held remotely, on Thursday, February 19, 2026,
3 at 10:04 a.m., before Monice K. Campbell, Certified
4 Court Reporter, in and for the State of California.

5
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I N D E X

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THURSDAY, FEBRUARY 19, 2026

10:04 A.M.

* * * * *

THE VIDEOGRAPHER: Good morning. We are on the record at 10:04 a.m. on February 19th, 2026. Please note that this deposition is being conducted virtually and the quality of the recording depends on the quality of the camera and the internet connection of the participants.

What is seen from the witness and heard on screen is what will be recorded. Audio and video recording will continue to take place unless all parties agree to go off the record.

This is Media Unit 1 of the video-recorded deposition of Dr. Alan Willner in the matter of Cambridge Industries USA, Inc., versus Applied Optoelectronics, Inc., filed in the United States Patent and Trademark Office before the Patent Trial and Appeal Board, case number IPR2025-00437.

The location of this deposition is via Zoom remote meeting. My name is Terrence

1 Weiss representing Veritext Legal Solutions,
2 and I'm the videographer. I am not related
3 to any party in this action, nor am I
4 financially interested in the outcome.

5 If there are any objections to
6 proceeding, please state them at the time of
7 your appearance.

8 Counsel and all present will now
9 state their appearances and affiliations for
10 the record, beginning with the noticing
11 attorney.

12 MR. WORLEY: Hello. Good morning,
13 good afternoon. This is Regis Worley on
14 behalf of Cambridge Industries USA,
15 Incorporated, Petitioner in the matter.
16 Joining me today is Nicola Pisano, also
17 counsel of record, and expert witness
18 Dr. Andrew Kirk is joining us as well.

19 MS. CAROTHERS: This is Jo Dale
20 Carothers with Weintraub Tobin, counsel for
21 Applied Optoelectronics, Inc. With me is my
22 colleague, Eric Caligiuri, also of Weintraub
23 Tobin, and Youngun Kim, a patent agent at
24 Applied Optoelectronics.

25 THE VIDEOGRAPHER: Will the court

1 reporter please introduce yourself and
2 administer the oath to the witness and
3 counsel may proceed.

4 THE COURT REPORTER: Good morning.
5 Monice Campbell, court reporter number 14171,
6 in the state of California.
7 Whereupon,

8 ALAN E. WILLNER, PHD,
9 having been affirmed to tell the truth, the whole
10 truth, and nothing but the truth, was examined and
11 testified as follows:

12 EXAMINATION

13 BY MR. WORLEY:

14 Q. Good morning. Would you please
15 state your full name for the record.

16 A. Allen Eli Willner.

17 Q. And, Dr. Willner, you hold the
18 position of Distinguished Professor of
19 Electrical and Computer Engineering at the
20 University of Southern California, correct?

21 A. Yes.

22 Q. And you've been retained as expert
23 in photonics by AOI, the patent owner in this
24 matter, correct?

25 A. I've been retained as an expert in

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1 this matter.

2 Q. Do you have an understanding of what
3 field of expertise you've been asked to opine
4 in?

5 A. I've been retained as an expert on
6 this matter.

7 Q. I see.

8 How many times have you been
9 retained as an expert witness in the last
10 five years?

11 A. I'd have to guess. I'd have to go
12 from memory. I've been retained probably a
13 few times.

14 Q. And when you say "a few," is that
15 more than five?

16 A. I'd be guessing.

17 Q. Well, you have been retained at some
18 point in the past five years in -- as an
19 expert witness, correct?

20 A. Correct.

21 Q. And you recall being retained as an
22 expert witness, correct?

23 A. Correct.

24 Q. So it's more than a guess; you do
25 have some knowledge to answer the question;

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1 isn't that correct?

2 A. Oh, I believe that your question was
3 about a number.

4 Q. It is about a number.

5 A. And so the number in order to be --
6 give you an accurate number, or even to know
7 what is above or below, I -- that would be
8 the sort of guess.

9 Q. Well, I don't want you to guess.

10 A. Is it more than 2? I would say,
11 yes, it's more than 2. Is it less than 10?
12 I think it's less than 10. More than that, I
13 couldn't -- I couldn't really narrow it down
14 much more than that without looking at -- at
15 what my records show.

16 Q. Okay. So I guess we are getting
17 caught up in semantics. So instead of
18 guessing, your estimate is somewhere between
19 2 and 10?

20 A. I'd say that's a fair statement that
21 it's as a -- as an estimate could be between
22 2 and 10.

23 Q. Thank you.

24 Have you ever had your deposition
25 taken before?

1 A. Yes.

2 Q. When was that?

3 A. I've had my deposition taken many
4 times over my career. So when you say
5 "when," are you referring to a specific
6 instance?

7 Q. Well, let me ask a different way.
8 What's your best estimate of how many times
9 you've had your deposition taken?

10 A. I'd say it could be -- I could be
11 off by a factor of 2, but I'd say about 25
12 times, but I could be off by a factor of 2.

13 Q. That's fair. And it's not a memory
14 test. I'm just looking for your best
15 recollection.

16 Is it fair to say that you're
17 familiar with the rules of a deposition?

18 A. I have familiarity.

19 Q. So based on how many times you've
20 taken -- that you've been deposed, I think I
21 can skip through some of the rules. I would
22 just like to check a couple of things.

23 Is there any reason that you feel
24 you would not be able to give a full and
25 complete answer or that you would not be able

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1 to testify accurately or truthfully today?

2 A. I don't believe so.

3 Q. Are you on any medications or drugs
4 that would prevent you from testifying
5 accurately?

6 A. I don't believe so.

7 Q. And unlike, perhaps, depositions for
8 federal court or other courts, do you
9 understand that now that we've begun the
10 proceedings here, you may not confer with
11 your counsel until I've completed my
12 examination other than to -- on privilege
13 matters?

14 A. I understand that.

15 Q. Has a court ever found your
16 testimony to be unreliable?

17 A. I don't believe so.

18 Q. And for logistics, is there anybody
19 in the room with you right now?

20 A. No.

21 Q. Do you have any chat windows,
22 phones, or other communication devices
23 nearby?

24 A. I have a phone nearby. It's on
25 mute.

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1 Q. Can we agree that you would not use
2 the phone to communicate with anybody during
3 this deposition?

4 A. Well, I know that --

5 MS. CAROTHERS: Counsel, if he has
6 reason to call his family or something like
7 that, I do not think that that would be
8 banned. Perhaps you're asking him to agree
9 not to discuss the deposition with someone
10 else.

11 MR. WORLEY: Well, it would
12 certainly be unusual to have a call during a
13 deposition.

14 MS. CAROTHERS: Well, I meant during
15 a break.

16 MR. WORLEY: Understood. Thank you,
17 Counsel.

18 BY MR. WORLEY:

19 Q. Dr. Willner, would you agree not to
20 use your phone to discuss this deposition
21 with anybody until it's over?

22 A. Could you please rephrase the
23 question?

24 Q. Would you agree not to use your
25 phone to discuss this deposition with anybody

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1 until this deposition is concluded?

2 A. So I would agree to not use the
3 phone to discuss the substance of the
4 deposition with anybody.

5 Q. Okay. Do you understand that
6 Cambridge Industries, the Petitioner in this
7 matter, asserts that Claims 1 to 19 of
8 US Patent 10,788,690 are anticipated or
9 obvious over the prior art?

10 A. I believe that on a high level,
11 that's correct.

12 Q. And as we proceed with the
13 deposition -- deposition today, can we refer
14 to Patent 10,788,690 as the "'690 patent"?

15 A. Yes.

16 Q. What is the scope of your assignment
17 in this matter?

18 And as we're waiting, it looks as if
19 you're looking at something. Do you have a
20 document or something you're looking at right
21 now?

22 A. Yes. I have a clean copy.

23 Q. Of what?

24 A. Of my -- the declaration of
25 Alan Willner.

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1 Q. Are you able to answer the question
2 without referring to your declaration?

3 A. Well, I believe it's in here, so I
4 just wanted to refresh my memory. I was
5 asked to provide an opinion, and I believe
6 the answer to your question is in the report,
7 is in the declaration.

8 Q. Well, sir, we can turn to your
9 report in a minute. I'll ask you to keep
10 that to the side. If you are going to need
11 it to answer a question, please let me know,
12 but right now I'm just -- you've been deposed
13 before, correct?

14 We have just determined that. I'm
15 looking for your recollection and your
16 opinions right now, and we can turn to your
17 report in a bit. Okay?

18 MS. CAROTHERS: Objection. Form.
19 BY MR. WORLEY:

20 Q. So, sir, as you sit here now,
21 without looking at the report, what is your
22 understanding of what the scope of your
23 assignment was in this matter?

24 A. So I have been asked to provide my
25 independent opinions in response to

1 Petitioner's Ground 2 asserted for
2 invalidity.

3 Q. Were you asked to opine on Claims 1
4 to 10 of the '690 patent?

5 A. I was not asked to give an opinion
6 about Claims 1 to 10.

7 Q. And your opinions in this matter
8 only relate to Claims 11 to 19 of the '690
9 patent, correct?

10 A. I believe that my opinions are
11 related to Ground 2 of the Petitioner's -- of
12 the petition.

13 Q. And you've looked down several times
14 as you're answering. Are you looking at your
15 declaration there?

16 A. I'm looking and remembering, and I'm
17 trying to be accurate and trying to give you
18 an answer.

19 (Exhibit Number 1 was marked.)

20 BY MR. WORLEY:

21 Q. Well, let's then mark as Cambridge
22 Industries USA Exhibit 1 a document
23 identified as Exhibit 2004, which is your
24 declaration.

25 So as we talk about CIG or Cambridge

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1 Exhibit 1, we'll refer to it as just your
2 declaration or Exhibit 2004. Is that fair?

3 A. Yes. Although referring to it as my
4 declaration may be easier.

5 Q. Okay. Thank you.

6 So your declaration -- you have a
7 copy in front of you, you said?

8 A. Yes, I do.

9 Q. That's your signature on page 35 of
10 the declaration?

11 A. On page 35 is an electronic version
12 of my signature.

13 Q. And that's put there with your
14 approval by you or somebody else?

15 A. Correct.

16 Q. Did you prepare your declaration?

17 A. I prepared, with the help of
18 counsel, my declaration.

19 Q. And, to the best of your knowledge,
20 are your opinions related to Claims 11 and 19
21 of the '690 patent accurately set forth in
22 your declaration?

23 A. I believe -- I believe they are.

24 Q. Could you please turn to page 5,
25 Section 2 of your declaration. I'm sorry.

Page 15

1 Turn to page 5 and look at Section 2 of your
2 declaration and let me know when you're
3 there?

4 A. I'm on page 5 and I'm at the
5 beginning of Section II.

6 Q. Does Section II of your declaration
7 identify your qualifications, publications,
8 and prior testimony?

9 A. The --

10 Q. Let's start off with this, is the
11 title of Section II "Qualifications,
12 Publications, and Prior Testimony"?

13 A. Verbatim, the title of Section II is
14 "Qualifications, Publications, and Prior
15 Testimony."

16 Q. And does Section II discuss your
17 qualifications, publications, and prior
18 testimony?

19 A. I don't believe it -- I believe it
20 discusses aspects of my qualifications,
21 aspects of my publications. I'm not sure if
22 it -- if it deals with my prior testimony.

23 Q. I'm asking -- I was not able to find
24 any discussion of your prior testimony in
25 Section II. It sounds like -- strike that.

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1 Do you have any understanding -- and
2 you can refer to your report -- if Section II
3 discusses your prior testimony at all other
4 than the title?

5 A. I don't remember that it does.

6 Q. Okay. In the field of photonics,
7 the term "TOSA" is an acronym for a
8 transmitter optical subassembly, correct?

9 MS. CAROTHERS: Objection. Form.

10 THE WITNESS: Please repeat the
11 question.

12 BY MR. WORLEY:

13 Q. In the field of photonics, the term
14 "TOSA" is an acronym for transmitter optical
15 subassembly, correct?

16 MS. CAROTHERS: Objection. Form.

17 THE WITNESS: So TOSA is a term that
18 in the field of optical communications can
19 take different -- it's an acronym, an
20 abbreviation, and often it's called a
21 transmit optical subassembly, transmitter
22 optical subassembly, and so it's a term --
23 TOSA is something that is a term in optical
24 communications technologies.

25 / / /

1 BY MR. WORLEY:

2 Q. And if somebody were to use the term
3 "TOSA" to refer to a transmitter optical
4 subassembly, is that the same as referring to
5 a transmit optical subassembly?

6 A. I would have to see the specific
7 example. I don't think I'm giving a four
8 corners definition or encompassing all the
9 possibilities. So if there's a piece of art
10 that you'd like me to take a look at, I'm
11 happy to be able to answer the question
12 accurately.

13 Q. We'll get to some prior art in a
14 bit. But, again, sir, I'm trying to get your
15 understanding. You mentioned transmit
16 optical subassembly and the transmitter
17 optical subassembly, and I want to get your
18 understanding, would those terms be used
19 interchangeably?

20 A. I'd be very hesitant to give a
21 sweeping statement like that. I'd have to
22 think more deeply if there's -- if there are
23 differences. And I think if there was some
24 example that you may have, I'd be happy to
25 look at it.

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1 Q. Thank you.

2 When is the first time you became
3 aware of a TOSA?

4 MS. CAROTHERS: Objection. Form.

5 THE WITNESS: So TOSA is a general
6 term in the field of optical communications.
7 So in terms of this thing called a TOSA,
8 which is a general term, the -- I've been
9 aware of it for many years.

10 BY MR. WORLEY:

11 Q. As we talk about the TOSA,
12 paragraph 55 of your report uses the term
13 "TOSA"; is that correct?

14 I'm looking at page 20.

15 A. I believe that paragraph 55 of my
16 declaration uses the term "TOSA" within it.

17 Q. So we talked about a TOSA -- strike
18 that.

19 Here you use TOSA meaning a
20 transmitter optical subassembly, correct?

21 A. I use the words verbatim,
22 "transmitter optical subassembly." But
23 that's within the context of a transmitter
24 optical subassembly arrangement, which goes,
25 I believe, to the heart of some of the issues

Page 19

1 we may be talking today about.

2 So that the '690 is discussing a
3 TOSA arrangement.

4 Q. And you earlier said TOSA was an
5 acronym, correct? Do you recall that?

6 A. TOSA is often used as an
7 abbreviation.

8 Q. What does the A stand for in that
9 abbreviation?

10 A. I would have to -- I'd have to
11 remember accurately what it is.

12 Q. Well, sir, today is your day. You
13 are on the stand. You testified -- you used
14 TOSA in your report. You said you've known
15 what a TOSA is for many years, and you said
16 it's an acronym. So, sir, I'm trying to
17 understand. Please tell me what TOSA stands
18 for, if you know. If you don't know, tell me
19 that too.

20 A. TOSA is often -- people discuss it
21 in terms of a transmitter optical
22 subassembly. And the '690 is talking about a
23 TOSA. Whatever the A is standing for, TOSA
24 arrangement, there's a second A, right,
25 there's an arrangement.

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1 So it's a TOSA. Whatever that A is
2 with another word called arrangement.

3 Q. Thank you, sir. We'll get to that,
4 and I appreciate you providing the acronym.

5 The -- boy, this will be fun. Are
6 you familiar with the ROSA?

7 A. It's a receiver optical subassembly.

8 Q. And in the field of optical
9 communications, a photonics transceiver would
10 include both a TOSA and a ROSA, correct?

11 A. Please state that again.

12 Q. An optical transceiver would include
13 both a TOSA and a ROSA, correct?

14 A. So is your question that all optical
15 transceivers would include those?

16 Q. My question is does --

17 A. In order for me to give an answer --
18 I don't believe that one can generalize that
19 all optical transceivers would have -- be
20 composed of a TOSA and also have a ROSA.

21 Q. Does an optical transceiver commonly
22 have a TOSA and a ROSA?

23 MS. CAROTHERS: Objection. Form.

24 THE WITNESS: So optical
25 transceivers -- there are versions of optical

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1 transceivers that do include a TOSA and a
2 ROSA.

3 BY MR. WORLEY:

4 Q. When is the first time you became
5 aware of a multichannel transceiver?

6 A. Please define "multichannel."

7 Q. Well, let's see how you use it in
8 your report. The use of the term -- of the
9 term "multichannel transceiver" in your
10 report. Let's see. Hang on one second.

11 Okay. Let's turn to a multichannel
12 transmitter optical subassembly or
13 multichannel TOSA. Do you recall using that
14 phrase in the report?

15 A. I believe I may have used that, yes.

16 Q. And does a multichannel TOSA --

17 A. Could you please point me to where
18 that -- it looks like you probably found it.
19 Could you point me please to that paragraph?

20 Q. Actually, no. In the interest of
21 time, we can move on, but you understand what
22 a multichannel TOSA is, correct?

23 A. Well, again, within the context of
24 my report, I just want to see where you've
25 been looking at. Please, if you want, I can

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1 take a look my myself, but you can point me
2 to it in the interest of time.

3 Q. Prior to writing your report, did
4 you have an understanding of what a
5 multichannel TOSA is?

6 A. I had an understanding of some of
7 what would be encompassed -- could be
8 encompassed by a multichannel TOSA.

9 Q. And the multichannel TOSAs you were
10 familiar with, did they include a housing?

11 A. A multichannel TOSA, there are
12 versions of multichannel TOSAs that have
13 housings. I think that's -- you know, there
14 are versions of multichannel TOSAs that have
15 housings.

16 Q. And what is your understanding of
17 what a housing is?

18 A. So I didn't -- I believe that's
19 something that I -- my understanding it is
20 what -- housing is a type of enclosure. The
21 '690 talks about it. I don't believe I gave
22 any opinions that were -- that would rely
23 critically on a definition of a housing.

24 Q. And the question is: What is your
25 understanding of what a housing is?

1 A. Housing is it's an enclosure.
2 Again, I can look at the patent to see more.
3 As I said, I don't think I went into great
4 detail of the issue of the housing. I have
5 an understanding of housing. My opinions, I
6 don't believe, went into detail of that, and
7 so if you want me to give you my -- an
8 opinion of what is a housing within the
9 context of the '690, I'd want to be accurate
10 and think a little more deeply. Look at the
11 patent '690, see if it goes into any more
12 detail.

13 But it's an enclosure. I think
14 that's a fair statement.

15 Q. The components of a TOSA, such as
16 a -- strike that.

17 The components of a TOSA commonly
18 include some type of laser arrangement such
19 as a laser diode and some type of focused
20 lens or multiplexer device. Would you agree?

21 MS. CAROTHERS: Objection. Form.

22 THE WITNESS: Please repeat the
23 question.

24 BY MR. WORLEY:

25 Q. A TOSA commonly includes a laser

1 device, a focused lens, and some kind of
2 isolator, correct?

3 A. So there are many types of TOSAs,
4 and so -- there are just many types of TOSAs.
5 And sometimes they include, let's say, a
6 single channel TOSA could include a laser
7 diode. It could include a lens. It could
8 include an isolator, a single channel TOSA.
9 And that would be outside the context of the
10 '690.

11 Q. The components that you just
12 described of the TOSA would be mounted on to
13 something, correct?

14 MS. CAROTHERS: Objection. Form.

15 THE WITNESS: So are we -- so
16 outside the context of the '690, we are
17 dealing with -- I'm not quite sure -- it
18 sounds like you're building something, and
19 this sounds like it's being built, but it's
20 outside the context of the '690. The '690
21 talks about a TOSA arrangement. That's its
22 own thing.

23 A TOSA, in general, outside the
24 context of the '690, a TOSA, in general,
25 could have a laser diode. It could have a

1 housing. It could have an isolator. It
2 could have a lens. I think all that is -- is
3 possible for a TOSA outside of the '690.

4 BY MR. WORLEY:

5 Q. And the components you just
6 mentioned, they wouldn't be flopping around
7 inside the housing, they'd be attached to
8 something, correct?

9 A. So outside the context of the '690,
10 a single channel TOSA might have a single
11 laser diode. A single isolator might have a
12 single lens. And this single channel TOSA
13 might have these components mounted to
14 something.

15 Q. Are you familiar with the single
16 channel TOSA in which any of those components
17 are just flopping around not mounted to
18 something?

19 MS. CAROTHERS: Objection. Form.

20 THE WITNESS: So the single channel
21 TOSA, outside the context of the '690, I'd
22 say that the -- a single channel TOSA may
23 have various components that are mounted in
24 some way. And, again, that's a reasonable
25 thing that it would be mounted to something.

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1 (Exhibit Number 2 was marked.)

2 BY MR. WORLEY:

3 Q. Dr. Willner, I would like to
4 introduce or mark another exhibit. We will
5 mark as Cambridge Industries USA,
6 Incorporated, Exhibit 2 the '690 patent,
7 which was previously introduced in this case
8 as Exhibit 1001.

9 Sir, do you have a copy of the '690
10 patent in your room with you?

11 A. Yes, I do.

12 Q. Put it to the side. We're going
13 to -- I'd like to ask a couple questions, and
14 then if we need to refer to the patent, we
15 can refer to the patent.

16 But optical -- sorry.

17 Multichannel optical transceivers
18 were known in the art prior to 2019, correct?

19 A. Multi -- multi data channel --
20 multichannel transceivers -- could you please
21 repeat the question one more time?

22 Q. We'll focus in a little bit.
23 Multichannel TOSAs were known in the art
24 prior to 2019, correct?

25 A. So, in general, multichannel TOSAs,

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1 in general, without the specific TOSA
2 arrangement. '690, Claim 11, they were --
3 multichannel TOSAs were known in the field
4 before -- before the date that you gave.

5 Q. 2019, correct?

6 A. 2019.

7 Q. And the multichannel TOSAs that were
8 known prior to 2019, they would have included
9 a plurality of laser diodes in a multiplexer,
10 correct?

11 MS. CAROTHERS: Objection. Form.

12 THE WITNESS: I'm not saying that's
13 a -- so TOSAs, in general, not the TOSA
14 arrangement of the '690, would have likely --
15 well, it is -- it's certainly possible that
16 they would have multiple lasers in there.

17 BY MR. WORLEY:

18 Q. And that was known in the art,
19 correct?

20 A. It was known in the art that a
21 multichannel TOSA, not the TOSA arrangement
22 of the '690, that the multichannel TOSA would
23 have multiple -- multiple lasers, you know,
24 could have multiple lasers.

25 Q. Prior to 2019, the components of a

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1 multichannel TOSA, the laser diodes, and the
2 isolator, they would have been optically
3 aligned, correct?

4 A. So outside the context of the '690,
5 a multichannel TOSA, which had multiple --
6 which might have had multiple lasers, might
7 have had multiple lenses, multiple isolators,
8 and those might have been aligned.

9 Q. Those components would have also had
10 to be securely attached to something in order
11 to maintain that optical alignment, correct?

12 A. For a TOSA, outside the '690 TOSA
13 arrangement, could have had multiple lasers,
14 multiple lenses, multiple isolators that were
15 aligned, and that would have been mounted
16 such that the alignment would be maintained.

17 Q. And if the alignment was not
18 maintained, would it continue to operate
19 correctly?

20 MS. CAROTHERS: Objection. Form.

21 THE WITNESS: So a multichannel
22 TOSA, outside the context of the '690 TOSA
23 arrangement, might have had multiple lasers,
24 multiple lenses, multiple isolators that --
25 that might have been aligned and might have

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1 been mounted to something so that the
2 alignment was maintained. And if the
3 alignment wasn't maintained, it's possible
4 that the -- that the operation and
5 performance might degrade.

6 BY MR. WORLEY:

7 Q. Now, sir, you've used the word
8 "might" several times in your answer. Are
9 you aware or have any recollection of any
10 teachings that state that the components of
11 the TOSA must be securely attached and
12 optically aligned with the other associated
13 optical components?

14 MS. CAROTHERS: Objection. Form.

15 THE WITNESS: So I used the word
16 "might" because, you know, that's one of the
17 possibilities, and I don't think that -- I
18 don't think that there are -- that these
19 things have to be there or have to happen,
20 you know, so maybe this becomes -- you know,
21 I'm not quite sure what your question
22 actually is. I don't -- yeah, I'm actually
23 not quite sure what your question is.

24 BY MR. WORLEY:

25 Q. My question was if you are familiar

1 with any teachings that state that the
2 components of the TOSA must be securely
3 attached and optically aligned.

4 MS. CAROTHERS: Objection to form.

5 THE WITNESS: So in terms of
6 teachings, please show me -- I'm familiar
7 with a lot of things -- how different
8 teachings state things in different ways. So
9 I'd be happy to take a look at something that
10 you would show me.

11 BY MR. WORLEY:

12 Q. And you've been retained by AOI in
13 regards to the '690 patent in this matter,
14 right?

15 A. I've been retained by AOI, and I
16 believe we discussed earlier what the -- what
17 I was asked to do.

18 Q. Did you read the '690 patent?

19 A. Yes.

20 Q. Do you recall reading in the
21 background of the invention the description
22 of the prior art?

23 A. Yes.

24 Q. And you can turn to the '690 patent
25 if it's helpful, I'm looking at Column 1,

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1 under the section called "Background
2 Information." Let me know when you have that
3 handy.

4 A. I have it.

5 Q. At line 35, Column 1, does the
6 sentence there begin -- well, you would agree
7 the sentence there begins:

8 "Each component of the TOSA must be
9 securely attached and optically aligned
10 with other associated optical components."

11 The sentence starts off like that,
12 correct? It's a yes-or-no question, sir.

13 A. I believe you read it correctly.

14 Q. And you agree that the background
15 section of the '690 patent discusses known
16 prior art, correct?

17 A. I believe that the background
18 section is discussing various issues that are
19 about the -- about the field, about some of
20 the art.

21 Q. It's certainly not discussing all
22 the art, but it does discuss some of the
23 prior art and perhaps some of the problems
24 with that prior art, correct?

25 A. I would say that it's discussing

1 some of the issues related, some of the prior
2 art, some of the problems.

3 Q. You can put that document down, sir.
4 For completeness, I'm going to introduce
5 several more exhibits that we can mark as
6 Exhibit 3, paper Number 2, which is the
7 petition. Exhibit 4 is the original Wang
8 patent of Exhibit 1 -- previously identified
9 as Exhibit 1005. For Exhibit 5, we can have
10 the Wang translation previously identified as
11 Exhibit 1006, and Exhibit 6 is the Xiong
12 patent of Exhibit 1008.

13 (Exhibit Number 3 was marked.)

14 (Exhibit Number 4 was marked.)

15 (Exhibit Number 5 was marked.)

16 (Exhibit Number 6 was marked.)

17 BY MR. WORLEY:

18 Q. Sir, did you consider these
19 documents when forming your opinions
20 regarding the '690 patent?

21 A. I considered the Wang patent, and I
22 considered the Xiong patent in forming my
23 opinion.

24 Q. Did you also review the petition of
25 paper Number 2?

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1 A. I did review the petition, yes.

2 MS. CAROTHERS: Excuse me, Counsel,
3 is Exhibit 6 the translation of -- was there
4 a translation of Xiong, I don't recall, or
5 was it in English to begin with?

6 MR. WORLEY: Xiong was in English.
7 Translation is for Wang.

8 MS. CAROTHERS: And that's
9 Exhibit 5?

10 MR. WORLEY: Exhibit 5 is the
11 translation. Correct.

12 MS. CAROTHERS: Thank you.

13 MR. WORLEY: I know I went fast.
14 Sorry about that.

15 BY MR. WORLEY:

16 Q. Dr. Willner, when you looked at
17 paper 2, did you review and consider the
18 analysis of Claims 1 to 10 set forth by the
19 Petitioner?

20 A. Could you -- because you're using
21 numbers, could we call that the petition and
22 not a number?

23 Q. Yes. Thank you. And I'll even
24 restate it then.

25 Did you review and consider the

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1 analysis of Claims 1 to 10 set forth in the
2 petition?

3 A. I reviewed the petition.

4 Q. Including the analysis regarding
5 Claims 1 to 10?

6 A. I reviewed the whole petition.

7 Q. Your declaration states that you
8 considered -- I'll quote:

9 "Any other material described or cited
10 in the declaration."

11 Correct?

12 And I'll point you to the bottom of
13 page 10 of your declaration.

14 A. Yes. So I'd say that's what it
15 says, yes.

16 Q. If you could please turn to page 24
17 of your declaration, Section IX, there is
18 "Claim Construction," correct?

19 A. Yes.

20 Q. And additionally, you understand the
21 POSITA is a person of ordinary skill in the
22 art, correct?

23 A. Yes.

24 Q. And for the purposes of your report,
25 you assumed all the claim terms have a

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1 meaning as understood by POSITA at the time
2 the claimed invention was filed, correct?

3 MS. CAROTHERS: Objection. Form.

4 BY MR. WORLEY:

5 Q. You can answer the question.

6 A. So -- and the -- for all claim terms
7 that I have given an opinion on, so this
8 would mean for the claim terms of 11 and --
9 the independent Claim 11 and the dependent
10 claims from that, that I have assumed the
11 meaning is understood by a person of ordinary
12 skill in the art at the time of the claimed
13 invention in light of the patent's
14 specifications, claims, and file history.

15 Q. And turning to Claim 11 of the '690
16 patent, about seven lines down, let me know
17 when you have Claim 11 in front of you.

18 A. I have Claim 11 in front of me.

19 Q. About seven lines down, I believe
20 you refer to it as Section D of that claim,
21 there's a limitation that states:

22 "A substrate defined by at least one
23 mounting surface."

24 Do you see that?

25 A. Yes, I do.

1 Q. What does the phrase "at least one
2 mounting surface" in Claim 11 mean to one of
3 ordinary skill of the art?

4 MS. CAROTHERS: Objection. Form.

5 THE WITNESS: So I don't believe I
6 gave an opinion detailing that. Again, I'd
7 like to have a chance to read through the
8 specifications and to make sure that I'm
9 giving you an accurate answer.

10 So even as far as what a person of
11 ordinary skill in the art might understand
12 that to be is -- would not be an off-the-cuff
13 answer. I'd want to think carefully about
14 giving you an accurate answer.

15 BY MR. WORLEY:

16 Q. When preparing your declaration, you
17 did consider this claim and the terms as they
18 would have a meaning to one of ordinary skill
19 in the art, correct?

20 A. Correct, yes.

21 Q. So when you performed your analysis,
22 what meaning did you give to the phrase "at
23 least one mounting surface" in Claim 11?

24 A. So when I did my analysis, I spent
25 time and I thought about this term and did

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1 not feel I needed to give more detail within
2 the -- my declaration. I did not spend a
3 short amount of time. I spent a fair amount
4 of time looking through all of this, and so I
5 don't remember right now all the details of
6 what my understanding is of what a person of
7 ordinary skill of the art would understand
8 "substrate defined by at least one mounting
9 surface."

10 If you -- if I had time, I
11 certainly -- and if that was required, I
12 could then give an opinion. But I did have
13 an understanding. I certainly took that into
14 consideration when I was doing my analysis.
15 And as I sit here, I just don't remember all
16 the details.

17 Q. So am I to understand you performed
18 an analysis in which you considered what at
19 least one mounting surface is in Claim 11 but
20 you are unable to tell me, as you sit here
21 today, what meaning you gave it for purposes
22 of your analysis; is that correct?

23 A. Well, I think that if you're asking
24 me for a definition and the specifics of it,
25 I want to go back and just refresh my memory.

1 And, unfortunately, it's not in my
2 declaration, I don't think. Unless please
3 point me if it is. But I don't think I have
4 it in my declaration. I believe this isn't a
5 memory test. So I definitely remember taking
6 it into consideration and having an
7 understanding. I just don't remember the
8 four corners of it right now.

9 Q. Well, sir, it is in your
10 declaration, because you said in Claim -- I'm
11 sorry, in paragraph 61 that you assumed the
12 meaning of all the terms for their plain and
13 ordinary meaning, and one of the terms is at
14 least one mounting surface, and while I'm not
15 looking for a definition, I'm asking you what
16 meaning you attributed to that term. And if
17 you can't say, that's fine, let me know.

18 MS. CAROTHERS: Objection. Form.

19 THE WITNESS: When I was doing my
20 analysis, I was very careful and I had an
21 understanding of what that meant. In terms
22 of being in my report, my declaration, it is
23 not part of the opinions, I believe, in terms
24 of I do not delineate any opinions, I
25 believe, where I go into detail about that.

1 I believe my declaration is correct when it
2 says that I did assume all terms of Claim 11
3 to be one -- and the dependent claims thereof
4 to be plain and ordinary meaning.

5 But, as I said, the terms that I
6 did not go into detail in my opinion, I did
7 consider, did -- do have an understanding of,
8 I just don't remember the details of those as
9 I sit here today. And given that it's not a
10 memory test, if I had the time, I can
11 certainly do it.

12 BY MR. WORLEY:

13 Q. So to understand, we've touched --
14 you've touched on how much time you spent,
15 how careful you were, all the other details
16 that you had in your answer, but to the point
17 of what does that term mean, as you sit here
18 today, you do not have an answer, correct?

19 MS. CAROTHERS: Objection. Form.

20 THE WITNESS: I've given you an
21 answer. The answer is that when I did my
22 analysis, I had -- I looked at all of the
23 terms within Claim 11, all of the issues,
24 tried to understand them, and I believe I did
25 a -- I believe I did have an understanding

1 and try to apply what a person of ordinary
2 skill in the art would have.

3 I was able to do an analysis and
4 able to form opinions as laid out in the
5 declaration. And I -- in order to give you
6 an accurate answer of what would a person of
7 ordinary skill in the art know, you know,
8 from that term that you mentioned, I'd want
9 to go back and refresh my memory so that I'm
10 not doing it from memory, given that it's not
11 even -- I don't believe the details of your
12 question -- to answer your question are in my
13 declaration.

14 BY MR. WORLEY:

15 Q. Thank you, sir.

16 The phrase "at least one mounting
17 surface" also appears in Claim 1, correct,
18 Claim 1 of the '690 patent?

19 MS. CAROTHERS: Objection. Form.
20 Objection. Foundation.

21 THE WITNESS: So in terms of -- in
22 terms of the claim term, I'll quote the words
23 verbatim "at least one mounting surface."
24 Those actual words, those appear in Claim 11.
25 When one reads a claim, of course, you read

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1 the entire claim and you read words within
2 the claim in the context of that claim, and,
3 of course, you know a million times more than
4 I do about that.

5 And so verbatim, if you -- just to
6 look to see if the same exact words verbatim
7 would appear, I would -- I could see that
8 quote in Claim 1, the words "at least one
9 mounting surface," those exact words, taken
10 in isolation, not within the context of their
11 own respective claims, those exact words, do
12 appear in both claims.

13 BY MR. WORLEY:

14 Q. The phrase "at least one mounting
15 surface" appears in both Claims 1 and 11?

16 A. I can repeat the whole thing. If
17 you want, I'll repeat the whole thing.

18 Q. I'll withdraw the question. You've
19 made the record.

20 Does the phrase "at least one
21 mounting surface" as used in Claim 1 mean the
22 same thing as in Claim 11?

23 MS. CAROTHERS: Objection. Form.

24 THE WITNESS: So I haven't given an
25 opinion about Claim 1, what things mean in

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1 Claim 1. If that's something that I would be
2 asked to do, I could -- I could try to do it.
3 But as far as what does something mean within
4 Claim 1, I'd have to -- I haven't -- I
5 haven't given that opinion. So I'd need a
6 lot more time to be able to do something like
7 that, especially given that words within a
8 claim are read within the context of the
9 claim.

10 BY MR. WORLEY:

11 Q. And if we turn to Claim 11,
12 limitation -- I believe this is a phrase --
13 well, strike that.

14 Claim 11 includes the limitation "a
15 substrate defined by at least one mounting
16 surface," correct?

17 A. So Claim 11 has -- one of its
18 elements is "a substrate defined by at least
19 one mounting surface."

20 Q. And the next limitation begins:

21 "A plurality of laser diodes mounted
22 to the at least one mounting surface of the
23 substrate."

24 Correct?

25 A. I would -- did you say that's --

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1 well, I read that -- well, certainly you read
2 the whole claim together, but I also read
3 each section as well together. So I would
4 say that if you want to say that within
5 Claim 11, there are the following words:

6 "A plurality of laser diodes mounting
7 to the at least one mounting surface of the
8 substrate."

9 Those actual words do appear within
10 Claim 11.

11 Q. So the phrase I read appears in
12 Claim 11?

13 A. Well, it's -- the words, the
14 words -- I think you talked about a
15 limitation. And your question -- and your
16 question -- please correct me if I'm wrong --
17 did you use the word "limitation"?

18 Q. I did?

19 A. Okay. Well, the limitation is the
20 whole thing, all right? So I'll -- but in
21 terms of like words, do the words quote,
22 verbatim, do the words "a plurality of laser
23 diodes mounted to the at least one mounting
24 surface of the substrate," do those words
25 appear as part of Claim 11, I would say those

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1 exact words appear within the claim.

2 Q. And the question -- the question I
3 asked you before, you asked if it had the
4 word "limitation," and it did.

5 And the question was: And the next
6 limitation begins:

7 "A plurality of laser diodes mounting
8 to the at least one mounting surface of the
9 substrate."

10 Correct?

11 And so the answer to that question
12 is yes, the limitation begins with that?

13 A. Well, the limitation -- there is
14 one -- there are various limitations within
15 the claim, and one of the -- one of the
16 limitations within the claim starts with the
17 words, "a plurality of laser diodes mounted
18 to the at least one mounting surface of the
19 substrate," and then there's a continuation
20 with other words.

21 Q. And the next limitation begins with
22 the words:

23 "An optical isolator array mounted to
24 the at least one mounting surface."

25 Correct?

1 A. So in terms of the -- these
2 limitations, the limitations of the -- of a
3 substrate, a plurality, and an optical
4 isolator array, these limitations being
5 limitations of the TOSA arrangement, again,
6 that being this -- this claimed thing, the
7 TOSA arrangement, that the limitation -- one
8 of the limitations starts with the words "an
9 optical isolator array mounted to the at
10 least one mounting surface," and then there
11 are other words that continue.

12 Q. And in Claim 11, do you understand
13 that both the plurality of diodes and the
14 optical isolator are mounted to the same
15 surface?

16 A. I believe you said an optical
17 isolator. I believe it's an array.

18 Q. Okay. Thank you. I appreciate that
19 clarification.

20 Is it your understanding that both
21 the plurality of diodes and the optical
22 isolator array are mounted to the same
23 surface?

24 A. I'll want to take a few minutes to
25 look at the claim to see where a mounted

1 surface is mentioned and then the antecedent
2 basis for that, and then I can hopefully help
3 to answer your question, because I did
4 consider it when I analyzed this. I did
5 think about it, but I don't know if I've
6 given an opinion specifically about the
7 mounting surfaces.

8 And so in order to answer your
9 question accurately, if they're mounted to
10 the same surface, again, I don't know if it
11 appears in my declaration. I'd like a few
12 minutes to be able to answer your question.

13 Q. See if I can help out a little bit.

14 Over the past several questions, we
15 discussed the words in Claim 11 that begin "a
16 substrate defined by at least one mounting
17 surface," correct?

18 A. Well, I'm not going to -- if you're
19 trying to go further -- trying to build off
20 the previous questions, I remember the
21 previous questions, and if things are
22 mentioned in the claim and I don't even have
23 that kind of an analysis in my declaration
24 and it's not a memory test, then I would want
25 a few minutes to be able to answer accurately

1 your question about, you know, what is
2 contained and required by the claim.

3 So -- I mean, we can go down the
4 same thing, but I'm -- I don't know if that's
5 going to help me just to repeat the
6 questions.

7 Q. As you sit here now, do you have an
8 understanding as to whether or not the
9 plurality of diodes of the optical isolator
10 array are mounted to the same surface?

11 MS. CAROTHERS: Objection to form.

12 THE WITNESS: Yeah. So I did an
13 analysis of the -- of Claim 11 in which I did
14 take into account the mounting surface, and I
15 had an understanding of that. And in terms
16 of the specific question, are they mounted to
17 the same surface, which is a very specific --
18 you know, would be a requirement of the
19 claim, I don't believe it's in my report.

20 Please point me to it if it is. I
21 don't believe it's in my report. In order
22 for me to give an opinion about something
23 that's not in my report that's required by
24 the claim, I'd want to take a few minutes to
25 even just refresh my memory about something.

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1 And so I'd want a few minutes even
2 just to be able to read carefully, because I
3 don't remember everything that -- that I
4 thought about a few months ago, again, not
5 being in my declaration. And so even just a
6 few minutes might even help me just to read
7 and to look at the same mounting surface, you
8 know, that would be something I'd want to
9 just read and look at antecedent bases and so
10 on.

11 BY MR. WORLEY:

12 Q. As you sit here today, do you
13 understand if there was any mention of any
14 other surface in Claim 11 other than the "at
15 least one mounting surface"?

16 A. You're asking me if something is
17 there or is not there. Can I have a few
18 minutes to read Claim 11? Again, I don't
19 think I've given an opinion about this inside
20 of -- I may have thought about these things.
21 In fact, I probably did.

22 I don't know if there's any -- any
23 specific opinion about it. But I'd be happy
24 to answer your question about what is and
25 what isn't in the claim. I didn't memorize

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1 the claim. So I need a little bit of time to
2 go ahead and read to see what is and isn't
3 there.

4 MR. WORLEY: Let's take just a
5 second. I'd like to ask the videographer how
6 we are doing on time.

7 MS. CAROTHERS: I think we have gone
8 past the hour mark. Would you like to take a
9 short break.

10 THE VIDEOGRAPHER: We are at an
11 hour, nine minutes.

12 MR. WORLEY: How long did you say
13 you would like to have -- you would not like
14 to exceed, I should say? Was it an hour, 15?

15 THE VIDEOGRAPHER: An hour, 30.

16 MR. WORLEY: An hour, 30. Okay.
17 Why don't we do this. Why don't we take five
18 minutes. And, sir, you can look at the
19 claim.

20 THE WITNESS: Oh, are we still on
21 the record?

22 THE VIDEOGRAPHER: We are still on
23 right now.

24 THE WITNESS: So are you asking me
25 during my break where when I go -- let's say

1 to the men's room or wherever, that I should
2 during the five minutes look at the -- read
3 the claim --

4 BY MR. WORLEY:

5 Q. I'm asking --

6 A. -- and then have an understanding of
7 it?

8 Q. I'm asking -- your entire report is
9 about Claims 11 and 19, correct? That's the
10 focus of your report?

11 A. And I -- my report, my declaration
12 is about Claims 11 through 19, yes.

13 Q. How long would it take you to have
14 an understanding of what's addressed in
15 Claim 11, if you were to take a break to look
16 at that?

17 MS. CAROTHERS: Objection. Form.

18 THE WITNESS: I don't know how long
19 it would take me. I'd want to -- analysis of
20 a claim is not something one does --
21 especially if you want an accurate answer --
22 analysis of a claim, claim term, I'm sure I
23 spent a fair amount of time at the time.
24 This was -- this report was submitted a while
25 ago.

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1 So I can pretty much guarantee it
2 wouldn't take me five minutes of a break
3 where I'm heading to and from a men's room.
4 So that -- but is that -- is that required,
5 that during my break I do that? I don't
6 know. I don't know what is being expected.

7 MS. CAROTHERS: Counsel, it seems
8 fair to give the witness a restroom break.
9 If you want to go back on the record and ask
10 him about limitations that are not expressly
11 discussed in his declaration, I guess you can
12 ask, although I'm starting to get to the
13 point where I want to argue that you're going
14 beyond the scope of his opinions.

15 MR. WORLEY: And I'm going to ask
16 you not to coach the witness.

17 MS. CAROTHERS: I am not coaching
18 the witness. I am talking to you about what
19 is and is not there.

20 MR. WORLEY: Counsel --

21 MS. CAROTHERS: I've let you go a
22 long ways. So I just would caution you to
23 stay within his -- within the scope as the
24 PTAB board requires.

25 MR. WORLEY: Counsel, please keep

1 your objections in line with the testimony
2 guidelines of Appendix D of the trial
3 practice guide. We don't need speaking
4 objections. They're not proper, and I will
5 leave it at that.

6 As to the witness, my question I'd
7 asked before dealt with questioning how much
8 time it would take to answer. It did not
9 involve some of the topics that you went
10 into. So it would help the proceedings to
11 address the question at hand.

12 BY MR. WORLEY:

13 Q. Would you able to -- would you agree
14 to address the question being posed to you,
15 Dr. Willner?

16 A. Pardon me?

17 MS. CAROTHERS: Objection. Form.

18 THE WITNESS: Can you please repeat
19 the question, please?

20 BY MR. WORLEY:

21 Q. In the interest of time management,
22 would you agree to address the questions that
23 are put forth to you during this deposition
24 directly?

25 A. I -- I don't even know what

1 questions you're referring to. You say "the
2 questions."

3 So I -- I'm not quite sure what
4 you're referring to.

5 Q. As we --

6 A. I'm happy to answer any specific
7 question, but that sounds like a question
8 that's, you know, much broader.

9 Q. Again, this is not to a specific
10 question, Dr. Willner, but to the procedure
11 of the deposition. Will you agree, if I ask
12 you a question, you will answer that
13 question, if you're able to, and if you're
14 not able to, you will let me know?

15 MS. CAROTHERS: Objection. Form.

16 THE WITNESS: Well, I would say that
17 there may be an instance where you may ask
18 something, Counsel may object and actually
19 may instruct me not to answer. So I'm --
20 again, it sounds like a very broad question
21 you're asking me.

22 I think, in general, you know, I'm
23 here -- I'm here to help clarify anything you
24 have about my declaration. That's why I'm
25 here.

1 MR. WORLEY: Okay. Why don't we
2 take -- sir, how much time would you need for
3 a break to take care of whatever bodily
4 functions or drinks or refreshments you need?

5 THE WITNESS: Oh, I think -- you
6 know, we've been going for, you know, over an
7 hour. Probably -- it would be nice to have 5
8 to 10 minutes. I think that -- yeah, I
9 just -- just to take care of, you know,
10 stretch my legs, take a minute or two.

11 So it's probably 5 to 10 minutes.
12 Is that -- does that seem like a reasonable
13 amount of time?

14 MR. WORLEY: Let's go ahead and take
15 10 minutes.

16 Counsel, is that okay with you?

17 MS. CAROTHERS: It's fine.

18 THE VIDEOGRAPHER: This ends
19 Media 1. We are now going off the record.
20 The time is 11:19.

21 (Recess.)

22 THE VIDEOGRAPHER: This begins
23 Media 2. We are now back on the record. The
24 time is 11:33.

25 / / /

1 THE COURT REPORTER: Did he freeze?

2 MS. CAROTHERS: I think he froze. I
3 can't hear anything.

4 THE COURT REPORTER: Should we go
5 off?

6 MS. CAROTHERS: I think so.

7 THE VIDEOGRAPHER: This ends
8 Media 2. We are now going off the record.
9 The time is 11:34.

10 (Recess.)

11 THE VIDEOGRAPHER: This begins
12 Media 3. We are now back on the record. The
13 time is 11:35.

14 BY MR. WORLEY:

15 Q. Good morning again, Dr. Willner.
16 During the break, did you discuss this
17 deposition with anybody?

18 A. No.

19 Q. Did you have any conversations with
20 counsel during the break?

21 A. No.

22 Q. I'd like to return to your
23 declaration. If you could please turn to
24 page 25. Are you there, sir?

25 A. Yes, I am.

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1 Q. Section X, Subsection A, that's your
2 opinions -- at least some of your opinions
3 regarding the overview of Wang, correct?

4 A. It's a couple of sentences just to
5 give an idea of an overview of Wang.

6 Q. And Wang discloses multichannel
7 isolator devices, correct?

8 A. Wang discloses a multichannel
9 isolator device.

10 Q. And Wang includes a plurality of
11 isolators mounted on a common base, correct?

12 A. Well, Wang talks -- in paragraph 62:

13 "Wang discloses a multichannel
14 isolator device that includes a substrate
15 with multiple channels where a plurality of
16 isolators are disposed on the respective
17 channels -- in the respective channels on
18 the substrate."

19 I think your question may have gone
20 beyond those words.

21 Q. Well, let's ask this question. Wang
22 includes a plurality of isolators mounted on
23 a common substrate, correct?

24 A. So did I give that -- I'm not sure
25 I -- did I put that -- was that in my report

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1 somewhere?

2 Q. I'm not asking you if it's in your
3 report, sir. I'm asking if Wang discloses a
4 plurality of isolators mounted on a common
5 substrate?

6 A. I'd have to look at Wang -- so it
7 sounds like you're using language from the
8 '690 as it might apply to Wang. And -- in
9 which case there may be -- part of the
10 question may be does one apply to the other.

11 And so I want to look just to make
12 sure that -- look at Wang and kind of confirm
13 to that. If it's not in my declaration and I
14 didn't have an opinion about that, then I'd
15 be, you know, not only going from memory, but
16 things that I may have looked at a few months
17 ago. I'd want to be very careful before I
18 start to map Wang on to parts of the '690 in
19 which I -- that don't necessarily appear in
20 my report -- in my declaration.

21 MR. WORLEY: I'll move to strike as
22 non-responsive.

23 BY MR. WORLEY:

24 Q. I'm not asking about the '690
25 patent, sir. You understand I'm asking about

1 the Wang patent. And my question is: Wang
2 includes a plurality of isolators mounted on
3 a common substrate; is that correct?

4 MS. CAROTHERS: Objection. Form.

5 THE WITNESS: So I'd like to look
6 at -- you used the term "a common substrate,"
7 and I want to -- so they put the plurality of
8 isolators are disposed in the respective
9 channels on the substrate. In order for me
10 to adopt that they are mounted on a common
11 substrate, I'd want to look at Wang and make
12 sure that those words that you used would,
13 indeed, apply to Wang.

14 And if it's in my report, please
15 tell me. I don't believe it is. I'd want to
16 be very careful before now starting to
17 give -- give opinions.

18 BY MR. WORLEY:

19 Q. So you're unable to answer the
20 question without referring to Wang; is that
21 correct?

22 A. I think I'm trying to give you an
23 accurate answer. And in order for me to give
24 an accurate answer, I think I would like to
25 be able to look at Wang to now go beyond my

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1 opinions that I put down in my declaration,
2 you know, to sort of, you know, what does
3 Wang mean using other words, words that would
4 have meaning, I'd want to take my time and be
5 able to -- be able to give you an accurate
6 answer on that.

7 Q. Could you please look at Exhibit --
8 if you could please look at Wang, which is
9 previously marked as Exhibit 5 to this
10 deposition. Let me know if you have that in
11 front of you, sir.

12 A. I have Wang in front of me.

13 Q. You've read this before, correct?

14 A. I have.

15 Q. You're familiar with this document?

16 A. I am familiar with it.

17 Q. Would you agree that paragraphs 43
18 to 48 describe in preferred embodiment 1 in
19 Wang.

20 THE COURT REPORTER: Counsel, I
21 think my computer froze. Can we go off the
22 record?

23 MR. WORLEY: Yes.

24 MS. CAROTHERS: Fine.

25 THE VIDEOGRAPHER: This ends

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1 Media 3. We are now going off the record.
2 The time is 11:43.

3 (Recess.)

4 THE VIDEOGRAPHER: This begins
5 Media 4. We are now back on the record. The
6 time is 11:49.

7 BY MR. WORLEY:

8 Q. Hello again, Dr. Willner. We had
9 some technical issues and had to go off the
10 record, so we're going to pick up where we
11 left off. And I'd asked you before, and I'll
12 repeat the question now.

13 In Wang, paragraphs 43 to 48, that
14 describes what Wang identifies as Preferred
15 Embodiment 1, correct?

16 A. So I've now picked up Wang. I'm
17 just going to confirm that those paragraphs
18 do talk about Embodiment 1.

19 So on a high level, generally
20 speaking, paragraphs 43 to 48 of Wang are, in
21 general, discussing aspects of Embodiment 1.

22 Q. And Figures 5 and 6 also correspond
23 to Preferred Embodiment 1, correct? I'll
24 direct your attention to paragraph 43, if
25 that helps.

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1 A. So Figures 5 and 6 deal with aspects
2 of Preferred Embodiment 1.

3 Q. And Preferred Embodiment 2 is
4 discussed, at least in part, in paragraphs 49
5 to 51 of Wang, correct?

6 A. I'm just going to read those three
7 paragraphs to make sure that I agree.

8 So paragraphs 49 to 51 of Wang
9 appear to discuss aspects of Preferred
10 Embodiment 2.

11 Q. And Figures 7 and 8 of Wang also
12 pertain to Preferred Embodiment 2, correct?

13 A. So Figures 7 and 8 deal with aspects
14 related to Preferred Embodiment 2.

15 Q. When Wang was filed in 2018,
16 multichannel TOSAs were already known in the
17 art, correct?

18 A. When Wang -- well, in -- please
19 remind me of the date.

20 Q. By 2018, the beginning of 2018,
21 multichannel TOSAs were already known in the
22 art, correct?

23 A. So by 2018, multichannel TOSAs
24 outside the context of the '690 were -- and
25 not the TOSA arrangement of the '690 --

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1 aspects of TOSAs were known that included
2 multichannel TOSAs.

3 MR. WORLEY: I'll move to strike as
4 non-responsive.

5 BY MR. WORLEY:

6 Q. I'm not asking about the '690
7 patent, sir. Do you understand that?

8 A. Yeah. That's why I said -- so I
9 understood that. That's why I said "outside
10 the context of the '690." I think that's
11 consistent with your question.

12 Q. So to clarify, by 2018, multichannel
13 TOSAs were known in the prior art, correct?

14 A. And your question does not deal with
15 this -- with the '690?

16 Q. My question is dealing with
17 multichannel TOSAs.

18 A. Okay. So outside the context of the
19 '690, the multichannel TOSAs were known.
20 Aspects of multichannel TOSAs were known in
21 the -- by 2018.

22 Q. Let's look at the Xiong patent, sir,
23 which is Exhibit 1008 in the IPR and
24 Exhibit 6 to this deposition. Do you have a
25 copy of that document in front of you, sir?

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1 A. No. But I have it somewhere here.
2 It will take me a minute to find it.

3 Q. Certainly.

4 A. I have Xiong in front of me.

5 Q. Thank you.

6 And can you turn to Figure 1 of
7 Xiong?

8 Are you there, sir?

9 A. Not yet.

10 MS. CAROTHERS: While he's finding
11 this, I would like to put on the record that
12 the witness will want to read and sign. I
13 believe that's the default, but I'd just like
14 to make it explicit.

15 MR. WORLEY: Noted. Thank you.

16 BY MR. WORLEY:

17 Q. Sir, are you at Figure 1?

18 A. Yes, I am.

19 Q. Figure 1 of Xiong depicts a TOSA
20 that was prior art to the Xiong patent,
21 correct?

22 A. Figure 1 of Xiong shows an example
23 of a single channel TOSA that was known in
24 the art prior to the Xiong -- prior to the
25 Xiong reference, and, again, not outside the

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1 context of the '690.

2 Q. And in Figure 1 of Xiong, it shows a
3 laser with its light path directed through a
4 spot-size converter and then on to an
5 optoisolator, correct?

6 A. The Figure 1 of Xiong shows a laser
7 chip emitting light, passing through a lens,
8 passing through a spot-size converter and
9 passing through an isolator.

10 Q. And to be useful as a TOSA, the
11 device shown in Figure 1 of Xiong would have
12 to have the laser chip optically aligned with
13 the isolator, correct?

14 A. So the light coming out of this --
15 so this is a single channel TOSA. The light
16 coming out of the single laser chip passing
17 through the lens and the spot-size converter
18 and the isolator, a person of ordinary skill
19 would know that it would likely need to be
20 aligned.

21 Q. And these components that you just
22 mentioned would also need to be mounted,
23 correct?

24 A. The single channel TOSA shown in
25 Figure 1 with the single laser chip emitting

1 light passing through a single lens, passing
2 through a single spot-size converter, passing
3 through a single optical isolator, would
4 likely -- would likely be mounted in some
5 fashion so that the alignment can be
6 maintained.

7 Q. And even if you remove the spot-size
8 converter, it would still need to be mounted
9 to maintain the optical alignment, correct?

10 MS. CAROTHERS: Objection. Form.

11 THE WITNESS: The single channel
12 TOSA of Figure 1, which has a single laser
13 chip emitting light through a single lens,
14 and if the spot-size converter was absent, in
15 which case there would be some differences,
16 of course, and so -- so if in this
17 hypothetical case where there's a laser chip,
18 a single lens, a single isolator, that
19 outside the context of the '690, the light
20 would likely need to be aligned amongst those
21 components and also held in place in some
22 fashion, such that the alignment can be
23 maintained.

24 BY MR. WORLEY:

25 Q. And, sir, you can put that document

1 to the side, and I'd like you to please
2 return to your declaration. Do you have it
3 there in front of you, sir?

4 A. Yes.

5 Q. If you could please turn to page 29,
6 is there a section there entitled "Opinions
7 Regarding Ground 2"?

8 A. Yes.

9 Q. And are your opinions -- strike
10 that.

11 All of your opinions regarding
12 Petitioner's Ground 2 are identified in this
13 Section C, beginning on page 29, correct?

14 A. So all of my opinions set forth in
15 my declaration, I believe, are outlined in
16 this section, although I believe the -- my
17 opinions may be mentioned in other -- in
18 other parts of the declaration as well.

19 Q. Would it be fair to summarize your
20 opinions in -- in regard to Ground 2 as
21 describing why Wang's optoisolator array
22 could not be directly used with Xiong's
23 spot-size converter device?

24 MS. CAROTHERS: Objection to form.

25 THE WITNESS: I have several

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1 different issues that I bring up, and I think
2 we can go through them one at a time if you
3 wish. Some deal with issues about the
4 various limitations. Some deal with
5 motivations to combine. So I -- I probably
6 don't feel comfortable with -- with your
7 summary.

8 BY MR. WORLEY:

9 Q. Would you agree that Xiong is
10 directed to a combined splitter, isolator,
11 and spot-size converter for use with a single
12 channel?

13 A. So I believe that Xiong is directed
14 to a combined splitter, isolator, and spot
15 size converter for use with a single channel.

16 Q. And Wang is directed -- are you
17 looking at your report, sir? Strike that.

18 No, no. When you answered that
19 question, were you looking at your report?

20 A. I was glancing at my report.

21 Q. Paragraph 63?

22 A. I was looking at different pages.

23 Q. Okay. Fair enough.

24 And Wang is directed to a
25 multichannel isolator device, correct?

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1 A. Wang is directed to a multichannel
2 isolator device that is -- that includes
3 multiple channels and multiple isolators.

4 Q. And is it one of your opinions that
5 the multichannel isolator device of Wang not
6 be combined with the combined splitter,
7 isolator, and spot-size converter of Xiong to
8 yield the limitation you identified as 11C,
9 which, for the record, reads:

10 "At least one optical transmitter
11 subassembly (TOSA) arrangement disposed in
12 the transceiver housing."

13 A. So my opinion that is outlined in
14 Section C.1, paragraph 69 to 71, is that
15 Xiong is a single channel -- a single
16 channel, and, therefore -- that for at least
17 part of this reason, again, there's -- at
18 least partly, that Xiong wouldn't be the TOSA
19 arrangement which comprises the things that
20 follow, which -- of the '690, which have
21 various things that I don't -- that I don't
22 believe are there or taught, and then I have
23 other aspects that I go into later as well.

24 Q. And so for this opinion of C.1 in
25 your declaration, paragraph 69 to 71, you

1 cite to Xiong at columns -- I'm sorry,
2 Column 14, lines 61 to 63, as well as the
3 abstract, correct?

4 A. So in Xiong, I -- as partial support
5 for my opinion, I cite, as partial support,
6 one of the places is Column 14, lines 61 to
7 63.

8 Q. And for the opinion of Section C.1
9 that we're discussing, no other portion of
10 Xiong is cited, correct?

11 MS. CAROTHERS: Objection. Form.

12 THE WITNESS: I'm sorry, I did not
13 hear -- I did not -- I didn't follow the
14 question.

15 BY MR. WORLEY:

16 Q. Your --

17 A. By the way, my opinions -- my
18 opinions --

19 Q. There's no question pending, sir.
20 No question pending.

21 Section C.2 of your report, I'd like
22 to turn to, that goes from paragraph 72 to
23 75. Would you agree?

24 A. Section C.2 starts at 72,
25 paragraph 72, and goes until 75.

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1 Q. And the only portion of Xiong that
2 you cite to in this section of your report is
3 the abstract, correct?

4 A. So I consider all of Xiong in all of
5 Section C, and so in terms of in Section 2,
6 if you're asking me which part do I
7 specifically cite to, just in terms of
8 support, but I've considered all of -- all of
9 Xiong in all of C that I know affirmatively I
10 have cited to the abstract of Xiong to help
11 support my opinion.

12 I can read carefully to see if I
13 cite to any other things here, but I know
14 that affirmatively that's one of the ones I
15 make a specific citation to, although I've
16 considered all of it.

17 MR. WORLEY: Dr. Willner, I will
18 move to strike your answer as non-responsive.
19 BY MR. WORLEY:

20 Q. The question pending before you is:
21 The only portion of Xiong that you cite to in
22 this section of your report is the abstract,
23 correct?

24 A. So I have considered the entire
25 Xiong, although in terms of citing, I have

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1 cited affirmatively the abstract of Xiong
2 here to help support my opinion, and I don't
3 know if I've -- I would need more time to
4 read my -- these paragraphs carefully to see
5 if I've cited to something else.

6 Q. Section C.3 of your report spans
7 paragraphs 76 to 78. Would you agree?

8 A. Section C.3 spans paragraphs 76 to
9 78.

10 Q. The only citation in paragraphs 76
11 to 78 to Xiong is to the abstract; is that
12 correct?

13 A. So although I've considered all of
14 Xiong in -- in my opinions, including this
15 section, all of these sections, I
16 affirmatively have cited to the abstract of
17 Xiong to help with support. And if I can
18 look to other places in the -- to see if I
19 mentioned anything else, but I know I
20 affirmatively have cited to -- to the
21 abstract.

22 MR. WORLEY: Dr. Willner, at this
23 time I have no further questions pending
24 any -- any questions from counsel.

25 MS. CAROTHERS: Let's take a quick

1 break, a five-minute break, and let me make
2 sure I don't have any.

3 MR. WORLEY: Okay.

4 THE VIDEOGRAPHER: This ends
5 Media 4. We're now going off the record.
6 The time is 12:17.

7 (Recess.)

8 THE VIDEOGRAPHER: This begins
9 Media 5. We are now back on the record. The
10 time is 12:22.

11 MS. CAROTHERS: Counsel, I have no
12 questions.

13 MR. WORLEY: Okay. I think we can
14 wrap it up. Thank you for your time. And,
15 Dr. Willner, thank you especially for your
16 time today. And, Counsel, thank you for your
17 time. And, Terrance, Monice, you as well, I
18 appreciate it.

19 THE VIDEOGRAPHER: Before we go off
20 the record, Ms. Carothers, would you like a
21 copy of the transcript?

22 MS. CAROTHERS: I would like a copy
23 of the transcript, please.

24 THE VIDEOGRAPHER: Would you like a
25 copy of the video?

1 MS. CAROTHERS: No. Thank you.

2 THE VIDEOGRAPHER: Okay. Thank you.

3 We are off the record at 12:22 p.m., and this

4 concludes today's testimony given by

5 Dr. Alan Willner. The total number of media

6 used was five and will be retained by

7 Veritext Legal Solutions.

8 THE COURT REPORTER: Ms. Carothers,

9 would you like a rough draft or anything?

10 MS. CAROTHERS: No.

11 (Whereupon, the deposition concluded

12 at 12:22 p.m.)

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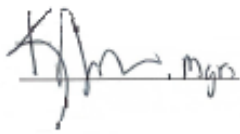
STATE OF CALIFORNIA)
) SS:
COUNTY OF LOS ANGELES)

I, Monice K. Campbell, a duly
commissioned and licensed court reporter,
County of Los Angeles, State of California,
do hereby certify: That I reported the
taking of the deposition of the witness,
Alan E. Willner, PhD, commencing on Thursday,
February 19, 2026, at 10:04 a.m.;

That prior to being examined, the
witness was, by me, duly sworn to testify to
the truth. That I thereafter transcribed my
said shorthand notes into typewriting and
that the typewritten transcript of said
deposition is a complete, true, and accurate
transcription of said shorthand notes.

I further certify that I am in no way
related to any of the parties, nor am I in any way
interested in the outcome thereof.

1 IN WITNESS THEREOF, I have hereunto set my
2 hand in my office in the County of Los Angeles,
3 State of California, this 23rd day of February,
4 2026.

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12 Monice K. Campbell, CCR No. 14171
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1 Alan E. Willner, , Ph.D

2 willner@usc.edu

3 February 23, 2026

4 RE: Cambridge Industries USA, Inc. v. Applied Optoelectronics
5 2/19/2026, Alan E. Willner, , Ph.D., (#7828756).

6 The above-referenced transcript has been
7 completed by Veritext Legal Solutions and
8 review of the transcript is being handled as follows:

9 ___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
10 to schedule a time to review the original transcript at
11 a Veritext office.

12 _XX_ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
13 Transcript - The witness should review the transcript and
14 make any necessary corrections on the errata pages included
15 below, notating the page and line number of the corrections.
16 The witness should then sign and date the errata and penalty
17 of perjury pages and return the completed pages to all
18 appearing counsel within the period of time determined at
19 the deposition or provided by the Code of Civil Procedure.
20 Contact Veritext when the sealed original is required.

21 ___ Waiving the CA Code of Civil Procedure per Stipulation of
22 Counsel - Original transcript to be released for signature
23 as determined at the deposition.

24 ___ Signature Waived - Reading & Signature was waived at the
25 time of the deposition.

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1 ___ Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF
2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.
9 ___ Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

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1 Cambridge Industries USA, Inc. v. Applied Optoelectronics
2 Alan E. Willner, , Ph.D. (#7828756)
3 E R R A T A S H E E T
4 PAGE_____ LINE_____ CHANGE_____
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24 (Alan E. Willner, , Ph.D.) Date
25

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1 Cambridge Industries USA, Inc. v. Applied Optoelectronics, Inc.
2 Alan E. Willner, , Ph.D. (#7828756)

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, Alan E. Willner, , Ph.D., do hereby declare that I
5 have read the foregoing transcript, I have made any
6 corrections, additions, or changes I deemed necessary as
7 noted above to be appended hereto, and that the same is
8 a true, correct and complete transcript of the testimony
9 given by me.

10

11

12

Alan E. Willner, , Ph.D.

Date

13

*If notary is required

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California Code of Civil Procedure

Article 5. Transcript or Recording

Section 2025.520

(a) If the deposition testimony is stenographically recorded, the deposition officer shall send written notice to the deponent and to all parties attending the deposition when the Original transcript of the testimony for each session of the deposition is available for reading, correcting, and signing, unless the deponent and the attending parties agree on the record that the reading, correcting, and signing of the transcript of the testimony will be waived or that the reading, correcting, and signing of a transcript of the testimony will take place after the entire deposition has been concluded or at some other specific time.

(b) For 30 days following each notice under subdivision (a), unless the attending parties and the deponent agree on the record or otherwise in writing to a longer or shorter time period, the deponent may change the form or the substance of the answer to a question, and may either approve the transcript of the deposition by signing it, or

refuse to approve the transcript by not signing it.

(c) Alternatively, within this same period, the deponent may change the form or the substance of the answer to any question and may approve or refuse to approve the transcript by means of a letter to the deposition officer signed by the deponent which is mailed by certified or registered mail with return receipt requested. A copy of that letter shall be sent by first-class mail to all parties attending the deposition.

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(e) The deposition officer shall indicate on the original of the transcript, if the deponent has not already done so at the office of the deposition officer, any action taken by the deponent and indicate on the original of the transcript, the deponent's approval of, or failure or refusal to approve, the transcript. The deposition officer shall also notify in writing the parties attending the deposition of any changes which the deponent timely made in person.

(f) If the deponent fails or refuses to approve the transcript within the allotted period, the

deposition shall be given the same effect as though it had been approved, subject to any changes timely made by the deponent.

(g) Notwithstanding subdivision (f), on a seasonable motion to suppress the deposition, accompanied by a meet and confer declaration under Section 2016.040, the court may determine that the reasons given for the failure or refusal to approve the transcript require rejection of the deposition in whole or in part.

(h) The court shall impose a monetary sanction under Chapter 7 (commencing with Section 2023.010) against any party, person, or attorney who unsuccessfully makes or opposes a motion to suppress a deposition under this section, unless the court finds that the one subject to the sanction acted with substantial justification or that other circumstances make the imposition of the sanction unjust.

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