

Page 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.

Petitioner,

v.

WILLOW LABORATORIES, INC.

Patent Owner

IPR No. 2024-00296

U.S. Patent No. 10,984,911

DEPOSITION OF DR. THOMAS KENNY

October 4, 2024

12:00 p.m.

Reported by: Eileen Mulvenna, CSR/RMR/CRR

DIGITAL EVIDENCE GROUP

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1 REMOTE VIDEOTAPED DEPOSITION of
2 DR. THOMAS KENNY, Declarant on behalf of the
3 Petitioner in the above-titled action, held on
4 Friday, October 4, 2024, commencing at approximately
5 12:00 p.m., before Eileen Mulvenna, CSR/RMR/CRR,
6 Certified Shorthand Reporter, Registered Merit
7 Reporter, Certified Realtime Reporter, and Notary
8 Public of the State of New York.

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1 A P P E A R A N C E S:

2

3 ON BEHALF OF THE PETITIONER:

4 FISH & RICHARDSON

5 BY: KIM LEUNG, ESQ.

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11 ON BEHALF OF PATENT OWNER:

12 KNOBBE, MARTENS, OLSON & BEAR, LLP

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18

19 ALSO PRESENT:

20 Henry Marte, Document Technician

21

22

1

I N D E X

2

WITNESS

EXAMINATION BY

PAGE

3

DR. THOMAS KENNY

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MR. WENTZEL

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MS. LEUNG

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MR. WENTZEL

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E X H I B I T S

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PAGE

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Exhibit 1001 United States Patent No.

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10,984,911, Smith et al.

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Exhibit 1003 Declaration of Dr. Thomas

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14

W. Kenny

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Exhibit 1004 No. Bates numbers,

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Abdul-Hafiz patent

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publication

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1 THE REPORTER: Counsel, before I swear
2 in the witness, do both counsel stipulate to
3 the witness being sworn in remotely?

4 MR. WENTZEL: I do.

5 MS. LEUNG: Yes.

6 THE REPORTER: Ms. Leung?

7 MS. LEUNG: Yes, I do.

8 THE REPORTER: Okay. Thank you.

9 Counsel, please state your appearances
10 for the record.

11 THE WITNESS: Yes. My name is Thomas
12 Kenny.

13 MR. WENTZEL: Good morning. This is
14 Douglas Wentzel with Knobbe Martens on behalf
15 of the Patent Owner, Willow
16 Laboratories, Inc.

17 MS. LEUNG: And Kim Leung with Fish &
18 Richardson, on behalf of Apple, Inc.
19 Petitioner, Apple, Inc.

20 (Witness sworn.)

21

22

1 DR. THOMAS KENNY,

2 having been duly sworn by Eileen Mulvenna,

3 a Notary Public of the State of New York,

4 was examined and testified as follows:

5 EXAMINATION

6 BY MR. WENTZEL:

7 Q. Good morning, Dr. Kenny.

8 A. Good morning, Doug. Good to see you
9 again.

10 Q. Good to see you again, as well.

11 I know you've been deposed before, but
12 I'm just going to go over the ground rules, as
13 you're used to at this point.

14 A. Sure.

15 Q. So, first, you understand you're
16 testifying under oath today as if you were in a
17 courtroom; right?

18 A. I do.

19 Q. And just so that the court reporter
20 can cleanly take down everything we say today, you
21 understand you need to verbally respond to my
22 questions; right?

1 A. I do, yes.

2 Q. And if you don't understand one of my
3 questions, just let me know. Otherwise, I'll assume
4 you understood my question; is that fair?

5 A. That's fair.

6 Q. Your counsel may object to some of my
7 questions today, but unless she instructs you not to
8 answer, you still need to answer my question.

9 You understand that?

10 A. I do.

11 Q. And you agree you'll wait to answer my
12 question -- you'll wait until I finish my question
13 before you start answering; correct?

14 A. I'll try. I'll do my best.

15 Q. Great.

16 Is there any reason you cannot give
17 truthful and accurate testimony today?

18 A. None that I can think of.

19 Q. Where are you testifying from today?

20 A. I'm in one of the bedrooms of my home
21 here in San Francisco.

22 Q. Is anyone else in the room with you?

1 A. Nope, just me.

2 Q. Do you have any notes or documents
3 with you besides the materials for this IPR?

4 A. There's a lot of paper on my wife's
5 desk related to household operations, I guess. What
6 I have here in front of me are just the materials
7 related to the case.

8 Q. And do you have any other screens open
9 on your computer besides the one for this deposition
10 and the web page for downloading exhibits?

11 A. I do not.

12 Q. Great.

13 So if you need a break today, just let
14 me know, and as long as there's not a question
15 pending, we should be able to take a break. But
16 I'll try to take a break every hour.

17 A. That's great. Thank you.

18 Q. So you understand your deposition
19 today is for an IPR proceeding concerning
20 U.S. Patent No. 10,984,911; correct?

21 A. That's correct.

22 Q. And you're okay if we refer to that

1 patent as the '911 patent?

2 A. Yes.

3 Q. And you've been hired by Apple to
4 provide opinions in this IPR proceeding concerning
5 the '911 patent; is that right?

6 A. That's correct.

7 Q. So just so we're on the same page,
8 let's look at Exhibit 1001 for just a second. And
9 this is the '911 patent.

10 (Exhibit 1001, United States Patent
11 No. 10,984,911, Smith et al., received and
12 marked.)

13 BY MR. WENTZEL:

14 Q. And, Dr. Kenny, you understand that
15 this '911 patent is the subject of the IPR that
16 you're testifying about today; is that right?

17 A. That's correct. And I have a hard
18 copy here.

19 Q. Okay. Excellent.

20 And you provided a declaration in
21 support of Apple's IPR petition for the '911 patent;
22 is that right?

1 A. That is correct.

2 Q. So let's pull that up. That's
3 Exhibit 1003.

4 (Exhibit 1003, Declaration of Dr.
5 Thomas W. Kenny, received and marked.)

6 BY MR. WENTZEL:

7 Q. And Exhibit 1003 is the declaration
8 you prepared in this IPR regarding the '911 patent;
9 is that right?

10 A. That's correct. I also have a copy of
11 that right here.

12 Q. And it's okay with you if today I
13 refer to Exhibit 1003 as "your declaration"; right?

14 A. Yes.

15 Q. Did you sign your declaration on
16 December 8, 2023?

17 A. I did.

18 Q. And when you signed your declaration,
19 did you understand you were doing so under the
20 penalty of perjury?

21 A. Yes.

22 Q. And have any of your opinions relating

Page 11

1 to the '911 patent changed since you signed your
2 declaration on December 8, 2023?

3 A. Let's see, page 11. So the summary of
4 opinions that's in my report, paragraph 21 on
5 page 11 summarizes my opinions, and those have not
6 changed.

7 Q. So have any of your opinions relating
8 to the '911 patent changed since you signed your
9 declaration?

10 A. I don't think so. Of course, you
11 may -- you may find your way to a question that I
12 haven't completely thought through, and we may
13 explore that. I've also had the benefit of reading
14 the response from Masimo and also from
15 Dr. Madisetti. So that's given me some insight, but
16 has not changed my opinions.

17 Q. Are you aware of any mistakes or
18 inaccuracies in your declaration?

19 A. None.

20 Q. So you agree your declaration contains
21 a complete and accurate statement of all your
22 opinions in this IPR; is that correct?

Page 12

1 A. So I've been a professor in this field
2 for 30 years. I have lots of opinions I could add
3 if there's questions around the perimeter of the
4 work here. But I think the report reflects my
5 opinions that we'll be discussing today and is the
6 basis of the opinions offered in the report.

7 Q. So let's look at your declaration,
8 Exhibit 1003, paragraph 16, which is on page 9.

9 MR. WENTZEL: And, actually, if we can
10 zoom out, Henry.

11 BY MR. WENTZEL:

12 Q. So you see paragraph 16 refers to --
13 it says you've reviewed a number of prior art
14 references, and then it has a bulleted list on the
15 next page; is that right?

16 A. That's correct.

17 Q. And you see the first bullet point on
18 page 10 refers to the Abdul-Hafiz patent publication
19 as Exhibit 1004; is that right?

20 A. That's correct.

21 (Exhibit 1004, No. Bates numbers,
22 Abdul-Hafiz patent publication, received and

1 marked.)

2 Q. So if I refer to Exhibit 1004 as
3 "Abdul-Hafiz," you'll understand what I'm referring
4 to; right?

5 A. I will, yes.

6 Q. And if you look at the second bullet
7 point on page 10, you see that the second bullet
8 point refers to the Raley patent as Exhibit 1005;
9 correct?

10 A. That's correct.

11 Q. So if I refer to Exhibit 1005 as
12 "Raley," you'll understand what I'm referring to;
13 correct?

14 A. I will, yes.

15 Q. And then if we look at the
16 third bullet point on page 10, you see that it
17 refers to the Secker patent as Exhibit 1006; right?

18 A. That's correct.

19 Q. So if I refer to Exhibit 1006 as
20 "Secker," you'll understand what I'm referring to;
21 correct?

22 A. I will.

1 Q. How did you prepare for your
2 deposition today?

3 A. I reviewed the materials that were
4 produced up to a year ago as the project began
5 including the '911 patent, the references, and my
6 expert report.

7 I also reviewed the reports provided
8 by Dr. Madisetti and the responses from the
9 Petitioner -- or sorry, from the Patent Owner.

10 Q. For approximately how long did you
11 spend preparing for your deposition today?

12 A. To clarify, you're talking about the
13 recent preparation, or all the way back to a year
14 ago when all of this began?

15 Q. Just the preparation for today's
16 deposition.

17 A. It was probably around 20 hours.
18 Somewhere 20 to 30 hours, give or take.

19 Q. Did you do anything else to prepare
20 for your deposition today besides what you just
21 described a moment ago?

22 A. I had a couple of Zoom conversations

1 with Kim.

2 Q. And by "Kim," you're referring to your
3 counsel; is that right?

4 A. That's correct.

5 Q. Did you talk to anyone other than
6 attorneys in preparing for your deposition today?

7 A. I did not.

8 Q. Have you ever discussed this
9 deposition with anyone at Apple?

10 A. No.

11 Q. Have you ever discussed this IPR
12 proceeding with anyone at Apple?

13 A. No, I don't think so.

14 Q. So let's turn to paragraph 17 of your
15 declaration, which is on page 10.

16 A. Okay.

17 Q. You see in paragraph 17 of your
18 declaration, you state that March 1st, 2005, is the
19 critical date that you used in forming the opinions
20 in your declaration; is that correct?

21 A. Yes, that's correct.

22 Q. During the deposition today, I'm going

1 to refer to a person of ordinary skill in the art,
2 using its common abbreviation POSITA, P-O-S-I-T-A.

3 So when I say "POSITA," you'll
4 understand what I'm referring to; right?

5 A. Yes, I will.

6 Q. So if we look at paragraph 22 of your
7 declaration, which is page 12.

8 Here you provide your opinion on the
9 definition of a POSITA for the '911 patent; correct?

10 A. That's correct.

11 Q. And in paragraph 22, you first state
12 your opinion that a POSITA would have, quote, at
13 least one to two years of relevant work experience
14 with capture and processing of data or information
15 including but not limited to physiological
16 information, unquote.

17 Do you see that?

18 A. That's correct.

19 Q. So by "capture and processing of data
20 or information including but not limited to
21 physiological information," what are you referring
22 to there?

1 A. So "capture and processing" would mean
2 using devices or instruments to make recordings of
3 physiological data, for example, pulse oximetry data
4 that we'll be discussing in detail.

5 And then processing of that data would
6 include amplifying, filtering and other operations
7 as needed to convert the data into the measurements
8 and results of the measurement, which would be
9 values of physiological parameters, for example.

10 Q. Does your definition of a POSITA cover
11 the capture and processing of physiological
12 information that was obtained invasively?

13 A. I think as I understand the term
14 "invasive," we're talking about elements of a system
15 that are inserted into the tissue one way or
16 another. And in that regard, I would say it
17 includes, but is not limited to those.

18 Q. So would a person who exclusively had
19 experience with capturing and processing of an
20 invasively obtained physiological information
21 satisfy your definition of a POSITA?

22 A. There are some differences between

1 invasive instruments and noninvasive instruments
2 largely associated with the physical relationship
3 between the instrument and the patient. The other
4 elements of such instruments include optical or
5 other kinds of sensors.

6 The circuits, mechanical structures,
7 and microprocessors and software, I think those are
8 generally present in both invasive and noninvasive
9 instruments. So I don't think there's an important
10 distinction here.

11 Q. So regardless of whether you think
12 it's an important distinction, would a person who
13 had exclusively -- who had experience exclusively
14 with capture and processing of invasively obtained
15 physiological information satisfy your definition of
16 a POSITA?

17 A. I believe so. I think such a person
18 would be able to read and understand the '911 patent
19 and the other references and also be able to read
20 and understand the claims of the '911 patent and
21 consider the relationship between those claims and
22 the teachings of the prior art references.

1 Q. To meet your definition of a POSITA,
2 does a person need to have experience capturing and
3 processing physiological information that was
4 obtained noninvasively?

5 A. Sorry, could you repeat that again?

6 Q. Sure.

7 To meet your definition of a POSITA,
8 does a person need to have experience capturing and
9 processing physiological information that was
10 obtained noninvasively?

11 A. So I think this definition of a POSITA
12 includes anyone with at least one to two years of
13 relevant work experience with capture and processing
14 of data or information including but not limited to
15 physiological information.

16 I don't distinguish the capture of
17 data using invasive from noninvasive instruments,
18 and so this definition would include people with any
19 of those experiences, which would include someone
20 with only experience in noninvasive or only
21 experience in invasive.

22 I think such a person would be able to

1 read the '911 patent and the claims of the patent
2 and understand how those claims related to the
3 teachings of the prior art references.

4 Q. Can a person who had no experience
5 capturing and processing any physiological
6 information satisfy your definition of a POSITA?

7 A. I'm reading that first sentence
8 carefully linguistically. I think it's clear that a
9 person of ordinary skill in the art would have one
10 of those Bachelor of Science degrees, with at least
11 one to two years of relevant work experience with
12 capture and processing of data or information.

13 Q. But does the experience with capture
14 and processing of data or information have to
15 include physiological information, or could it
16 exclusively be other information?

17 A. It says "including but not limited
18 to." I think, you know, reading further, a greater
19 amount of education or additional education or
20 industry experience may compensate for a deficit in
21 one of the other aspects of the requirements stated
22 above.

1 I don't want to overlook the entirety
2 of this definition.

3 Q. So by "including but not limited to
4 physiological information," does that mean a person
5 would need this experience with physiological
6 information, or would any information suffice?

7 A. So I'm just reading the sentence
8 carefully, at least one to two years of relevant
9 work experience with capture and processing of data
10 or information including but not limited to
11 physiological information.

12 I think literally that means what it
13 says, that it includes physiological information but
14 not limited to that.

15 Q. Can a person who had a doctorate
16 degree in one of the disciplines listed in
17 paragraph 22 meet your definition of a POSITA even
18 if they had no experience capture and processing
19 physiological information?

20 A. I think that advanced degree and those
21 disciplines might include that experience as part of
22 the work in the degree, depending on the detail of

1 the curriculum.

2 I'd say, further to that, that
3 advanced preparation would prepare a person to be
4 able to read the '911 patent and the prior art
5 references, understand the claims and how the
6 elements of the '911 patent relate to the claims.

7 Q. So you agree a person who had a
8 doctorate degree in one of the disciplines in
9 paragraph 22 could meet your definition of a POSITA
10 even if they had no experience capture and
11 processing physiological information?

12 A. I think the simple answer is yes,
13 that's what that sentence says. I think someone
14 with that education would be prepared to read and
15 understand the '911 patent and the claims and the
16 prior art references, would along the way in the
17 course of that education have gained experience in
18 things such as sensors, optics, signal processing,
19 et cetera, that are relevant for the '911 patent at
20 the level necessary to understand the claims.

21 Q. You're familiar with the concept of
22 objective indicia of nonobviousness, which are

1 sometimes called secondary considerations; right?

2 A. I am familiar with that concept, yes.

3 Q. And your declaration has no opinions
4 on objective indicia of nonobviousness; right?

5 A. That's correct, at least in this case.

6 Q. Why does your declaration have no
7 opinions on objective indicia?

8 A. I wasn't presented with any evidence
9 of those objective -- or of those -- of those
10 indicia. I wasn't asked to analyze any such
11 information.

12 Q. Are you aware that Masimo accuses
13 Apple of infringing the '911 patent in a pending
14 patent litigation case in Delaware District Court?

15 A. I have, yes, some only vague awareness
16 of that.

17 Q. Were you aware of the Delaware case
18 prior to submitting your declaration in December of
19 2023?

20 A. So at that time, and even now to
21 today, I haven't seen any of the materials
22 associated with that case. I can't recall for sure

Page 24

1 whether the existence of such a case was something
2 discussed with the attorneys back at that time. I
3 don't -- frankly don't recall, and it certainly
4 didn't have a bearing on the opinions that are in my
5 report.

6 Q. So I take it you did not know that
7 Apple set forth its claim construction arguments for
8 the '911 patent in the Delaware case several months
9 before you submitted your declaration in this IPR
10 proceeding; correct?

11 A. That is correct.

12 Q. Wouldn't you want to know Apple's
13 Delaware claim construction arguments for the '911
14 patent before you offer opinions on the validity of
15 the '911 patent in this IPR?

16 A. So in the preparation of my IPR
17 report, I was asked to review the '911 patent,
18 consider its validity, helped identify and analyze
19 prior art references. I believed at the time, still
20 believe that the plain and ordinary meaning of the
21 terms in the claims of the '911 patent is clear and
22 available for interpretation in terms of my analysis

1 of these claims.

2 And so I relied on the plain and
3 ordinary meaning of those terms. I wasn't presented
4 with information about other constructions and
5 didn't ask about that.

6 Q. That doesn't answer my question.

7 You've told me what you did, but my
8 question was: Wouldn't you have wanted to know
9 Apple's Delaware claim construction arguments for
10 the '911 patent before you offered opinions on the
11 validity of that patent in this IPR?

12 A. I don't see why. I think the claims
13 of the '911 patent, as I understand them in the
14 context of the description in the '911 and the other
15 references, are understandable to me and to a person
16 of ordinary skill in the art, according to their
17 plain and ordinary meaning.

18 Q. Did you review Masimo's complaint in
19 the Delaware case prior to submitting your
20 declaration in this IPR?

21 A. I did not.

22 Q. Did you review the parties' claim

1 construction briefing in the Delaware case prior to
2 submitting your declaration in this IPR?

3 A. I did not.

4 Q. Are you aware that in Delaware Apple
5 argues that the term "cavity" in the '911 patent
6 claims means "a hollowed-out space within a solid
7 body"?

8 A. So I'm aware that that description of
9 the claim construction appears in the Patent Owner's
10 response.

11 Q. Do you mean that Masimo's Patent Owner
12 preliminary response identifies that instruction as
13 Apple's Delaware construction of "cavity"?

14 A. Yes, on page 11 of that report.

15 Q. Did you apply Apple's construction
16 that "cavity" means "a hollowed out space within a
17 solid body" in your declaration?

18 A. So in my report, on paragraph 79, I
19 describe the Raley disclosure, which depicts a
20 bottom elevational view of the patient end of
21 interconnect cable segment 20 with the four
22 emitters.

1 This segment is held in a connector 17
2 that houses a window and enables light to be passed
3 from the emitters to the patient while protecting
4 the patient from excess heat. This light passes
5 through the window or opening 26 and window 16 in
6 probe-end 10, which impinges on the tissue of the
7 patient.

8 I say a POSITA would have understood
9 or at least found it obvious that these four LEDs
10 are recessed into a cavity covered by a window
11 opening of the interconnect cable, and that the
12 interconnect cable segment with the four LEDs is
13 recessed into a cavity formed in connector 17 and
14 covered by window 16, as shown in the illustrations.

15 Q. So you were the just reading from
16 paragraph 79 of your declaration; right?

17 A. That's correct.

18 Q. But did you apply Apple's construction
19 that "cavity" means "a hollowed-out space within a
20 solid body" in forming the opinions in your
21 declaration?

22 A. I applied what I understand to be the

1 plain and ordinary meaning of a "cavity," and that
2 the examples described in the Raley patent are -- or
3 I'd say that's a description of what a person of
4 ordinary skill would understand to be a cavity.

5 Q. Do you agree with Apple's construction
6 that "cavity" means "a hollowed-out space within a
7 solid body"?

8 A. So I haven't spent time analyzing that
9 specific construction and whether I think it is or
10 is not what a person of ordinary skill would
11 understand. I think it's plain to a person of
12 ordinary skill reading the '911 patent, as well as
13 the Raley disclosure that a cavity would be what's
14 shown, for example, in the Raley disclosure.

15 Q. Are you aware that in the Delaware
16 case, Apple argues that the phrase "a top of the
17 shoebox structure" or "light block" in the '911
18 patent claims means "the uppermost structure that
19 covers the shoebox structure/light block"?

20 A. I'm aware of that because it's
21 discussed in the Patent Owner response and in
22 Dr. Madasetti's report. In a moment I can find the

1 page numbers for that. Page 13 of the Patent Owner
2 response.

3 Q. Did you apply Apple's construction
4 that "a top of the shoebox structure/light block"
5 means "the uppermost structure that covers the
6 shoebox structure/light block" in forming the
7 opinions in your declaration?

8 A. No, I wasn't aware of that
9 construction at that time. I understood the "a top
10 of the shoebox structure/light block" to have its
11 plain and ordinary meaning.

12 In the case of the Abdul-Hafiz
13 disclosure, the light block is shown in, for
14 example, Figure 6A. The opening in that drawing is
15 on the bottom part of that illustration, but one of
16 ordinary skill in the art would understand that this
17 light block and detector structure would be part of
18 the transmitter pulse oximeter that is commonly used
19 in many applications.

20 The detector element is typically
21 placed on the bottom side of the finger facing
22 upwards. Whereas, the emitter structure is

Page 30

1 generally on the top of the finger facing downwards.
2 And that in the configuration as it's intended to be
3 used, the opening is on the top of the light block,
4 consistent with the requirements of the claim.

5 I think a person of ordinary skill in
6 the art would understand that Figure 6A is an
7 illustration of the structure and that in its use it
8 would be oriented in the opposite direction, in
9 terms of up versus down.

10 Q. So are you saying you agree with
11 Apple's construction in Delaware of the term, "a top
12 of the shoebox structure" or "light block"?

13 A. I haven't spent time analyzing that
14 specific construction. I believe in my analysis,
15 that one of ordinary skill in the art would
16 understand that the top of the shoebox
17 structure/light block would be the top. And that in
18 the orientation that such structures are used, the
19 opening in Figure 6A is pointed upwards and it's on
20 top of the shoebox structure.

21 Q. Is it your opinion that the claims of
22 the '911 patent have to be assessed in the context

1 that a device would actually be used?

2 A. I think that's what a person of
3 ordinary skill would consider, that if we're talking
4 about a pulse oximeter that's transmission pulse
5 oximeter to be applied to the finger of a patient,
6 if there's discussion of which way is up, I think
7 that discussion would apply to the configuration in
8 use.

9 It's obvious that a pulse oximeter
10 could be in a box on a table, it could be lying on a
11 bench, it could go in the back of a FedEx van, it
12 could be in many different orientations and none of
13 those I would think of as limiting. I think the
14 orientation I would be interested in and would
15 consider in the context of the claims would be the
16 orientation during use.

17 Q. So is it your opinion that the claims
18 of the '911 patent only cover a device if it's being
19 used?

20 A. So could I have that question again?

21 Q. Sure.

22 I asked, "So it is your opinion that

1 the claims of the '911 patent only cover a device if
2 it's being used"; is that right?

3 A. No, I don't think so. I think
4 these -- some of the claims, particularly Claim 1,
5 just describes the device. The device can meet the
6 limitations of that claim whether or not it's in
7 use, I think. The claim describes configurations,
8 objects, you know, relationships among the objects.
9 Those things are -- can be assessed during operation
10 or, you know, separate from operation.

11 Q. To be clear, you have no opinion on
12 whether Apple's construction in Delaware for the
13 term, a top of the shoebox structure or light block,
14 is correct; is that right?

15 A. I think that's correct. I was able to
16 analyze the claims of the '911 patent according to
17 their plain and ordinary meaning. I think in this
18 case, the opening is -- let me just make sure I have
19 the language correct here.

20 The opening that we're describing is
21 part of the top of the shoebox structure as
22 described in the claims. I think that's what's

1 presents in the Raley patent. The opening is on the
2 top as it would be oriented during use.

3 I think one of ordinary skill thinking
4 about an element of the claim that describes its
5 orientation is most likely to consider that
6 orientation during the use of the product as the
7 best interpretation of the meaning of that claim.

8 Q. So your opinion is that "a top" in the
9 claims refers to an orientation, not a structure of
10 the device; is that right?

11 A. Could you ask that question again?

12 Q. Sure.

13 Your opinion is that "a top" in the
14 '911 patent claims refers to an orientation, not a
15 structure of the device; is that right?

16 (Document review.)

17 THE WITNESS: I'm sorry for the delay
18 here. I really spent much time trying to
19 think of a clear way of distinguishing a top
20 of a shoebox structure from other parts of
21 the structure.

22 The '911 patent includes a number of

1 illustrations of the shoebox structure in
2 Figure 32. 32A through H, all different
3 orientations; side view, top view,
4 cross-sections, et cetera.

5 There's an opening in these
6 illustrations, 3210, for example, in 32B. In
7 that illustration, opening is facing upwards.
8 32A, it's facing downwards.

9 I don't think there's anything magical
10 about that particular surface of the light
11 block in Figure 32 that would distinguish the
12 surface in 32A from 32B, as far as which is
13 the top.

14 So in the absence of any -- anything
15 specific in the patent or in the figures or
16 in the claims that tells me "a top" is a
17 special structure relative to the rest of the
18 light block structure, I rely on what I think
19 a person of ordinary skill would think, which
20 is here's a structure in the '911 patent that
21 has an opening, has other structural
22 features.

Page 35

1 It has a shape. It can be viewed from
2 many angles, and that the opening described
3 in the patent on the top is the one that
4 would be facing upwards during the use. It's
5 the only -- it's the only thing I can apply
6 to all of this that would distinguish the
7 description of the light block in 32A from
8 the one in 32B.

9 I think it's clear to the -- to a
10 person of ordinary skill in the art that
11 those are intended to be the same structure.
12 In one case, it's facing up. In one case,
13 it's facing down.

14 I think the opening that's on the top
15 described in the claim would be the only
16 thing I can apply to all of this that gives
17 me one way of picking which way is up, is
18 thinking about its orientation during use,
19 which is what's -- I think roughly what's
20 shown in Figure 32B.

21 BY MR. WENTZEL:

22 Q. Are the claims limited to Figure 32 of

1 the '911 patent?

2 A. No, they're not. This is an
3 embodiment. But it's the information I have that
4 tells me what the claims should cover. I believe
5 what's shown here is covered by the claims.

6 The claims can have a broader scope
7 than this illustration, of course, but this is the
8 information I have and what I think a person of
9 ordinary skill in the art would consider when
10 looking at the patent and the claims.

11 Q. So to be clear, your opinion is that
12 "a top" in the '911 patent claims refers to an
13 orientation, not a structure; is that right?

14 A. I think the top is the part of the
15 shoebox structure that's likely to be facing up. I
16 don't see anything in Figure 32 or in the other
17 written description of the patent that would
18 distinguish the surface that's facing up in 32A,
19 from the surface that's facing up in 32B, except in
20 32B there's an opening, and it's in the orientation
21 in which it's likely to be used.

22 So if I'm going to pick a surface of

Page 37

1 this shoebox structure and call it the top, in the
2 absence of anything else here, I'm going to pick,
3 and I think a person of ordinary skill in the art
4 would pick, the surface that's facing up when it's
5 being used.

6 Q. So do you think "a top" in the claims
7 refers to an orientation or a structure, which is
8 it?

9 A. I think it's the structure, which
10 happens to be on top in the orientation during use.
11 So, I mean, the Figure 32A -- I'm sorry, yeah, 32B,
12 I think, shows me the part of the shoebox structure
13 that I would probably, I believe, reasonably call
14 the top.

15 In the Raley patent, Figure 6, I'd be
16 considering the same thing, which -- which of the
17 orientations is relevant would be the one where the
18 opening is on top.

19 Q. Are the '911 patent claims limited to
20 transmission sensors only?

21 A. I don't see anything in the claims
22 that restricts their application to transmission

1 pulse oximeters exclusively.

2 Q. Are you aware that in the Delaware
3 case, Apple argues that the phrase "a light block"
4 in the '911 patent claims must be limited to one
5 embodiment in the specification?

6 A. It rings a bell. If you could direct
7 me to the page of the Patent Owner response, you can
8 save us some time.

9 Q. I can represent to you that they did
10 take that position. I just want to know if you're
11 aware that they did?

12 Given that earlier you said you were
13 not aware of Apple's claim construction positions
14 before you submitted your declaration, I'm going to
15 assume --

16 A. Yeah, that's helpful, thank you.
17 You're asking me what I was aware of at the time I
18 filed the declaration?

19 Q. Yes.

20 A. I was not aware of the detail you
21 mentioned.

22 Q. And are you aware now that Apple --

1 A. No.

2 Q. -- has taken that position, that "a
3 light block" is limited to one specific embodiment
4 in the '911 patent specification?

5 I believe it's on page 9 of the POPR.

6 A. Okay, thank you.

7 Q. No. 2.

8 A. Yes, so it's true that I did not even
9 include a section in my report regarding claim
10 constructions, and I didn't write anything about
11 this particular detail of whether or not this
12 element is a coined term. So I've not done any
13 analysis with respect to this information.

14 Q. So you never applied Apple's position
15 that "a light block" is a coined term limited to a
16 specific embodiment in forming the opinions in your
17 declaration; is that right?

18 A. That's correct.

19 Q. Do you agree with Apple's argument
20 that "a light block" is a coined term limited to one
21 embodiment in the specification?

22 A. So I haven't spent any time thinking

1 about this information and some elements of this
2 sounds like legal opinions, as well as expert
3 opinion. So I'm not prepared to make any comments
4 today.

5 Q. Are you aware that in the Delaware
6 case, Apple argues that the claimed "opening" in the
7 '911 patent claims requires "empty space"?

8 A. So I was not aware of that at the time
9 of my declaration.

10 Q. But you're aware of it now; correct?

11 A. I'm actually looking for where that is
12 in the preliminary response.

13 Q. On page 10, at the top.

14 A. Okay. Sorry, I keep going right past
15 these things.

16 (Document review.)

17 THE WITNESS: Yeah, so I'm aware of --
18 I'm aware of what you're saying on the basis
19 of what's in the preliminary response from
20 the Patent Owner.

21 BY MR. WENTZEL:

22 Q. Did you apply Apple's construction

1 that an "opening," in the '911 patent claims,
2 requires empty space in forming the opinions in your
3 declaration?

4 A. I did not.

5 Q. Did you agree with Apple's
6 construction that "opening" requires empty space?

7 A. I honestly have not considered that.
8 So I don't have an opinion prepared for you. I
9 could spend time, if you'd like, thinking through
10 all of this. But as I sit right now, I don't have
11 an opinion.

12 Q. In Apple's IPR petition for the '911
13 patent, are you aware that Apple argues that, "no
14 express constructions are required"?

15 A. Yes, I'm aware of that.

16 Q. Do you know why Apple's claim
17 construction positions in the IPR petition are
18 different than Apple's claim construction positions
19 in Delaware?

20 A. I don't. I really don't know anything
21 about the proceedings or the activities associated
22 with the Delaware case, except for the information

1 that is included in the preliminary response and in
2 Dr. Madasetti's report.

3 Q. Does making inconsistent claim
4 construction arguments regarding the same terms of
5 the same patent in two different cases seem fair to
6 you?

7 A. Actually, I think you asked me the
8 same question last week. I'm trying to remember the
9 exact wording I used. I'm not really going to come
10 up with it word for word. I don't really have an
11 opinion about that. I don't -- never been involved
12 in a case where I was analyzing infringement and
13 invalidity in two separate proceedings across the
14 same set of references.

15 So, in my opinion, the claims of the
16 '911 patent are understandable to one of ordinary
17 skill in the art under the plain and ordinary
18 meaning of the terms. And I believe a person of
19 ordinary skill in the art can consider the claims in
20 the context of the prior art references.

21 And I believe they would agree with me
22 that they'll find that the elements of these claims

1 exist in the Abdul-Hafiz and Raley references for
2 most of the claims, and that the Secker reference
3 adds some additional detail for some of the claims,
4 and that all those elements can be identified just
5 based on the plain and ordinary meaning of the
6 terms.

7 Q. I believe last week when I asked you
8 whether you thought that inconsistent claim
9 construction arguments was fair, you said you didn't
10 have an opinion on that that you would want on the
11 record.

12 Do you recall that?

13 A. I recall there were questions and
14 answers. I don't have the transcript and didn't
15 memorize. So to the best I can, I can try to repeat
16 the same answers, but...

17 Q. You understand that patent claims are
18 construed the same way for assessing the issues of
19 infringement and validity; correct?

20 A. In any single proceedings, I think
21 that's generally the case.

22 Q. Do you think that a claim term can

Page 44

1 have one meaning in one proceeding and a different
2 meaning in another?

3 A. I think that's -- yeah, honestly, that
4 sounds like more of a legal question. I'm sure
5 there's been legal argument on that question,
6 probably -- there's probably been court rulings,
7 even maybe Supreme Court rulings on that question.

8 I think just for my own work, when I'm
9 analyzing the claims of a patent, I arrive at or --
10 I arrive at claim constructions, or I apply the
11 plain and ordinary meaning. And I try to be
12 consistent within that particular body of work.

13 Q. Let's look at page 60 of your
14 declaration, Exhibit 1003.

15 And you see in the center of the page
16 there, you've identified Element -- Claim Element 1C
17 of '911 patent; is that right?

18 A. That's correct.

19 Q. And Element 1C of the '911 patent is
20 "a light block surrounding the at least one
21 detector, the light block comprising a shoebox
22 structure configured to recess the at least one

Page 45

1 detector into the shoebox structure"; is that right?

2 A. That's correct.

3 Q. So if I refer to Element 1C later on,
4 you'll understand what I'm referring to?

5 A. I will try, yes.

6 Q. So let's turn to the next paragraph
7 there on page 60, which is paragraph 85.

8 And you see that in the first sentence
9 of paragraph 85, you state your understanding of how
10 Masimo interprets the claimed phrase "light block"
11 in the litigation.

12 You see that?

13 A. Yeah, and that's referring to a
14 sentence in the prior paragraph, that the
15 application of shoebox structure for purposes of
16 Masimo's theory of infringement seems to encompass
17 more than a rectangular shoebox shape. That's in
18 the middle of that paragraph.

19 Q. Just taking a step back, by "in the
20 litigation" in paragraph 85, you're referring to the
21 Delaware case between Masimo and Apple; is that
22 right?

1 A. I believe so.

2 Q. And in the first sentence of
3 paragraph 85, you state your understanding that
4 Masimo interprets the "light block" to be "anything
5 that at least partially surrounds the detector and
6 blocks stray light from reaching the detector"; is
7 that correct?

8 A. That's correct.

9 Q. And you applied that interpretation of
10 the claim "light block" in forming the opinions set
11 forth in your declaration; is that right?

12 A. So I think the last sentence of that
13 paragraph is an accurate description of how I
14 interpret this term, that a "light block" is "a
15 structure that blocks light and accommodates the
16 detector assembly" and that a "shoebox structure"
17 has a rectangular, "shoe box shape."

18 Q. So I agree that the last sentence of
19 paragraph 85 sets forth what you believe the term
20 should mean. But if you look at paragraph 86 on the
21 next page, you see that you're applying Masimo's
22 interpretation of Element 1C; correct?

1 (Document review.)

2 BY MR. WENTZEL:

3 Q. I didn't intend for this to be a
4 difficult question, Dr. Kenny.

5 A. I understand. I just want to make
6 sure I understand the logic and the relationships
7 between the statements here.

8 Can I have the question again?

9 Q. Sure.

10 So if we go back to paragraph 85 in
11 your declaration, we had just said that your
12 understanding was that Masimo interprets a "light
13 block" to be anything that at least partially
14 surrounds the detector and blocks stray light from
15 reaching the detector.

16 So I asked you if that's the
17 interpretation of "light block" that you applied in
18 forming the opinions in your declaration.

19 And you did apply that interpretation;
20 right?

21 A. So -- and just to be clear, so the
22 last sentence in paragraph 85 says, that "I believe

1 a 'light block' is 'a structure that blocks light
2 and accommodates the detector assembly'."

3 Q. But then when you actually provide
4 your opinion in the subsequent paragraphs, you
5 preface your opinion by saying that it is under
6 Patent Owner's apparent application of Element 1C;
7 correct?

8 A. Yeah, so I say in paragraph 86, that
9 at least under Patent Owner's apparent application
10 of 1[c], that Abdul-Hafiz plus Raley combination
11 satisfies that element.

12 Q. So you're applying Masimo's
13 interpretation of Element 1C, correct, in forming
14 the opinions in your declaration?

15 A. The reason I'm pausing here is I'm
16 trying to identify any important distinction between
17 the Patent Owner's contention and my own
18 understanding of a "light block" in the two portions
19 of paragraph 85.

20 I don't think there's a meaningful
21 distinction between what the Patent Owner is
22 describing as something that at least partially

1 surrounds a detector and blocks stray light from a
2 structure that blocks light and accommodates the
3 detector assembly.

4 So I agree that paragraph 86 refers to
5 the Patent Owner's application of Element 1C, but I
6 don't think there's a significant distinction
7 between that application of Patent Owner's theory --
8 I don't think there's a meaningful distinction
9 between that and what I say at the bottom of
10 paragraph 85.

11 Q. And your declaration states that --
12 you're providing opinions "under Patent Owner's
13 apparent application of element 1[c]."

14 You see that; right?

15 A. Paragraph 86 applies -- provides an
16 opinion with respect to Patent Owner's apparent
17 application. And it says at least under that --
18 under that application the Abdul [inaudible]
19 satisfies that element.

20 Q. You never expressly provide an opinion
21 under a different interpretation of Element 1C,
22 correct, only under Masimo's?

1 (Document review.)

2 BY MR. WENTZEL:

3 Q. It's been a few minutes, Dr. Kenny.

4 Are you able to answer my question?

5 A. It's just the opinion on this topic
6 extends through a number of paragraphs. Some of
7 them do refer explicitly to the Patent Owner's
8 construction.

9 Paragraphs 86 and 87, for example, do.
10 Paragraph 88, 89, do not explicitly reference the
11 Patent Owner's construction.

12 So if the question is: Are my
13 opinions -- my opinions include the application of
14 the Patent Owner's understanding of what is a light
15 block, I think my opinions are also consistent with
16 a light block being a structure that blocks light
17 and accommodates the detector assembly.

18 I think the language -- the experts
19 from Abdul-Hafiz that are included through all these
20 paragraphs support that Abdul-Hafiz teaches this
21 element under the Patent Owner's application of this
22 element, and that I think one of ordinary skill

Page 51

1 under the plain and ordinary meaning that it's a
2 structure that blocks light, it's a light block,
3 blocks light, and it accommodates the detector, I
4 think Abdul-Hafiz discloses that, as well.

5 So my answer is sort of a yes and if
6 you will. I'm not disagreeing with your statement,
7 but just adding that I think my opinions describe --
8 or refer to the information from Abdul-Hafiz, and
9 that we have both "anything that partially surrounds
10 the detector and blocks stray light from reaching
11 the detector" and "a structure that blocks light and
12 accommodates the detector assembly" in Abdul-Hafiz.

13 Q. So you agree, sir, that you applied
14 Masimo's interpretation of "light block" in forming
15 the opinions in your declaration; is that right?

16 A. That's explicitly stated in
17 paragraphs 86 and 87. I think 88 and 89 are
18 describing the teaching of Abdul-Hafiz in a way that
19 would apply both to Masimo's apparent construction,
20 as well as to what I described, a "light block" is
21 "a structure that blocks light and accommodates the
22 detector assembly."

1 Q. And you think that the Masimo's
2 interpretation in paragraph 85 and your
3 interpretation of a "light block" are both correct;
4 is that right?

5 A. I think they're similar, in that
6 Abdul-Hafiz is providing teaching that is -- that
7 supports or is consistent with both of those
8 descriptions. The differences, to me, are mostly
9 just the arrangement of the words. I don't see a
10 substantial difference.

11 And I think Abdul-Hafiz describes a
12 structure that at least partially surrounds the
13 detector and blocks stray light from reaching the
14 detector, and it provides a structure that blocks
15 light and accommodates the detector. I don't think
16 those are completely distinct from one another.

17 MS. LEUNG: Hey, Doug, it's been about
18 an hour and a half. If Dr. Kenny would like
19 a break, maybe we should take one here soon.

20 MR. WENTZEL: How about a break in
21 about five minutes, Dr. Kenny?

22 THE WITNESS: Sure.

1 BY MR. WENTZEL:

2 Q. You agree, Dr. Kenny, that you
3 interpreted -- or you applied the construction that
4 "a light block is anything that at least partially
5 surrounds the detector and blocks stray light from
6 reaching the detector" in forming opinions in your
7 declaration; correct?

8 A. I want to say yes, but I don't want to
9 rule out that I also considered that it's a
10 structure that blocks light and accommodates the
11 detector assembly. But let me say that I believe
12 Abdul-Hafiz discloses the structure that meets
13 Masimo's apparent construction.

14 So yes to that. I did apply it, and
15 it meets that limitation. I did other things. I'm
16 just trying to be clear on the record that I did all
17 of those things.

18 Q. So just to be clear, you're saying you
19 applied the interpretations in paragraph 85 in
20 forming the opinions in your declaration, both
21 Masimo's interpretation and your own; is that
22 correct?

1 A. Yes, and I believe Abdul-Hafiz
2 discloses a "light block" under each of those
3 specific interpretations.

4 Q. Whenever you refer to "under Patent
5 Owner's apparent application of element 1[c],"
6 you're referring to the interpretation of "light
7 block" and "shoebox structure" in paragraph 85; is
8 that right?

9 A. Yes, that it is anything that at least
10 partially surrounds the detector and blocks stray
11 light from reaching the detector.

12 Q. And whenever you refer to -- whenever
13 you provide an opinion under Patent Owner's apparent
14 application of Element 1C, with respect to a shoebox
15 structure, you're referring to the second sentence
16 of paragraph 85; is that right?

17 A. That's correct. And, also, as I go on
18 to say, I believe that the shoebox structure has a
19 rectangular shoebox shape. I am guided by the
20 disclosure of the '911 patent as to what a "shoebox
21 shape" means in this context.

22 It's a little unusual to think of the

1 detectors of a pulse oximeter and shoeboxes in the
2 same exact context. So to understand the meaning of
3 "shoebox shape," I look at the disclosure of the
4 '911 patent, including, hopefully, Figure 32, which
5 we've already looked at some, which this is a
6 structure that I understand is a shoebox shape.

7 And this figure provides eight
8 perspective views of the structure, which helps me
9 understand what sorts of things one might find in a
10 shoebox shape.

11 Q. So in your analysis in your
12 declaration, anything that at least partially
13 surrounds the detector and blocks stray light from
14 reaching the detector would be a light block; is
15 that right?

16 A. I think that's a fair statement. That
17 would be also a structure that blocks light and
18 accommodates the detector assembly. And Abdul-Hafiz
19 discloses such a structure.

20 Q. In the second sentence of
21 paragraph 85, you state your understanding of how
22 Masimo interprets the claimed phrase "shoebox

1 structure" in the Delaware case; is that right?

2 A. That's correct, as I understand what I
3 was told by counsel.

4 Q. Your understanding is that Masimo
5 interprets the claimed "shoebox structure" to
6 "encompass more than a rectangular shoebox shape";
7 is that right?

8 A. That's what it says in my report, yes.

9 Q. And you applied that interpretation of
10 "shoebox structure" in forming the opinions in your
11 declaration; correct?

12 A. So I considered the shapes described
13 in the '911 patent and in the prior art references
14 that we've looked at. Masimo's construction says
15 that it encompasses more than a rectangular shoebox
16 shape. Therefore, that includes things which have
17 simply a rectangular shoebox shape and more.

18 And my understanding of the meaning of
19 that is guided by what I see in Figure 32, which is
20 a shape that is not purely exactly a rectangular
21 structure, but includes features that depart from a
22 simple rectangular structure.

1 For example, there's some curvature in
2 the top of the shoebox, shown in Figure 32B and,
3 more clearly, in Figure 32C -- sorry, 32D. Also,
4 32H. There's some rounded corners that I think are
5 indicated in Figures 32A and C. 32F shows a shape
6 that is a little bit skewed from a simple rectangle.

7 So just based on the information in
8 the patent and the claim of a shoebox shape, I
9 understand that a shoebox shape is, you know,
10 somewhat rectangular but not strictly so, and that a
11 rectangular shoebox shape as described in my
12 understanding is -- includes some curves, some
13 rounded corners, maybe some slopes, some other
14 departures from a rectangle, but which still
15 function as a light block and are not out of the
16 range of things that I think of when I think of
17 shoeboxes I've seen.

18 A person of ordinary skill in the art,
19 when asked to consider the claim which describes a
20 shoebox structure, I think they would look at the
21 figures in the patent and the description in the
22 '911 patent, and they would think about things that

1 they've seen in their life, which are called
2 shoeboxes, and that they would agree that the
3 shoebox structures in the '911 patent are consistent
4 with the claim, and that the structure in the
5 Abdul-Hafiz patent is also consistent with this
6 definition of a "shoebox shape."

7 Q. Are you explaining, Dr. Kenny, what
8 you think supports your view that a shoebox has a
9 rectangular shoebox shape?

10 A. I'm explaining how I interpret
11 "shoebox shape" in the context of the '911 patent
12 and the teachings of that patent and particularly,
13 very helpfully, what's provided in Figure 32. And
14 in that figure, I see things that are -- that are
15 rectangular in some views and which have curvatures
16 and rounded corners and slopes in other views.

17 When I see the Abdul-Hafiz patent, I
18 see a structure that has the rectangular shape with
19 the similar departures from a simple rectangle. And
20 I think the disclosure of Abdul-Hafiz describes a
21 shoebox shape in a manner that's consistent with the
22 claim of the '911 patent.

1 Q. My question was a lot simpler. I'm
2 just asking whether you applied Masimo's
3 interpretation, as you've stated it here, that a
4 shoebox structure encompasses more than a
5 rectangular shoebox shape, in forming the opinions
6 in your declaration?

7 A. The answer is yes. And the longer
8 part of the answer I gave is telling you how I
9 applied it. But the answer is yes, I did.

10 Q. And you understand "more than a
11 rectangular shoebox shape" to refer to slight
12 departures from a shoebox shape that you described
13 with reference to Figure 32 of the '911 patent; is
14 that right?

15 A. I regard that as referring to the
16 departures from a rectangular shape shown in
17 Figure 32. Whether they're slight or not is not
18 really a thing I can say with absolute certainty.
19 It's a little bit of a matter of perspective and how
20 precisely one ought to interpret what's in those
21 figures.

22 They're not engineering drawings. So

1 they're not -- I don't think the exact curvatures
2 and dimensions are intended to be presented there,
3 but a general idea of what that shape is. It
4 includes curves and slants and rounded corners and
5 things like that that I understand the purpose of.
6 And I see similar features in Abdul-Hafiz.

7 Q. You understand that patent figures
8 don't present precise dimensions or curvatures or
9 proportions; is that right?

10 A. Sometimes they do. I think, if we're
11 referring to Figure 32 of the '911, there's actually
12 fairly good detail there, but I would not ascribe
13 the exact dimensions or curvatures or the radii of
14 the roundings of the corners and the angles of the
15 slopes to be limiting in any way.

16 I think it's intended as descriptive
17 to support what the inventors of the '911 had in
18 mind when they describe this as a shoebox structure
19 or a shoebox shape.

20 Q. And you understand that the claims of
21 the '911 patent are not limited to Figure 32;
22 correct?

1 A. Not in a precise way, I agree.

2 MR. WENTZEL: Okay. Why don't we take
3 a break.

4 THE WITNESS: All right.

5 THE REPORTER: We're off the record.

6 (Recess from the record.)

7 THE REPORTER: Okay. We're back on
8 the record.

9 BY MR. WENTZEL:

10 Q. Welcome back, Dr. Kenny.

11 A. Thank you.

12 Q. Before the break, we were looking at
13 paragraph 85 of your declaration. I'd like to
14 return to that.

15 And we discussed earlier that the last
16 sentence of paragraph 85 provides your opinions on
17 the meaning of "light block" and "shoebox
18 structure"; is that right?

19 A. That's correct.

20 Q. And you said that your opinion on the
21 meaning of "light block" and "shoebox structure" is
22 consistent with Masimo's interpretations earlier in

1 this paragraph; is that right?

2 A. I think that's fair, yes.

3 Q. So you first state your opinion that a
4 "light block" is "a structure that blocks light and
5 accommodates the detector assembly"; correct?

6 A. Yes, that's from the last sentence of
7 my report.

8 Q. Right.

9 And the phrase "detector assembly" is
10 not recited anywhere in Claim 1 of the '911 patent;
11 is that right?

12 A. I'm going to spare us some time and
13 take your word for that.

14 Q. It is not -- the phrase "detector
15 assembly" is not recited anywhere in Claim 1 of the
16 '911 patent.

17 So my question is: What does
18 "detector assembly" refer to in your construction of
19 "light block"?

20 (Document review.)

21 THE WITNESS: So the '911 patent
22 describes the detector assembly. With

1 respect to Figure 24, Column 13, from 38 down
2 to 52, those lines, the assembly includes a
3 detector, the solder pads, and tape that
4 provide an electrical connection to the
5 detector, an EMI shield and foil, and that
6 the detector is assembled inside of all the
7 structures.

8 So it's the detector element plus the
9 necessary support structures that are shown
10 in Figure 24.

11 BY MR. WENTZEL:

12 Q. So your construction of a "light
13 block" incorporates a detector assembly that's
14 described in the specification; is that right?

15 A. Yes, that includes the solder contacts
16 and other kind of structural elements that support
17 the detector.

18 Q. So are you adding a feature from the
19 specification into the claims?

20 A. I don't think so. I think a person of
21 ordinary skill, reading the claim, would understand
22 that surrounding just the detector and not the

1 solder pads, for example, would be a mistake, at
2 least. The detector, in order to be useful, needs
3 to have these supporting structures. And the
4 detector assembly includes some of those necessary
5 structures.

6 I don't think these are inconsistent.
7 The light block partially surrounds the detector,
8 and it also accommodates the detector along with the
9 elements that are necessary for its operation, which
10 include these features that are part of the
11 assembly.

12 Q. So I'm trying to understand, why does
13 your proposed construction of "light block" refer to
14 other components, including a detector assembly?

15 A. I think one of ordinary skill would
16 understand that surrounding the detector in a useful
17 way includes surrounding some of these components
18 described that are important for the operation of
19 the detector, such as the solder pads.

20 If you surround just the detector and
21 exclude the solder pads, you've built a useless
22 thing. So one of ordinary skill in the art would

1 understand that "partially surrounding the detector"
2 and partially -- and "accommodating the detector
3 assembly" are not different.

4 One would include elements that are
5 part of the assembly with the detector under either
6 construction in order to make a useful device.

7 Q. Are you familiar with the concept of
8 antecedent basis in patent claims?

9 A. I've heard that phrase. I'm not sure
10 I know the definition of that phrase. I believe
11 it's referring to prior references to the same claim
12 term, further, you know, upwards at the start of the
13 claim.

14 Q. Right. So I'm trying to understand
15 what provides antecedent basis for "the detector
16 assembly" in your construction?

17 A. Well, as I said, I think one of
18 ordinary skill in the art would want the detector to
19 be useful, which means that it provides electrical
20 signals through things like solder pads.

21 In -- earlier in Claim 1, it says, The
22 detector is configured to detect at least a portion

1 of the light. I think "being configured to detect"
2 means, you know, it's positioned properly, it's --
3 you know, it's exposed to the light, and it has
4 electrical connections that provide a means for that
5 signal to -- to come from the detector and provide
6 that information.

7 So I think it's -- one of ordinary
8 skill would understand all that, and that the "being
9 configured to detect," I think one of ordinary skill
10 would understand that means providing the elements
11 necessary for the detector to function as a
12 detector.

13 Q. We're not talking about the meaning of
14 "configured to detect"; right? We're talking about
15 just the light block itself; right?

16 A. I think one of ordinary skill would
17 understand that the light block must allow the
18 detector to detect. If it prevents electrical
19 connections to the detector, I think one of ordinary
20 skill in the art wouldn't think that's what this
21 claim is describing.

22 If I just put a piece of silicon in

1 the box of Figure 32 of the '911 patent and don't
2 provide solder pads and electrical connections, I
3 don't think I've built something that performs the
4 functions that are described in the patent.

5 What I've built is a box with a piece
6 of silicon inside of it. That's not a detector,
7 generally, or at least wouldn't function as a
8 detector, if it's unable to detect.

9 Q. And you agree that the detector
10 assembly refers to supporting structures like solder
11 pads that aren't recited in the claims; is that
12 right?

13 A. I think that's consistent with the
14 explanation in the '911 patent and also what a
15 person of plain and ordinary skill would understand
16 is the useful understanding of that claim term.

17 Q. Just to be clear, you do agree that
18 "the detector assembly," in your construction,
19 refers to supporting structures like solder pads
20 that aren't recited in the claims; correct?

21 A. So it's not explicitly recited in the
22 claim. I think one of ordinary skill understanding

1 that you have a light block surrounding a detector
2 and that the purpose of this detector is to detect
3 at least a portion of the light, that solder pads
4 would be included in that somewhere.

5 You wouldn't leave them out, or you
6 would -- you would fail to have a detector that's
7 configured to detect anything. So it's not
8 explicitly recited as detector and solder pads, but
9 I think one of ordinary skill in the art would
10 understand that those solder pads must be included
11 along with the detector.

12 Q. So by "the detector assembly" in your
13 construction, you are referring to supporting
14 components for the detector like solder pads; is
15 that right?

16 A. Yeah, the detector and, yes, things
17 like solder pads, that's correct. Those need to be
18 accommodated within the light block.

19 Q. Did you know that your construction of
20 "light block" in paragraph 85 is identical to
21 Apple's construction of that term in the Delaware
22 case?

1 A. I'm not aware of that.

2 Q. How could it be that your construction
3 of "light block" is identical to Apple's
4 construction of that term in the Delaware case?

5 A. I think that would get into the
6 mechanics of how Kim and I worked together in the
7 preparation of this draft. I don't know what the
8 boundary on attorney-client privilege would be in
9 this case, but what I recollect from a year ago is
10 that we worked together on the declaration,
11 including this paragraph, and we worked on a
12 statement of what is a light block.

13 The original assembly of that set of a
14 half a dozen words might have come from a draft that
15 I was handed. It might have been something I wrote.
16 I don't remember in particular.

17 I don't think there's anything
18 particularly controversial about a light block being
19 a structure that blocks light, and that it's used
20 with a detector, so it has to accommodate it. But I
21 don't recall exactly how that phrase appeared.

22 Q. In the last sentence of paragraph 85,

1 you also state your opinion that "a 'shoebox
2 structure' has a rectangular, shoe box shape";
3 right?

4 A. That's correct.

5 Q. So is it your opinion that "shoebox
6 structure" refers to the overall shape of the light
7 block?

8 A. So the claim recites "a light block
9 comprising a shoebox structure."

10 Could you repeat your question? I'm
11 not quite sure that's an answer to the question you
12 asked.

13 Q. My question is: Is it your opinion
14 that "shoebox structure" refers to the overall shape
15 of the light block?

16 (Document review.)

17 THE WITNESS: You know, I think of
18 this descriptive term in the claim, "shoebox
19 structure," as describing a category of
20 shapes that are sort of shoeboxy, that --
21 that includes things that are rectangular and
22 shoebox-shaped.

1 The '911 patent gives me some examples
2 of things that are within that description.
3 So I understand something about the scope of
4 what the claim means. And I believe a person
5 of ordinary skill in the art would see the
6 structures in Abdul-Hafiz and the structures
7 that are in the '911 patent as within the
8 same scope, that they are rectangular shoebox
9 shapes to the extent that the patent teaches
10 me what that means.

11 BY MR. WENTZEL:

12 Q. You cite nothing in paragraph 85 of
13 your declaration to support your constructions of
14 "light block" and "shoebox structure"; is that
15 right?

16 A. Just -- it says what I believe, and
17 that's based on my reading of the '911 patent and
18 the figures in the patent and reading the claim and
19 thinking about what the scope of the claim is.

20 Q. Are your constructions also based on
21 your review of Abdul-Hafiz?

22 A. No, the constructions are based on the

Page 72

1 '911 patent. I believe a person of ordinary skill
2 in the art would use the '911 patent to understand
3 what the claims mean, and then would look at
4 Abdul-Hafiz and other prior art references to see if
5 the claims were anticipated or rendered obvious.

6 And I think what one would find,
7 looking at Abdul-Hafiz, is that there's a light
8 block structure that has a shoebox shape.

9 Q. So you propose modifying the
10 Abdul-Hafiz system in view of Raley; is that right?

11 A. That is correct.

12 Q. Let's turn to page 39 of your
13 declaration.

14 Page 39 shows how you propose
15 modifying Abdul-Hafiz in view of Raley; correct?

16 (Document review.)

17 THE WITNESS: So the figure on page 39
18 shows excerpts of figures from Abdul-Hafiz
19 and Raley, which include elements that I
20 think a person of ordinary skill in the art
21 would work to combine in order to obtain an
22 improved system.

1 Paragraph 65 on page 36 describes what
2 is going on here, that a person of ordinary
3 skill would, for example, modify Abdul-Hafiz
4 to include additional LEDs and the supporting
5 circuit in order to capture two or more
6 additional signals.

7 It would understand these benefits are
8 additive, and that the low noise enclosure of
9 Abdul-Hafiz would work with the additional
10 LEDs inspired by Raley, and that that would
11 provide the opportunity to capture signals
12 and additional wavelengths that would improve
13 the overall system.

14 There's nothing, I hope, in my
15 declaration that implies that one would take
16 a structure from Raley, such as the entirety
17 of what's shown on the bottom of 39, and
18 somehow stuff that into Abdul-Hafiz without
19 modifications.

20 A person of ordinary skill would
21 consider Abdul-Hafiz and Raley and the
22 teachings of both, look for ways to benefit

1 from those teachings not simply by copy and
2 paste, but by application and reasonable work
3 to be sure the elements after the combination
4 would function together.

5 So in this case, adding two LEDs to
6 Abdul-Hafiz would be relatively
7 straightforward, because there's already two
8 there. There's already circuits and systems
9 to support processing signals from those two.
10 So adding -- adding two more would be, I
11 think, straightforward.

12 Other aspects of what's shown in
13 detail in Raley would be used by a person of
14 ordinary skill in the art when considering
15 the positioning of the LEDs in Abdul-Hafiz.
16 You know, for example, it would be reasonable
17 to position them in a recess so as to avoid
18 heating of the patient due to direct contact.
19 Also, to avoid damage to the LEDs during the
20 assembly and installation process.

21 So long answer, but I think the
22 general story here is that one of ordinary

1 skill in the art would recognize that Raley
2 provides teachings that could be used to
3 improve Abdul-Hafiz, and that comes down to
4 adding a couple of LEDs and mounting and
5 positioning those LEDs in a reasonable way so
6 that they would function properly.

7 BY MR. WENTZEL:

8 Q. So in paragraph 65 of your
9 declaration, you propose adding two or more LEDs of
10 different wavelengths to Abdul-Hafiz's system; is
11 that right?

12 A. That is correct.

13 Q. And if we look at paragraph 64 of your
14 declaration, about halfway down, you see that you
15 state that Raley's probe has LEDs for measuring four
16 blood analytes such as oxyhemoglobin,
17 deoxyhemoglobin, carboxyhemoglobin, and
18 methemoglobin; correct?

19 A. That's correct. Thank you.

20 Q. And your opinion is that being able to
21 measure three or four of those blood analytes
22 mentioned in Raley would have motivated adding two

1 LEDs to Abdul-Hafiz; correct?

2 A. I think a person of ordinary skill in
3 the art would be motivated by these disclosures to
4 add additional LEDs to the system of Abdul-Hafiz to
5 accommodate two or more additional signals. That's
6 reading a little bit from paragraph 65, that the
7 motivation to measure additional signals is
8 important.

9 Raley is specifically interested in
10 these particular analytes, which are interesting,
11 but the general benefit of Raley is to provide the
12 opportunity to measure additional analytes, which
13 could include these, but might be others, as well.

14 Like, a person of ordinary skill
15 understanding Abdul-Hafiz would be motivated to add
16 LEDs, as taught by Raley, in order to be able to
17 provide measurements of additional analytes.

18 Q. And the only analytes that Raley
19 mentions are the ones we just mentioned, right, the
20 three -- three or four blood analytes that we just
21 mentioned; correct?

22 A. I believe that's true for Raley.

1 Those are representative of -- well, actually, let
2 me take a moment.

3 (Document review.)

4 THE WITNESS: Raley describes these as
5 examples. It does discuss them in some
6 detail, but the general statement that the
7 amount of absorption of light is a measure of
8 the relative concentration of the various
9 hemoglobin species contained in the blood,
10 and then "it's possible to measure additional
11 analytes such as," and then there's some more
12 listed.

13 I think the idea of Raley is that it's
14 useful to have as many as four LEDs to be
15 able to measure additional things beyond just
16 the oxygen content and the PPG signal. And
17 one of ordinary skill in the art in light of
18 this reference and the other references I've
19 cited would find that there's broad interest
20 in additional analytes and that adding LEDs
21 to Abdul-Hafiz would provide that
22 opportunity.

1 BY MR. WENTZEL:

2 Q. So my question is: The ability to
3 measure which blood analytes from Raley, in your
4 opinion, would have motivated adding two LEDs to
5 Abdul-Hafiz?

6 A. You know, so the quote you've
7 highlighted in front of us here, "for measuring
8 three or four blood analytes such as," and it lists
9 four, I think those are representative. Those
10 aren't intended as the only things that a person of
11 ordinary skill in the art might be interested in,
12 but they're interesting and would provide motivation
13 for a person to consider adding LEDs to Abdul-Hafiz.

14 Q. So you're proposing to add two LEDs to
15 Abdul-Hafiz to measure three or four blood analytes,
16 such as oxyhemoglobin, deoxyhemoglobin,
17 carboxyhemoglobin, and methemoglobin, in addition to
18 oxygen saturation; is that right?

19 A. It's -- those are examples of things
20 that could be measured if you have additional LEDs.
21 I'm not proposing a system that does exactly all
22 four of those plus other things, like pulse

1 oxygenation, et cetera.

2 The motivation is more general, that
3 with two LEDs, you can measure the PPG and the
4 oxygenation. If you add more LEDs, you can measure
5 more things. And that's -- we have several
6 references here pointing to additional things that
7 would be interesting to measure.

8 I think a person of ordinary skill in
9 the art would understand that it's -- there's
10 interesting opportunities and, therefore, motivation
11 to add additional LEDs to the system of Abdul-Hafiz
12 in order to be able to measure more things. Here's
13 some examples of the things that one might be
14 interested in measuring with the additional LEDs.

15 Q. I'm trying to figure out your opinion,
16 not examples of your opinion.

17 So I need to know what -- measuring
18 what analytes do you say would have motivated adding
19 two LEDs to Abdul-Hafiz?

20 A. I think any of these analytes would
21 provide that motivation.

22 Q. So these analytes we're looking at

1 from Raley, the oxyhemoglobin, deoxyhemoglobin,
2 carboxyhemoglobin, and methemoglobin are what you're
3 relying on for providing motivation to add two LEDs
4 to Abdul-Hafiz; is that right?

5 A. This plus the other references that
6 are cited, I believe, in the paragraphs coming up
7 behind this. You know, there's generally interest
8 in the community in measuring additional analytes in
9 the blood. Here's some examples of things that are
10 interesting.

11 Raley explains that carboxyhemoglobin
12 can help you maybe more precisely calibrate the
13 pulse oxygenation signal. There's, I think, well
14 understood in the community some benefits to having
15 that additional information, and that you need
16 additional LEDs in order to create that opportunity.

17 So a person of ordinary skill in the
18 art is motivated to add LEDs in order to be able to
19 measure additional analytes, including, for example,
20 the ones cited here in the supporting references.

21 Q. Are there any analytes that you
22 believe would have motivated to add LEDs to

1 Abdul-Hafiz other than the ones highlighted on the
2 screen here from Raley that you've identified in
3 your declaration?

4 A. These are representative. I think one
5 of ordinary skill might be interested in other
6 particular things, depending on maybe the place they
7 work or the applications they're focused on. But I
8 think -- and I could scroll through, but I believe
9 this paragraph includes all of the particular
10 examples that I'm citing elsewhere.

11 And, you know, I think the key point
12 here is in the quote from Raley, there's a desire to
13 expand the use of photoplethysmography into the
14 monitoring of additional blood analytes such as, you
15 know, and then there's three that are named. It's
16 the "such as" that I think is the defining thing
17 here.

18 These are examples of what one might
19 be excited about. The opportunities to measure
20 these additional analytes would, I think, be
21 understood to be reasonably accessible, given the
22 teaching of Abdul-Hafiz and Raley.

1 One needs to add additional LEDs.

2 Raley -- or, sorry, Abdul-Hafiz already includes two
3 LEDs. So having two more is probably within the
4 skill of one of ordinary skill, just two more
5 examples of basically the same structures.

6 Capturing the signals and manipulating
7 them to extract the values of these particular
8 parameters is -- you know, it's, sure, more
9 complicated than doing it for just two, but it's, I
10 think, within the skills of a person of ordinary
11 skill, based on what's known in the community at the
12 time of this patent.

13 Q. So, Dr. Kenny, you're relying on Raley
14 to provide the motivation to add two LEDs to
15 Abdul-Hafiz; right?

16 A. In this paragraph, yes, Raley provides
17 a description that there's desire to expand the use
18 of these tools to measure more analytes. So
19 that's -- that, to me, provides motivation for a
20 person of ordinary skill.

21 Paragraph 66 goes on, that it was
22 well-known to a person of ordinary skill to

1 determine several physiological parameters with
2 systems, such as Abdul-Hafiz, by adding LEDs.

3 For example, Kuenster describes some
4 opportunity to do that. I believe there's some
5 other references cited elsewhere in my report that
6 talk about how to do the work with the signals to
7 extract those parameters.

8 I'd say just based on those
9 disclosures, there's plenty of motivation, but that
10 Raley on its own provides motivation for a person of
11 ordinary skill to consider the combination.

12 Q. And that motivation is to add two LEDs
13 to measure oxyhemoglobin, deoxyhemoglobin,
14 carboxyhemoglobin, and methemoglobin; correct?

15 A. Well, for example, yes.

16 Q. You have a specific opinion,
17 Dr. Kenny, or are you saying that you add two LEDs
18 to measure anything?

19 A. There's things that probably you
20 wouldn't be able to measure. Blood pressure might
21 be outside of the scope of this technology, but a
22 person of ordinary skill would be motivated by the

1 desire to expand the use for monitoring of
2 additional blood analytes.

3 And here's some examples that might be
4 the ones that a person of ordinary skill would
5 pursue. It's not only these, but these are good
6 representatives. Raley describes some reasons why
7 these parameters might be important.

8 The other references provide
9 additional explanation. A person of ordinary skill
10 in the art would appreciate that there's interest in
11 being able to expand the Abdul-Hafiz system to have
12 these capabilities.

13 I don't think it's limited to only to
14 do a particular additional analyte, but to do
15 additional analytes, including these examples.

16 Q. Let's turn to paragraph 67 of your
17 declaration, which is on page 40.

18 So in paragraph 67, you opine that
19 measuring carboxy and methemoglobin would have
20 motivated adding two LEDs to Abdul-Hafiz; is that
21 right?

22 A. Yeah, there's a middle paragraph --

1 middle of that paragraph, it just indicates that
2 there's opportunities for accurate measurements by
3 adding these additional measurements to the system
4 of Abdul-Hafiz. This is a particular example of
5 motivation.

6 Q. And the particular motivation for
7 adding the LEDs is measuring carboxyhemoglobin and
8 methemoglobin; correct?

9 A. This one particular motivation is
10 exactly as you've described, yes. It's not the only
11 motivation, but it's among the motivations that one
12 of ordinary skill would be inspired by.

13 Q. Then let's look at paragraph 68. In
14 paragraph 68, you provide another motivation, which
15 is that a POSITA would have been motivated to
16 measure carboxyhemoglobin and methemoglobin with
17 Abdul-Hafiz to, quote, compensate for errors in the
18 measurement of oxygen saturation; is that right?

19 A. That's correct.

20 Q. How could measuring carboxy and
21 methemoglobin be used to compensate for errors in
22 the measurement of oxygen saturation with

1 Abdul-Hafiz?

2 A. I think some of that is described in
3 the prior paragraph, 67. So increased levels of the
4 carboxyhemoglobin, for example, will cause an
5 overestimation in the oxygen saturation, because the
6 pulse oximeter cannot distinguish between those two
7 analytes. This could be important in cases of
8 carbon monoxide poisoning, for example. That's from
9 paragraph 67.

10 Q. So how can you compensate for oxygen
11 saturation measurement errors using measurements of
12 carboxyhemoglobin and methemoglobin?

13 Have you explained that in your
14 declaration?

15 A. I don't believe there's a detailed
16 analysis of the mathematics and all the coefficients
17 that one would encounter in that process. At a
18 general level, with four LEDs, you're able to
19 measure the transmission through the blood at four
20 wavelengths.

21 The transmission through the blood at
22 those four wavelengths is a function of at least

1 several of these particular analytes, the presence
2 and concentration of those analytes, and that one
3 goes through the process of using those four
4 measurements to do the math of solving multiple
5 equations with multiple unknowns to extract the
6 values of the known parameters.

7 That's described in some of the other
8 references and is, at least, described in some of
9 these, as well. There's a process. It's not
10 straightforward, but it's well-understood.

11 Q. So you haven't answered my question,
12 Dr. Kenny.

13 I'm asking, how -- how can you
14 compensate for errors in oxygen saturation
15 measurements using measurements of carboxyhemoglobin
16 and methemoglobin?

17 Have you explained that in your
18 declaration?

19 A. So the section I cite on paragraph 67
20 from one of the references describes that the
21 increased levels of the carboxyhemoglobin cause an
22 overestimation of the oxygen saturation. I'm

1 assuming I can find in the literature a paper or
2 some description of the relationship between the
3 increased levels of the carboxyhemoglobin and the
4 oxygen saturation levels.

5 And so if I can independently measure
6 those two parameters with the information I have, I
7 can use the signal for the carboxyhemoglobin to
8 correct the measurement of the pulse oxygenation.

9 Q. Are you aware of any sensor that used
10 measurements of carboxyhemoglobin or methemoglobin
11 to improve the accuracy of oxygen saturation
12 measurements?

13 A. You're describing sensors on the
14 market or sensors described in research?

15 Q. Do any sensors that you're relying on
16 in your declaration do that?

17 A. So these references explain that with
18 these additional analyte measurements, you have the
19 opportunity to do that. I haven't found a follow-up
20 reference that actually executes that particular
21 sequence of steps, but I think it's -- one of
22 ordinary skill in the art would understand the

1 motivation to do it, and they would understand what
2 the signal processing and analysis would look like
3 in order to be able to do it.

4 They would probably have to do some
5 work to get it all to work properly. It's not
6 likely to be trivial. But I think it's within the
7 skills of one of ordinary skill in the art to do
8 that work and solve that problem. And the
9 motivation is clear.

10 Q. If you look at paragraph 69 of your
11 declaration, which starts on page 41 and goes onto
12 page 42.

13 On page 42, in the first full
14 sentence, you see you state, "The addition of two or
15 more LEDs to the system of Abdul-Hafiz resulting in
16 four or more LEDs would have been well within the
17 capabilities of a POSITA having already developed a
18 system such as described by Abdul-Hafiz"; correct?

19 A. That's correct.

20 Q. So your opinion here is that a POSITA
21 would have been capable of adding LEDs to
22 Abdul-Hafiz because that POSITA would have already

Page 90

1 developed a system such as described by Abdul-Hafiz;
2 right?

3 A. They would have already developed a
4 system that included a pair of LEDs. And the
5 question is: Would they be able to add two more
6 LEDs to that system? I think adding LEDs to systems
7 is within the skill set of a person of ordinary
8 skill in the art.

9 Q. Just to be clear, your opinion here in
10 paragraph 69 that we've highlighted is that a POSITA
11 would have been capable of adding LEDs to
12 Abdul-Hafiz because that POSITA would have already
13 developed a system such as described by Abdul-Hafiz;
14 is that right?

15 (Document review.)

16 THE WITNESS: Could I have the
17 question again?

18 BY MR. WENTZEL:

19 Q. Yeah, and it should be a simple one.

20 The sentence we've highlighted on the
21 screen here, you're just providing your opinion that
22 a POSITA would have been able to add LEDs to

1 Abdul-Hafiz, because the POSITA would have already
2 developed a system such as described by Abdul-Hafiz;
3 right?

4 A. That's what the sentence says. I
5 think a person of ordinary skill in the art at the
6 time of the '911 patent would be able to build a
7 system such as described by Abdul-Hafiz, and that
8 modifying that system to include an additional pair
9 of LEDs would be well within their capabilities.

10 Q. And that modification would have been
11 well within their capabilities because a POSITA
12 would have already developed a system such as
13 described by Abdul-Hafiz; correct?

14 A. That's what that sentence says, but
15 I -- maybe that's a bit narrower than other
16 sentences in the same section of my report.

17 So at the bottom of that same page,
18 Adding two LEDs to a system that already contains
19 two LEDs would be a straightforward modification for
20 a POSITA that was already relying on the system of
21 Abdul-Hafiz, which included circuits and data
22 processing, et cetera.

1 And by "relying on a system," I mean
2 relying on the teachings of Abdul-Hafiz. This
3 patent of Abdul-Hafiz was, you know, published and
4 available to persons of ordinary skill. It and the
5 references within would teach someone how to build
6 up that system as part of the enabling disclosure of
7 Abdul-Hafiz, and it's -- I think this ability to add
8 two more LEDs would be within their skills at the
9 time.

10 A person of ordinary skill in the art
11 would be able to build Abdul-Hafiz, they would have
12 been able to modify Abdul-Hafiz, they could read the
13 two patents, and it would be within their skills to
14 produce the improved system motivated by this
15 combination.

16 Q. A requirement of your definition of a
17 POSITA is that the person must have already
18 developed a system such as described by Abdul-Hafiz;
19 is that right?

20 A. No, I don't think so.

21 Q. So why do you assume in paragraph 69
22 that a POSITA would have, quote, already developed a

1 system such as described by Abdul-Hafiz?

2 A. Well, a POSITA that would have already
3 developed such a system would find this trivial and
4 straightforward, but in general, a person of
5 ordinary skill in the art would understand that
6 relying on the description of Abdul-Hafiz and
7 relying on the description of Raley would be
8 qualified to follow the teachings of Abdul-Hafiz and
9 build that system with two more LEDs.

10 That sentence at the top of this page
11 is true, someone who's actually taken most of the
12 steps towards that combination would be able to
13 finish it. But I don't mean to say that someone
14 must have already taken most of the steps in order
15 to be able to consider adding two more LEDs to the
16 disclosure of Abdul-Hafiz.

17 I think other statements scattered
18 around these paragraphs make that broader assertion,
19 and that's my opinion, that a person of ordinary
20 skill in the art, as we've defined it, could read
21 Abdul-Hafiz and understand what are the important
22 issues and details of that disclosure, also read

1 Raley, understand the details and issues of that
2 disclosure, and would find it straightforward to add
3 a pair of LEDs to the system described by
4 Abdul-Hafiz, and that there would be sufficient
5 motivation to do that.

6 Q. Let's turn to paragraph 71, which is
7 on page 43.

8 In the second sentence, you state
9 that, "the addition of a third and fourth LED would
10 provide information about the blood at a third and
11 fourth wavelength, providing the opportunity to
12 capture measurements of additional blood analytes as
13 described in Raley"; correct?

14 A. That's correct.

15 Q. So your opinion is that the
16 opportunity to capture measurements would have
17 motivated adding two more LEDs to Abdul-Hafiz; is
18 that right?

19 A. Maybe read that again. I think my
20 answer is yes, but I just want to be sure.

21 Q. Yeah, simple question, your opinion is
22 that the opportunity to capture measurements would

1 have motivated adding two more LEDs to Abdul-Hafiz;
2 right?

3 A. Yeah, to capture measurements at a
4 third and fourth wavelength would have motivated a
5 person of ordinary skill in the art to add the
6 third and fourth LED, yes.

7 Q. Let's look at paragraph 79 of your
8 declaration, which is on -- starts on page 53 and
9 goes to page 54. We can start on page 54.

10 A. Okay.

11 Q. Here we see Figures 1 and 3 of Raley;
12 is that right?

13 A. I believe that's correct, yes.

14 Q. Your opinion is that Raley's
15 interconnect cable segment, which is No. 20 in
16 Figure 3, discloses four LEDs, 21 through 24, that
17 are recessed in a cavity; is that right?

18 A. I believe that's correct.

19 Q. Figure 3 of Raley shows no hollow
20 space between the LEDs and the opening/window 26;
21 correct?

22 A. So Figure 3 shows the location of the

1 four LEDs. It shows that they're in a structure
2 that it calls an opening or a window. The intent of
3 what's going on is that that structure is sort of
4 slid into and locked into place in the structure in
5 Figure 1.

6 I think the written description and
7 the illustration tell me that those LEDs are
8 recessed and that, otherwise, if you slide them
9 across the opening in Figure 1, you'll tear them
10 apart. That's, I think, the way Raley is intended
11 to work is as a reusable connector.

12 And one of ordinary skill in the art
13 would understand that those LEDs are recessed in a
14 cavity, even though the illustration doesn't give a
15 precise dimensional depiction of the depth of the
16 recess or the dimensions of the LEDs.

17 But one of ordinary skill in the art
18 would know you don't want them sticking out.
19 They'll be destroyed the first time you use it. And
20 Raley is intending this as a reusable structure.

21 Q. The LEDs in Raley's interconnect cable
22 segment 20 are flush with the surrounding part of

1 the connector so that they don't interfere when they
2 connect with the rest of the device; is that right?

3 A. I don't agree.

4 Q. Why not?

5 A. The description Raley indicates that
6 the LEDs are located in the connector end of the
7 interconnect cable signal 20, not on. And that
8 Column 5, line 52, describes a window that the light
9 passes through.

10 So the surface of that window might be
11 flush. Perhaps that's what's indicated in the
12 illustration, but the LEDs are recessed relative to
13 that surface, not flush with the surface. That's my
14 understanding of Raley, and I think one of ordinary
15 skill in the art would agree.

16 Q. So your opinion is that the LEDs shown
17 in Figure 3 are not shown as flush with the
18 surrounding opening or window 26; is that right?

19 A. That's not my interpretation of Raley.
20 Raley, in that same part of Column 5, describes the
21 design as protecting the patient from excess heat,
22 and also protecting the reasonable interconnect

1 cable segment 20.

2 And I think that protection is not
3 provided if the LEDs are flush with the surface. I
4 think they're recessed and that there's an opening
5 or a window that is between the top of the LEDs and
6 that surrounding flat surface.

7 So my opinion, that's how a person of
8 ordinary skill in the art would read Raley based on
9 the description of the objectives of Raley and the
10 understanding that having LEDs either flush with or
11 residing on an outside surface of a reasonable
12 interconnect is a really bad idea, if you intend to
13 use it even the first time.

14 I think they would be recessed. A
15 person of ordinary skill in the art would understand
16 that Raley has them recessed.

17 Q. So I'm asking you about --

18 MR. WENTZEL: Henry, can we zoom in on
19 the top left of this.

20 BY MR. WENTZEL:

21 Q. I'm asking you about the LEDs in
22 relation to the window or opening 26, but you've

1 been answering me about the window 16 that's
2 described in Column 5 of Raley.

3 So my question is: Doesn't Raley show
4 that the LEDs 21 through 24 are flush with the
5 opening or window 26?

6 A. Again, I think one of ordinary skill
7 in the art would understand that's a bad idea, and
8 that Raley is hopefully displaying good ideas, that
9 one would recess those LEDs in a cavity or in an
10 opening or window of a cavity so that during the
11 insertion and repeated insertion, you're not
12 scraping the top of the LEDs across the structures
13 of Item 10 in Figure 3. It would be obvious to
14 build a recess.

15 This particular illustration doesn't
16 show a detailed embodiment of exactly the depth or
17 dimensions of that recess, but I think one of
18 ordinary skill in the art would understand that it
19 has to be there.

20 Q. So is it your opinion that a recessed
21 cavity is inherently present in this interconnect
22 cable segment 20 of Raley?

1 (Document review.)

2 THE WITNESS: Maybe just reading from
3 the middle of paragraph 79, the interconnect
4 cable segment 20 is held in a connector 17
5 that houses an optically transmissive window
6 16 that enables light to be passed from the
7 emitters to the patient while protecting the
8 patient from excess heat. The light
9 transmitted from the four emitters passes
10 through window or opening 26 and window 16
11 and probe-end 10 and impinges on the tissue
12 of the patient.

13 I think based on that disclosure and
14 the description of what's going on, that a
15 person of ordinary skill in the art would
16 have understood or at least found it obvious
17 that the four LEDs are recessed into a cavity
18 covered by window or opening 26 of the
19 interconnect cable segment.

20 BY MR. WENTZEL:

21 Q. So you think that the opening or
22 window 26 covers the LEDs 21 through 24; is that

1 right?

2 A. So the exact structure that's at that
3 location is not explicitly described. So one of
4 ordinary skill in the art would interpret the
5 window/opening as a recess. Window/opening could be
6 covered with a windowpane, if you will, or not.
7 It's not explicitly required here.

8 But the important point is that the
9 LEDs are recessed relative to the surrounding
10 surfaces so that the structure isn't destroyed
11 during the assembly process of Raley.

12 Again, Raley doesn't provide a
13 detailed engineering diagram or explicit
14 specifications of the individual components. One of
15 ordinary skill in the art would understand how to
16 put something together that followed the teachings
17 of Raley and didn't destroy itself when it was
18 assembled.

19 Q. Does Figure 3 of Raley show any hollow
20 space in between the LEDs and the opening or window
21 26?

22 A. It shows where that space would be,

1 but it doesn't explicitly show the depth or
2 dimensions of that space relative to the size and
3 shape of the LEDs. I think, again, one of ordinary
4 skill would understand that they have to be recessed
5 in order to not be destroyed during the assembly
6 process, and that Raley teaches a system that is
7 assemblable and disassemblable so that would be a
8 required element.

9 Q. So you say that they're -- a POSITA
10 would understand there's a recess, but why do you
11 assume that there would be hollow space between the
12 LEDs and the window or opening 26?

13 A. I wouldn't want the surface of those
14 LEDs flush with the surrounding surface if I'm going
15 to be extracting and inserting this element over and
16 over again. I think you want them recessed relative
17 to the surrounding surface in order to protect the
18 LEDs.

19 I think it's obvious to one of
20 ordinary skill in the art that, as Raley's
21 describing a structure 20 that's inserted and
22 extracted from the structure in Figure 1, that the

1 LEDs can't be sliding along the surfaces of the
2 structure in Figure 1 during the assembly and
3 disassembly process.

4 So it would be obvious -- or it would
5 have been understood or at least obvious to recess
6 the -- all elements -- all surfaces of the LEDs
7 relative to that surrounding surface.

8 Q. When the interconnect cable segment 20
9 is inserted into the connector 17, the opening or
10 window 26 would be flush against the window 16; is
11 that right?

12 A. I don't know for sure if that's the
13 case.

14 Q. How do you know that there would be
15 interference between -- I guess how can you say that
16 the LEDs would need to be recessed to avoid
17 interfering with the connector 17 if you don't know
18 how the surface that the LEDs are on relates to the
19 surface that they would be contacting in the
20 connector?

21 A. I think the implication is that the
22 structures shown in Figure 3 are intended to be slid

1 into and then extracted from the structures in
2 Figure 1. I think there's reason to want some
3 separation, as you're sliding those in and out,
4 between the LEDs and all of the surrounding
5 structure that's being slid over. So that's why the
6 LEDs would be recessed.

7 Again, the drawing doesn't give me a
8 precise description of how those surfaces interact
9 during the assembly and disassembly, but it seems
10 that there's at least a possibility that they
11 could -- parts of the Element 20 in Figure 3 might
12 make contact with parts of Element 15 in Figure 1.

13 And you don't want the point of
14 contact to be the LEDs, for reasons that I think are
15 understood or quite obvious. So I would recess the
16 LEDs from the surrounding surface.

17 Q. Do you think the interconnect cable
18 segment 20 -- sorry, strike that.

19 Do you think the opening or window 26
20 and the interconnect cable segment 20 is flush
21 against the window 16 when the cable segment is
22 inserted into the connector 17?

1 A. I don't know for sure if it's flush or
2 if it's recessed. You certainly don't want it
3 protruding because that would lead to problems every
4 time you assemble or disassemble. I think there's
5 reasons why you might want the window to be recessed
6 so that it doesn't get scratched up every time you
7 do this.

8 Q. You're familiar with EMI shielding in
9 electronics; correct?

10 A. I am.

11 Q. And what materials are commonly used
12 for EMI shields?

13 A. Generally, it helps if those materials
14 are conductive. So metals or conductive materials,
15 like maybe --

16 THE REPORTER: Oh, I think he froze.

17 Doctor, are you there?

18 Should we go off the record?

19 MR. WENTZEL: Yeah, let's go off the
20 record.

21 (Pause.)

22 THE REPORTER: We're back on the

1 record.

2 BY MR. WENTZEL:

3 Q. I had asked you what materials are
4 commonly used for EMI shields, and I just want to --

5 A. Okay.

6 Q. You started talking about conductive
7 materials, like metals, but I don't know if that was
8 the complete answer. So...

9 A. There are, you know, other conductive
10 materials, such as conductive plastics, that might
11 also function in this role; but you generally would
12 use metals.

13 Q. So generally you would use opaque
14 materials for EMI shield?

15 A. It's generally the case that things
16 that function as EMI shields are also optically
17 opaque. There's some counter examples. I'm not
18 sure they're relevant, but a very thin metallic film
19 could provide EMI shielding while still allowing
20 some light transmission. But I don't think that's a
21 direction we really need to be worried about here.

22 Q. For your opinions in your declaration,

1 you're relying on the shielded detector assembly
2 1000 of Abdul-Hafiz; right?

3 And we can look at page 63 of your
4 declaration, if you'd like.

5 A. I'm sorry, could you repeat that
6 question?

7 Q. Yes.

8 For your opinions in your declaration,
9 you're relying on the shielded detector assembly
10 1000 of Abdul-Hafiz; correct?

11 Shown here, for example, in Figure 6A?

12 A. I think the answer is yes and, of
13 course, the structures that are included in that --
14 in that illustration all within element 1000.

15 Q. And the structures within the shielded
16 detector assembly 1000 that you include here, and
17 this is in paragraph 87, include a detector and EMI
18 shield and then an optical housing 400; correct?

19 A. I think that's correct, yes.

20 Q. Let's look at page 74, paragraph 101.

21 Again, you've identified the shielded
22 detector assembly 1000 of Abdul-Hafiz that you're

1 relying on in your opinion here; right?

2 A. Yeah, that's the same figure with some
3 additional colored shading.

4 Q. And, again, we see in Figure 6A here
5 that Abdul-Hafiz's shielded detector assembly 1000
6 encloses the detector 820 with both an EMI shield
7 1010 and the optical housing 400; correct?

8 A. I think that's correct.

9 Q. And if we look at paragraph 126 of
10 your declaration, which is page 93 to 94. I guess
11 the images are on page 94.

12 A. Uh-huh.

13 Q. Here you show how Abdul-Hafiz's
14 detector 820 is enclosed by the EMI shield within
15 the shielded detector assembly 1000; correct?

16 A. I think so, yes.

17 Q. And in paragraph 127, which continues
18 onto the next page. So we can look at the top of
19 page 95.

20 You show that Abdul-Hafiz's detector
21 is also covered by a fixed shield -- a fixed EMI
22 shield 1005; is that correct?

1 A. Yes, the opening in the enclosure 400,
2 if I look in through that opening, there's the
3 shield and then the detector, including its active
4 area, are positioned one after another along that
5 axis, that's correct.

6 Q. So by the detector's active area, are
7 you referring to the four small square areas within
8 the 470 circle in Figure 11B?

9 A. I'm referring to the element labeled
10 821. If you go back one figure -- or one page, it's
11 shown in Figure 6A -- actually, one more page,
12 sorry. There we go. Figure 821 is the active area.

13 Q. So let's go back to 11B that we were
14 looking at. So where is the detector in Figure 11B?
15 Is it within those four small squares?

16 A. It's beneath and behind those four
17 small squares, with some separation.

18 Q. So those four squares are the holes in
19 the EMI shield 1005; correct?

20 A. That's my understanding, yes.

21 Q. So those four squares in the fixed EMI
22 shield 1005 allow light to reach the detector, which

1 is underneath; correct?

2 A. So the opening 470 allows light to
3 reach the detector.

4 Q. Doesn't light have to pass through
5 the -- well, it passes through the aperture and then
6 through the openings in the EMI shield to reach the
7 detector; correct?

8 A. And through some of the structure
9 before it gets to the active area of the detector.
10 It passes through all of those layers after it
11 enters through the opening.

12 Q. What are you referring to when you say
13 "some of the structure"?

14 A. So if we go back to Figure 6A, shown
15 on page 93. The light passes through the opening
16 470, it passes through the EMI shield, it passes
17 through some portion of the detector 820, before it
18 reaches the active area 821. That's where the
19 detection takes place, at which point the light is
20 detected, which means it's converted into an
21 electrical signal.

22 Q. So the light passes through the hole

1 470 and through the holes in the fixed EMI shield
2 1005, and then it reaches the detector; is that
3 right?

4 A. And eventually reaches the active area
5 of the detector where it is detecting, yes.

6 Q. So the EMI shield surrounds the
7 detector 820; correct?

8 A. My understanding of Abdul-Hafiz is
9 that the EMI shield does surround the detector.

10 Q. Can we go back to Figure 11B.

11 So the EMI shield encloses the
12 detector on all sides to some extent; correct?

13 A. I think that's implied by its
14 functioning as an EMI shield. The housing around
15 that, Item 400, is the structure that provides the
16 light block functionality that lines up with the
17 claims of the '911 patent.

18 Q. Well, the fixed EMI shield here, 1005,
19 would also block some light from reaching the
20 detector; correct?

21 A. So its primary function is to
22 intercept electromagnetic interference. It might

1 incidentally, depending on the details of its
2 assembly, also block some light. I understand that.

3 But it's the light block Element 400
4 that -- or the housing 400 that provides -- has an
5 opening, as we've identified, and it allows -- it
6 lines up with the features of the first claim and
7 the other independent claims of the '911. It is the
8 light block.

9 Q. And earlier you said that EMI shields
10 are commonly made of conductive metals that would be
11 opaque to light; correct?

12 A. Often. It would be metals, metal
13 meshes, conductive plastics, et cetera.

14 Sorry, the street cleaning machine
15 just went by.

16 So the EMI shield is intended to block
17 EMI, which provides some options for what it's
18 constructed from. The light block 400, the
19 enclosure, the housing, is intended to block light,
20 which isn't exactly the same as blocking EMI,
21 although quite similar.

22 Q. So setting aside what you say is

1 intended, both the optical housing and the EMI
2 shield would block some light from reaching the
3 detector; correct?

4 A. The housing would. The EMI shield
5 probably would. Not knowing exactly what it's made
6 from would --

7 Q. Assuming the EMI shield is made of
8 copper, for example, which is a common EMI shield
9 material; correct?

10 A. Thick copper.

11 Q. So if the EMI shield is made of
12 copper, then both the optical housing and the EMI
13 shield in Abdul-Hafiz would block light from
14 reaching the detector; correct?

15 A. That's correct, I suppose. If you're
16 asking me if we've identified the EMI shield as a
17 light block in my declaration, I don't believe I've
18 done that. The housing is a light block. The EMI
19 shield is an EMI shield.

20 Q. If we go back to the prior page,
21 paragraph 127.

22 And at the end, you state that the

1 entire detector is "not visible in Figure 11B as it
2 is behind the fixed shield 1005"; correct?

3 A. We're describing the illustration
4 here. I think what's intended in the illustration
5 is to show the fixed shield and not the detector --
6 the full scope of the detector behind the shield.
7 So it's not visible in the figure, that's correct.

8 Q. You said earlier that the four square
9 holes in the EMI shield in Figure 11B show the
10 underlying detector; correct?

11 A. Oh, that's -- I'm sorry, you're right.
12 A portion of the detector is visible through those
13 openings, but the outer boundaries of the detector
14 are not shown in that illustration.

15 Q. And that's because the EMI shield
16 blocks light in those other areas except for the
17 four square openings; right?

18 A. So whether the shield blocks light in
19 portions of the active area of the detector depends
20 on the angles of those light rays. So there are
21 portions of the active area that I can't see as line
22 of sight in Figure 11 that would still be detecting

1 light rays that come in at oblique angles, slightly
2 oblique angles.

3 But line of sight, as shown in the
4 figure, I'm seeing a region which would include the
5 location of the active area. I'm not seeing any
6 indications of the boundaries of that region.

7 Q. I'm not asking about that, Dr. Kenny.

8 I'm just asking that in Figure 11B,
9 you can only see portions of the detector in the
10 square holes in the fixed shield, because the rest
11 of the fixed shield 1005 blocks the detector;
12 correct -- covers the detector?

13 A. I think that's a description of what
14 the illustration shows. The fixed shield has
15 regions that are cut out and regions that are not.
16 It's showing me that some are present and some are
17 absent.

18 MR. WENTZEL: Do you want to take a
19 break?

20 THE WITNESS: Probably a good idea.

21 MR. WENTZEL: Okay. Let's take a
22 break.

1 THE REPORTER: We're off the record.

2 (Recess from the record.)

3 (Luncheon recess from the record.)

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1 A F T E R N O O N S E S S I O N

2 DR. THOMAS KENNY,

3 having been previously sworn, resumed the

4 stand and testified further as follows:

5 EXAMINATION (Cont'd.)

6 BY MR. WENTZEL:

7 THE REPORTER: We're back on the

8 record.

9 BY MR. WENTZEL:

10 Q. Welcome back, Dr. Kenny.

11 A. Thank you.

12 Q. Before the break we were talking about
13 the EMI shield in Abdul-Hafiz.

14 Do you remember that?

15 A. Yes.

16 Q. So let's look at page 95 of your
17 declaration.

18 So before the break, we were
19 discussing the fixed EMI shield 1005 here in
20 Figure 11B of Abdul-Hafiz; correct?

21 A. Yes.

22 Q. And the fixed EMI shield 1005 has four

1 square holes that light can pass through to reach
2 the underlying detector with its active detection
3 area; is that right?

4 A. That's right. The light can pass
5 through at least those four square holes.

6 Q. And in use, light passes through the
7 aperture 470, the four square holes and the EMI
8 shield 1005, and then reaches the active area of the
9 detector; is that right?

10 A. I think that's a fair description of
11 this part of that patent.

12 Q. Without the four square holes and the
13 EMI shield, light could not reach the active area of
14 the detector; isn't that right?

15 A. So the shield would be present but
16 without the holes --

17 Q. Right.

18 A. -- in this hypothetical. We talked
19 about a little bit about the material of an EMI
20 shield. If that's a material that's also optically
21 opaque, which most materials that are EMI shields
22 would also be optically opaque, then the answer

1 would be yes.

2 Q. Just to be clear, without the four
3 square holes in the EMI shield, light could not
4 reach the active area of the detector; correct?

5 A. I mean, there might be some other
6 pathways for it to bounce around, as far as I can
7 tell. Or the EMI shield might be semitransparent,
8 but aside from those, I think, edge cases, the
9 answer is that the light would not be able to get to
10 the detector.

11 Q. So the shielded detector assembly of
12 Abdul-Hafiz needs both the aperture 470 and the four
13 square holes in the EMI shield 1005 for light to
14 reach the active area of the detector; is that fair?

15 A. It certainly needs the aperture, 470.
16 The EMI shield with those four square openings,
17 depending on its material and others as we've said a
18 few times now, could -- that's the predominant
19 pathway for the light, that's correct. I think the
20 understanding of this patent is that the EMI shield
21 would block EMI and probably also block light.

22 Q. And because the EMI shield would

1 probably also block light, the detector assembly
2 needs the aperture 470 and holes in the fixed EMI
3 shield so that light can reach the active area of
4 the detector; correct?

5 A. I think, yeah, if -- if this assembly
6 includes both the enclosure 400 and an EMI shield
7 1005, there needs to be openings in the enclosure
8 and openings in the shield for there to be some
9 pathways for light to the detector.

10 Q. Do you recall that earlier you stated
11 that since signing your declaration, you had read
12 Masimo's preliminary response and Dr. Madasetti's
13 declaration?

14 A. That's true, yes.

15 Q. And you stated that those materials
16 have "given me some insight but has not changed my
17 opinions."

18 Do you recall that?

19 A. I think I said that, yes.

20 Q. What insight were you referring to?

21 A. So I understand Dr. Madasetti and the
22 Patent Owner disagree about my assertions as to the

1 obviousness of the claims of '911. The material
2 provided in those -- in the Patent Owner report and
3 Madisetti's declaration help explain at least some
4 of the rationale that they offer.

5 We could talk about each element of
6 that as to why I think it's mistaken or irrelevant,
7 and it doesn't change my opinions about the validity
8 of the claims of the '911.

9 Q. So as you sit here, you can't -- you
10 cannot identify any changes to your opinions that
11 have occurred since signing your declaration;
12 correct?

13 A. That's correct.

14 Q. And you stand by the opinions,
15 everything in your December 2023 declaration; right?

16 A. I do.

17 Q. And you do not need to supplement or
18 correct those opinions in your declaration; correct?

19 A. I don't currently believe so. Of
20 course, after the possibility of additional
21 documents or reports or deposition materials, there
22 may be some benefit to me supplementing my opinions,

1 but at the current moment, there are no such plans.

2 Q. Let's look at paragraph 90 of your
3 declaration, which is on page 65.

4 So in paragraph 90, you provide your
5 opinion that Abdul-Hafiz's optical housing 400 has a
6 shoebox structure; right?

7 A. Yes, that's what's stated in that
8 paragraph.

9 Q. So where -- looking at Figure 6A,
10 which is right above paragraph 90, where is the
11 shoebox structure that you say is present in
12 Abdul-Hafiz?

13 A. The optical housing 400, which is the
14 light -- plays the role of the light block, I think
15 it has a structure and shape that's consistent with
16 what could be understood to be a shoebox structure.

17 Q. And looking at Figure 6A, the EMI
18 shield 1010 has very similar shape to the optical
19 housing; right?

20 A. There's more similarities than
21 differences, but I would say it's similar in some
22 ways, yes.

1 Q. Does the EMI shield have a rectangular
2 shoebox shape?

3 A. So my report doesn't include any
4 analysis of the shape of the EMI shield 1010. I'd
5 want to think about that a little bit. I haven't
6 really paid the same attention to the shape of the
7 EMI shield that we paid to the enclosure.

8 (Document review.)

9 BY MR. WENTZEL:

10 Q. So do you not have an opinion on
11 whether the EMI shield has a rectangular shoebox
12 shape, or you can't tell me from just looking at it?

13 A. So I'm just taking a moment to think
14 through what's in the '911 patent and what I think a
15 person of ordinary skill in the art would include as
16 being describable as a shoebox shape.

17 There's not as much information about
18 the shape of the EMI shield, but I would say just,
19 generally speaking, from what's here in the patent,
20 the description, particularly Figure 10, which help
21 show the shape a little bit.

22

1 BY MR. WENTZEL:

2 Q. All right. Dr. Kenny, I'm asking you
3 about the EMI shield in Abdul-Hafiz.

4 A. Right, Figure 10 of Abdul-Hafiz, which
5 is the best set of illustrations showing me the
6 shape of the light -- of the EMI shield, Figure 10C.
7 (Document review.)

8 THE WITNESS: So, in general, I think
9 a person of ordinary skill, reading the '911
10 claims and then looking at the illustrations
11 in the '911, would agree -- I would agree
12 that the shape of the EMI shield, at least at
13 the level of detail presented here, it falls
14 within the category of things that are
15 shoebox-like. Shoeboxes I've seen include
16 shapes like this.

17 BY MR. WENTZEL:

18 Q. And the EMI shield fits right within
19 the optical housing 400, which you say has a shoebox
20 shape; correct?

21 A. Yeah, it's contained within, that's
22 right.

1 Q. So you agree that both the optical
2 housing 400 and the EMI shield 1010 have a shoebox
3 shape?

4 A. You know, I think a person of ordinary
5 skill, looking at the '911 and reading the
6 description of the light block as having a shoebox
7 shape and then looking at the illustrations of '911,
8 would then look at the housing 400 of Abdul-Hafiz
9 and agree that it's also -- has a shoebox shape, and
10 that if they further looked at the shape of the EMI
11 shield, as shown here and in Figure 10C, they, I
12 would say, probably would reach the same conclusion.

13 Q. And in your declaration, you also
14 applied Masimo's -- what you call Masimo's
15 interpretation that a shoebox structure is --
16 encompasses more than a rectangular shoebox shape;
17 correct?

18 A. Yeah, in that, as shown in the
19 illustrations of the '911, the structure that's
20 identified as having a shoebox shape is sort of boxy
21 with various curves, slopes, and rounded corners
22 that I think gives me an understanding of the domain

1 and scope of what is a shoebox shape is.

2 And I think a person of ordinary skill
3 would look at that and look at Abdul-Hafiz and see
4 that the -- the enclosure 400 has a shoebox shape.
5 And I hadn't really thought about it until you asked
6 me, but I would suspect they would say the same of
7 the shape of the EMI shield.

8 Q. So you agree that under your view of a
9 shoebox structure and under the Masimo
10 interpretation of a "shoebox structure" that you
11 applied, the EMI shield 1010 has a shoebox
12 structure; correct?

13 A. Yeah, my understanding of those is
14 guided by the illustrations in the '911 patent,
15 which give me a sense of the scope of a shoebox
16 shape, as understood by the -- by the patent
17 authors. And I think the geometries of the
18 enclosure 400 in the Abdul-Hafiz is within that
19 scope.

20 And as I said, I hadn't analyzed it at
21 the time of my report and really not at all until
22 about ten minutes ago, but I think a person of

1 ordinary skill in the art would probably agree that
2 the shape of the light block is a shoebox shape.

3 Q. Sorry, did you mean the shape of the
4 EMI shield is a shoebox shape?

5 A. Yeah, sorry, at the end of all of what
6 I just said.

7 Q. Well, let's just clarify.

8 So you agree under your view of a
9 shoebox structure and under the Masimo
10 interpretation of "shoebox structure" that you
11 applied, the optical housing 400 and the EMI shield
12 1010 are both a shoebox structure?

13 A. So I'm more comfortable making that
14 statement about the enclosure 400 because I've spent
15 time analyzing that and thinking about it over the
16 last year. In the 10 or 15 minutes we've been
17 discussing the shape of the EMI shield, I think my
18 statements are probably the same. I don't
19 immediately see a distinction that I would draw
20 between them.

21 Just admitting that you've asked me a
22 question I hadn't thought about, I'm trying to

1 answer your questions even if I'm not prepared for
2 every one of them. And this is a case where I
3 hadn't thought about it much, but I think the answer
4 is probably, yes.

5 Q. So why do you think the optical
6 housing 400 in Abdul-Hafiz has the shape of a
7 shoebox?

8 A. So shoebox shape includes shapes that
9 are beyond just a simple rectangular structure. And
10 I'm guided by that by looking at Figure 42, I
11 believe 42, of the '911 and all of the examples in
12 that figure -- sorry, Figure 32, which show a
13 structure that has curves and slopes and rounded
14 corners, other features that I believe the patent
15 author believes are consistent with having a shoebox
16 shape.

17 The features in the Abdul-Hafiz
18 patent, I think, are similarly curved and sloped and
19 rounded in ways that I think are equally within
20 that -- that -- within that scope.

21 Q. So you said that shoebox shape
22 includes shapes that are beyond a simple rectangular

1 structure, but I thought your understanding of
2 shoebox structure was a rectangular shoebox shape.

3 So are you opining that Abdul-Hafiz
4 has a shoebox structure under Masimo's
5 interpretation and your interpretation or only
6 Masimo's interpretation?

7 A. I think these are all the same. A
8 rectangular shoebox shape, to me, is represented by
9 the illustrations in the '911 patent, Figure 32.
10 You know, it's boxy, and it's -- you know, it has a
11 shape that I think is not inconsistent with the kind
12 of boxes I see at a shoe store.

13 There's some curves, there's some
14 slopes, there's some features that are present for
15 various reasons: Perhaps cost manufacturing
16 convenience or the shape of shoes within. I think
17 Abdul-Hafiz is a shoebox shape in that sense that
18 it's kind of rectangular-ish in some perspectives
19 but also has some slopes and some rounded corners,
20 similar to what's in the '911.

21 And I think a person of ordinary skill
22 in the art, if they believe what they see in

1 Figure 32 is a shoebox shape, then they would agree
2 that what we see here in Figure 6 falls within the
3 same scope as being a shoebox shape.

4 Q. And both the optical housing and EMI
5 shield in Figure 6 have that shoebox shape, in your
6 view; correct?

7 A. Again, with the caveat that I've only
8 been considering the shape of the EMI shield for a
9 few minutes, I would offer that a person of ordinary
10 skill in the art would agree that the enclosure 400
11 has a shoebox shape, and they would probably also
12 agree that the EMI shield has that shape.

13 The shape of the EMI shield is a
14 little less well-described than the shape of the
15 enclosure. So I suppose there could be some modest
16 room for disagreement, but I -- my opinion that I'm
17 offering without a lot of preparation here is that I
18 believe a person of ordinary skill in the art would
19 agree that the enclosure has a shoebox shape, and
20 they would probably agree that the EMI shield has a
21 shoebox shape.

22 Q. Let's look at paragraph 92 of your

1 declaration, which starts on page 66. It goes onto
2 67.

3 If we look at the part on page 67, you
4 see you state here that a POSITA, quote, would have
5 found it to be simply a matter of design choice to
6 use different shapes for Abdul-Hafiz's optical
7 housing; correct?

8 A. That's what it says, yes.

9 Q. So in your opinion, would it have been
10 obvious to use any known optical housing designed
11 with Abdul-Hafiz because selecting a given optical
12 housing design was simply a matter of design choice?

13 A. So a person of ordinary skill might
14 choose any number of shapes for a housing. I'm only
15 offering that it would be obvious to consider the
16 sorts of housings that are disclosed in Abdul-Hafiz,
17 and perhaps also in the Parker reference on the
18 preceding page. And that, you know, it would be
19 obvious to consider -- let's see -- the shapes that
20 are shoebox shapes as one possibility.

21 I think a person of ordinary skill in
22 the art might choose other shapes that are not

1 within the scope of a shoebox, and that would be a
2 matter of design choice. But I believe the teaching
3 of Abdul-Hafiz shows them they can consider a
4 shoebox shape as one method for achieving the
5 physiological monitor that's the objective of the
6 patent.

7 Q. So why would a POSITA have arrived at
8 a shoebox shaped light block from among all the
9 other optical housing designs that were available?

10 A. I think the teaching of Abdul-Hafiz
11 shows a manufacturing process for the light block
12 that's fairly inexpensive and probably fairly
13 repeatable that provides the characteristics that
14 you hope for, and consequence of that process are
15 certain shapes are easy to make. And I think the
16 shapes shown in Abdul-Hafiz reflect shapes that can
17 be made using the process described in Abdul-Hafiz.

18 Q. You're not relying on Parker for your
19 obviousness opinion for this limitation; correct?

20 A. Not as -- I'm not relying on the
21 features of Parker in combinations with other
22 references to show that the elements of the claims

1 are anticipated. Simply included here is an example
2 of what's out there in the field.

3 A person of ordinary skill in the art
4 would be aware of all of these possibilities, and
5 that there's really nothing new or inventive of
6 changing one housing shape for another.

7 Q. Let's look at paragraph 106 of your
8 declaration. It's on page 78.

9 So on page 78, you included a figure
10 to illustrate the angle of piped or ambient light
11 reaching the active area of the detector; is that
12 right?

13 A. Yes.

14 Q. And your figure there ignores that the
15 light coming into the detector is also blocked by
16 the EMI shield; correct?

17 A. In that figure, yes.

18 Q. So why did you ignore the EMI shield
19 blocking light in that figure?

20 A. So I think the purpose of this figure
21 was to show how the aperture in the housing would
22 prevent light coming in from almost horizontal

1 directions from reaching the active area of the
2 detector while allowing light coming in at normal or
3 near-normal incidence allowing that to reach the
4 detector.

5 The presence of the EMI shield might
6 intercept one of these rays, perhaps, depending on
7 the detailed arrangement of the shield. I don't
8 think that changes the point of this illustration.

9 Maybe I can add, there's nothing in
10 Abdul-Hafiz that gives me any sense of the
11 relationship between the geometries of the EMI
12 shield and the positions of the aperture in the
13 housing or the location of the active area of the
14 detector. I think for good reason, the EMI shield
15 isn't regarded as part of the optical structure of
16 what's in Abdul-Hafiz.

17 What's interesting from the standpoint
18 of dealing with piped light and with ambient light
19 is the arrangement of the aperture relative to the
20 active area of the detector. So that's what I
21 focused on in this illustration.

22 Q. If the EMI shield is also blocking

1 light, wouldn't that change the geometry of the
2 incident light that you're showing in this figure?

3 A. So these are sort of representative
4 rays. If I had included portions of the EMI shield
5 as being opaque, it might intercept one or more of
6 these rays. It really would just clutter up the
7 purpose of this illustration at this stage in my
8 report, which is to explain the relationship between
9 the size of the opening in the housing and the size
10 of the active area of the detector.

11 Q. Does your figure here show light
12 passing through the wall of the optical housing?

13 A. It's not the intent of this figure.
14 The light -- the green rays of light are passing
15 through the opening in the enclosure 400, and the
16 red rays are blocked from reaching the detector
17 because of the width of the opening and the
18 enclosure.

19 Q. Wouldn't the smaller square holes in
20 the EMI shield that we saw earlier further reduce
21 piped or ambient light from reaching the active area
22 of the detector?

1 A. You know, it would depend on the
2 location of those openings relative to the opening
3 in the housing 400, which has already done the job.
4 I think the point here is that light rays that are
5 coming in from piped light can't get through the
6 opening and the enclosure along a path that would
7 allow them to get to the detector.

8 The EMI shield doesn't change that.
9 It might block some extra rays, depending on the
10 details, but the primary element that's defining the
11 angles of light that can get to the detector is the
12 opening in the housing.

13 Q. Don't we know the location of the
14 aperture 470 relative to the square holes in the EMI
15 shield from Figure 11B of Abdul-Hafiz?

16 A. We have a sense of those locations,
17 yes.

18 Q. So wouldn't those square holes result
19 in blocking even more piped or ambient light from
20 reaching the active area of the detector than is
21 shown in this figure on -- in paragraph 106?

22 A. I think what's shown here already

1 blocks all the piped and ambient light. I think --
2 let's see -- for example -- where is that?

3 (Document review.)

4 THE WITNESS: Oh, sorry, too many
5 choices. I think Figure 2 of Abdul-Hafiz
6 shows sort of what are the pathways for the
7 piped and the ambient light, and the light
8 block -- or the housing of Abdul-Hafiz blocks
9 all those rays. So there wouldn't be any
10 left for any other intervening layers to take
11 care of. The job's already been done.

12 BY MR. WENTZEL:

13 Q. Wouldn't the ambient light reduction
14 be greater the smaller the openings to the detector
15 are?

16 (Document review.)

17 THE WITNESS: I think a person of
18 ordinary skill would understand that this
19 housing if it's positioned against the bottom
20 side of the finger of the user and in contact
21 with the finger, that the pathways for
22 ambient light have already pretty much been

1 entirely dealt with.

2 BY MR. WENTZEL:

3 Q. That doesn't answer my question.

4 Do you disagree that the smaller the
5 openings are to the detector, the more light piping
6 and ambient light would be blocked from reaching the
7 detector?

8 A. I think a person of ordinary skill
9 would understand that if the opening was huge, like
10 the whole bottom of this drawing, if that was the
11 entire opening, you'd have a lot of light rays
12 coming in from the ambient that could get to the
13 detector.

14 Once you begin to define the aperture
15 down into the range that's illustrated here, you
16 know, sort of smaller than the size of the detector
17 itself, the angles of incidence that can have access
18 to the detector and the number of rays following
19 that pathway have been substantially eliminated.

20 It's possible a ray could come in and
21 bounce multiple times between the outside of the
22 enclosure and the surface of the finger if there was

Page 139

1 a small gap and, after some number of reflections
2 could enter the enclosure.

3 But, you know, if the answer [sic] is:
4 Does this arrangement block them all, no, it gets an
5 overwhelming majority of them. And that's the main
6 intent. You still want to have enough of an opening
7 to capture the transmitted light from the LEDs.

8 I think a person of ordinary skill in
9 the art understands that there's a tradeoff here.
10 You're trying to capture the signal you want.
11 You're trying to minimize the signal you don't want.
12 There's a point of diminishing returns.

13 I think where we are with this
14 arrangement would be understood to be within the
15 range where you still have a good optimization of
16 that tradeoff, and you haven't given away too much
17 of the signal you're after.

18 Just in an extreme example, you could
19 eliminate the opening in the housing, just have it
20 be a solid sheet of metal all the way around. That
21 would eliminate all the piped and ambient light. It
22 would also eliminate all the LED-oriented light, and

1 the result of that would be a useless device.

2 So you create an opening in the
3 housing to let the light you want in and try to
4 minimize the light you don't want. And I think one
5 of ordinary skill would understand that the
6 arrangement illustrated here is probably near the
7 sweet spot of how you optimize that relationship.

8 Q. And the arrangement illustrated here
9 includes the EMI shield 1010 that has the four
10 square holes in it that we looked at earlier;
11 correct?

12 A. That's true, but I think the person of
13 ordinary skill, considering this design, would be
14 thinking of the housing and the opening in the
15 housing relative to the size and position of the
16 sensitive area of the detector as determining how
17 much ambient light and piped light is reaching the
18 detector relative to the emitted light from the
19 LEDs.

20 Q. Are you saying, Dr. Kenny, that a
21 POSITA would just ignore the existence of the EMI
22 shield that's shown in this figure?

1 A. I think they would design the EMI
2 shield in a way to allow as much light through as
3 possible, because the housing and its aperture have
4 already done the job of blocking the ambient light
5 and the piped light.

6 The EMI shield's job is to do its job,
7 which is to shield from EMI. And if you put a
8 shield in there that had no holes, no openings, it
9 obviously would overcome the benefits of everything
10 else present.

11 So I think a person of ordinary skill
12 would want openings in the shield to be as large
13 as they could be, and let the housing and its
14 aperture define which light can get to the detector
15 from various pathways.

16 Q. Let's look at page 105 of your
17 declaration.

18 So you see on page 105, this is
19 generally what you're proposing to combine in
20 Abdul-Hafiz, Raley, and Secker; correct?

21 A. I think the elements of the teachings
22 of Abdul-Hafiz and Raley are shown here. Secker

1 includes some additional details about the LED
2 arrangement that might be used together with these
3 other two.

4 Q. But you understand that the sensor
5 that you're relying on in your combinations, whether
6 they're just with Raley or also with Secker, are the
7 Figure 7C sensor that we see here in the middle
8 left, Figure 7C of Abdul-Hafiz.

9 A. Well, the teachings of that figure,
10 yes.

11 Q. And if we look at Abdul-Hafiz, which
12 is Exhibit 1004. Let's turn to Figure 7C.

13 So this is the -- this is the sensor
14 in Abdul-Hafiz that you're relying on in your
15 combination; correct?

16 A. So this shows part of the system of
17 Abdul-Hafiz, which includes the housing
18 element 1000, that we've spoken a lot about, and
19 other structural elements of the system that could
20 be mounted on the finger of a patient.

21 Q. And the aspects of Raley and Secker
22 that you're proposing to combine, I think, the

1 additional LEDs, you're proposing to combine them
2 with this sensor; correct?

3 A. With the caveat that a person of
4 ordinary skill in the art might make modifications
5 to some of the details here as needed to properly
6 incorporate the teachings of the other two
7 references. For example, here, the position of the
8 LEDs is just shown as a little star kind of in the
9 middle of the illustration.

10 A person of ordinary skill in the art
11 would do some additional work in the mounting and
12 positioning of those LEDs in order to have them work
13 properly and protect them from other aspects of the
14 system during use.

15 So there's more to it than what's
16 shown here in terms of what a POSITA would envision
17 as a final combination.

18 Q. I'm just asking for the base of your
19 combination, the sensor portion, is this Figure 7C
20 of Abdul-Hafiz; right?

21 A. To the extent it shows the housing and
22 the contents therein, yes.

1 Q. And this is sensor 750; correct?

2 (Document review.)

3 THE WITNESS: Yes, 7C illustrates an
4 assembled pulse oximetry adult sensor 750.

5 BY MR. WENTZEL:

6 Q. So your combination -- your various
7 combinations rely on the adult sensor 750 of
8 Abdul-Hafiz; correct?

9 A. I believe Abdul-Hafiz also describes a
10 neonatal version of the same. I think the details
11 that we're interested in for our combinations don't
12 really distinguish between those two embodiments.
13 They both show a housing with the features that
14 we've described.

15 But this is a good example of the
16 teaching of Abdul-Hafiz, this figure, the other
17 figures, and all of the description in the text.

18 Q. Let's look at paragraph 169 of your
19 declaration, which starts on page 15 -- 115, sorry.
20 And continues onto page 116.

21 A. Okay.

22 Q. So in paragraph 169, you first propose

1 modifying the Abdul-Hafiz and Raley sensor based on
2 Secker to include four sets of four LEDs where each
3 set of LEDs has a different wavelength; correct?

4 (Document review.)

5 THE WITNESS: Could I have that
6 question again?

7 BY MR. WENTZEL:

8 Q. Yeah.

9 So in paragraph 169, you first propose
10 modifying the Abdul-Hafiz and Raley sensor based on
11 Secker to have four sets of LED -- four sets of four
12 LEDs where each set of LEDs has a different
13 wavelength; is that right?

14 Or are you just proposing to take the
15 LEDs from the Abdul-Hafiz and Raley sensor and
16 multiply them by four?

17 (Document review.)

18 THE WITNESS: I think the answer is
19 yes, but could I have that one more time just
20 to be sure?

21 BY MR. WENTZEL:

22 Q. Sure. I'm just trying to figure out

1 what you're proposing to do, based on Secker.

2 So based on Secker, are you proposing
3 to modify the Abdul-Hafiz and Raley sensor to just
4 multiple the number of LEDs times four? Is that the
5 proposed modification?

6 A. In -- that's one, I think, very brief
7 description. The illustration on page 117 is an
8 example of what a person of ordinary skill in the
9 art might take from the teachings of Abdul-Hafiz,
10 Raley, and Secker together.

11 So if we -- actually, if we go to
12 page 117, it actually provides a conceptual
13 illustration of 16 LEDs of four different
14 wavelengths mounted within the structure of Raley.

15 MR. WENTZEL: Henry, can we look at
16 page 117.

17 THE WITNESS: There we go.

18 BY MR. WENTZEL:

19 Q. This is how you -- on page 117, this
20 shows how you propose modifying Abdul-Hafiz and
21 Raley based on Secker to have 16 LEDs; correct?

22 A. I think the intent here is to show

1 that there could be 16 LEDs of four wavelengths.
2 They could be arranged in rows like this. Although,
3 that's not a necessary requirement.

4 And that in combination with
5 Abdul-Hafiz, you would position those elements into
6 the structure of Abdul-Hafiz with the elements
7 recessed. As we've discussed previously, the need
8 for that is beneficial all around.

9 But the primary inspiration here is to
10 add additional LEDs to the Raley-Abdul-Hafiz
11 combination. I'm not proposing that you take this
12 element of Raley with 16 LEDs and stuff that into
13 Abdul-Hafiz.

14 I think a person of ordinary skill
15 would do -- as we've been describing, modify
16 Abdul-Hafiz in view of Raley and Secker to position
17 this larger array of LEDs within the structure of
18 Abdul-Hafiz. And that would include, I think,
19 reasonable and obvious design choices, such as
20 having a recess for the LEDs to protect them and
21 protect the patient from them, et cetera.

22 Q. Thank you for that.

1 So in the Abdul-Hafiz and Raley sensor
2 that you proposed previously, that sensor would
3 already have LEDs -- one LED of four different
4 wavelengths, for a total of four LEDs; correct?

5 A. Yes, I believe that's a good
6 description of what was proposed earlier in my
7 declaration.

8 Q. But now, in view of Secker, you're
9 proposing to multiply those LEDs from your prior
10 combination by four. So you end up with four LEDs
11 of the four different wavelengths, for a total of
12 16; correct?

13 A. That's correct.

14 Q. And if we look back at paragraph 169.
15 And I think it's on the next page. Yeah, at the top
16 of page 116.

17 Your opinion is that a POSITA would
18 have been motivated to make that proposed
19 modification based on Secker in order to, quote,
20 accommodate different detector-LED spacings for
21 different sized patients or different tissue site
22 thickness; correct -- thicknesses?

1 A. That is correct.

2 Q. By "different tissue site thickness,"
3 you're referring to different tissue sites, such as
4 like the forehead and the leg, which would have
5 different thicknesses; correct?

6 A. I think, you know, a finger is one
7 particular site, and you might have an infant or an
8 adult as examples of different finger thicknesses.
9 You might consider mounting a transmission pulse
10 oximeter on an earlobe or on other parts of tissue,
11 where you can have sort of a left side/right side or
12 top/bottom pathway for the light.

13 And if you want to use the same
14 structure for these various applications, it's
15 helpful, I believe. One would be inspired to
16 include additional LEDs in order to modify the
17 operation of the system to be able to accurately
18 record the information.

19 Q. So the example you gave of an infant
20 versus an adult would be an example of different
21 sized patients; right?

22 A. That's correct.

1 Q. So what are you referring to by
2 "different tissue site thicknesses" in paragraph 169
3 here?

4 A. It could be the difference between an
5 earlobe and a finger. There's other examples in the
6 art of doing these measurements on maybe the nose
7 and even within the finger itself. You know, the
8 LED is usually positioned with the LEDs on top,
9 where you have a fingernail, and the detector is
10 usually on the bottom, under the tissue.

11 In between those two, there's a bone
12 including some of that space. I think one of
13 ordinary skill in the art would appreciate that
14 having an array of LEDs at different locations that
15 you could activate would give you an opportunity to
16 modify the arrangement of the active LED relative to
17 the detectors to overcome all of these issues,
18 different sized patient, different site thicknesses,
19 certain anatomical features, such as the presence of
20 the bone in the finger, other such things.

21 I think one of ordinary skill in the
22 art would understand the benefits of having

1 additional LEDs relative to the cost.

2 Q. If you look at paragraph 160, which is
3 on page 109.

4 In the last sentence of paragraph 160,
5 you say that, "A POSITA would have understood that
6 Secker teaches methods that improve transmission
7 oximetry"; correct?

8 A. That's correct.

9 Q. And by "methods" you're referring to
10 the prior sentence, which mentions Secker's
11 technique for selection of functions and signals; is
12 that correct?

13 (Document review.)

14 THE WITNESS: That's correct.

15 BY MR. WENTZEL:

16 Q. You have a Bachelor of Science and
17 Ph.D. in physics; correct?

18 A. Yes, I do.

19 Q. And you've never designed or built a
20 pulse oximeter; correct?

21 A. Not in the literal form. I've worked
22 with students who have built things that are very

1 much like pulse oximeters in their laboratory or in
2 their coursework, project construction activities.
3 But I haven't personally done that work myself.

4 Q. And you've never published on pulse
5 oximetry; right?

6 A. I don't believe so.

7 Q. Your declaration refers to
8 photoplethysmography; correct?

9 A. Yes, it does.

10 Q. And that's called PPG; right?

11 A. That's correct.

12 Q. What is PPG?

13 A. So it's basically a measure of the
14 transmitted light through the tissue sample or
15 perhaps the reflected light from a tissue sample.
16 As blood flows in and out of that tissue, it changes
17 the absorption and reflection characteristics.

18 And in its basic form, there's
19 variations in the amplitude of the reflected or
20 transmitted light that are related to the heartbeat
21 that causes the blood to flow in and out of those
22 tissues.

1 Q. What does PPG measure? What does it
2 measure over time?

3 A. So it's -- as the PPG signal is going
4 up and down, it's an indication of the heart rate.
5 It's doing that measurement by measuring the amount
6 of blood in the tissue, which rises and falls as the
7 heart beats.

8 Q. Is it possible to noninvasively
9 measure carboxyhemoglobin and methemoglobin with a
10 greater degree of accuracy than oxygen saturation?

11 A. I think the answer depends on how
12 you're doing it. If, for example, you're doing the
13 oxygen saturation badly and other measures more
14 carefully, you could do that.

15 I think the references indicate that
16 the oxygen saturation signal is a little easier to
17 get out of the PPG waveforms than these others, but
18 one of ordinary skill in the art would review these
19 references and understand that there's a motivation
20 to try, and that people are thinking about it. The
21 tools are available. And there's work to do.

22 This is what happens, you know, in

1 laboratories and companies everywhere, people try to
2 do things that haven't been done before because
3 there's a potential application or benefit.

4 Q. You understand that Abdul-Hafiz is the
5 Masimo patent reference; right?

6 A. That's my understanding.

7 Q. And you understand that Masimo is a
8 leader in the pulse oximetry space?

9 A. They describe themselves that way. I
10 think that's valid. Others might have a different
11 opinion. There's certainly other companies in the
12 space, but I won't disagree with that statement.

13 Q. Does Abdul-Hafiz say anything about
14 its pulse oximetry system design suffering from
15 inaccuracy?

16 (Document review.)

17 THE WITNESS: I'm not finding any
18 statements like that in Abdul-Hafiz. The
19 patent describes a number of details and
20 arrangements of LEDs and other elements that
21 I think are intended to provide improvements
22 over the state of the art at the time of the

1 '911 patent, but it doesn't have any specific
2 targets associated with improving the
3 accuracy of the oxygen saturation reading by
4 a particular amount.

5 BY MR. WENTZEL:

6 Q. What hourly rate is Apple paying you
7 to provide opinions in this IPR proceeding?

8 A. It's \$450 an hour.

9 Q. Okay.

10 MR. WENTZEL: Do you mind if we just
11 take a short break so I can look at my notes
12 and see if I have any more questions?

13 THE WITNESS: Certainly.

14 THE REPORTER: Okay. We're off the
15 record.

16 (Recess from the record.)

17 THE REPORTER: Okay. We're back on
18 the record.

19 BY MR. WENTZEL:

20 Q. Dr. Kenny, have you discussed the
21 substance of your testimony with anyone during the
22 breaks today?

1 A. Nope.

2 Q. Great.

3 MR. WENTZEL: Well, thank you for your
4 time today. Subject to any redirect
5 questions from your attorney, I have no
6 further questions at this time.

7 MS. LEUNG: Thanks. Can I get a
8 ten-minute break? So let's come back at
9 two -- let's say 2:30, so eight minutes.

10 THE WITNESS: Okay.

11 MR. WENTZEL: Sounds good.

12 THE REPORTER: All right. We're off
13 the record.

14 (Recess from the record.)

15 THE REPORTER: All right. We're back
16 on the record.

17 EXAMINATION

18 BY MS. LEUNG:

19 Q. Thanks, Dr. Kenny. I just have a few
20 questions for you.

21 So do you recall your earlier
22 testimony regarding your application of "plain and

1 ordinary meaning" to the claims?

2 A. Yes.

3 Q. Why did you not feel the need to
4 provide express constructions for any claim terms
5 aside from "plain and ordinary meaning"?

6 A. I believed the meaning of the terms
7 was clear to me in the context of the information in
8 the patent, the language used in the claims, and
9 what a person of ordinary skill in the art would
10 understand from all that information.

11 Q. Do you know whether the district court
12 has adopted any claim constructions in the Delaware
13 litigation?

14 A. I honestly don't know anything about
15 what's going on over there, except a few excerpts
16 quoted from the reports from Masimo.

17 Q. And if you were aware of any claim
18 constructions adopted by the district court in the
19 Delaware litigation, would you have applied those
20 constructions in your declaration in your analysis
21 of the claims in the prior art?

22 A. I would rely on guidance from you on

1 that matter as to what constructions I ought to be
2 importing from other proceedings. I wouldn't
3 automatically apply them.

4 Q. Now, do you recall your earlier
5 testimony regarding Abdul-Hafiz's optical
6 housing 400 and the EMI shield 1010?

7 A. Yes.

8 Q. What is the purpose of the optical
9 housing 400 in Abdul-Hafiz?

10 MR. WENTZEL: Objection, asked and
11 answered.

12 THE WITNESS: The purpose is to block
13 ambient light and piped light.

14 BY MS. LEUNG:

15 Q. And what is the purpose of the EMI
16 shield 1010 in Abdul-Hafiz?

17 A. I think it's there to reduce the
18 influence of electromagnetic interference from the
19 surroundings on the operation of the detector.

20 Q. Does Abdul-Hafiz describe that the EMI
21 shield 1010 provides ambient and piped light
22 reduction?

1 A. I don't believe so.

2 Q. If the EMI shield 1010 did provide
3 ambient and pipe light reduction, would Abdul-Hafiz
4 need optical housing 400?

5 MR. WENTZEL: Objection, asked and
6 answered.

7 THE WITNESS: So the EMI shield might
8 accidentally or inadvertently also provide
9 the features of the light block, and if that
10 was the case, you might not need the light
11 block or the housing of Abdul-Hafiz.

12 But as described in the patent the
13 housing in Abdul-Hafiz is designed to block
14 ambient and piped light and is designed sort
15 of size, shape, and structure to meet that
16 objective.

17 BY MS. LEUNG:

18 Q. And because Abdul-Hafiz provides
19 optical housing 400, is it reasonable for a POSITA
20 to assume that the EMI shield 1010 didn't provide
21 adequate ambient and piped light reduction?

22 A. Yeah, I would say so.

1 Q. Thanks, Dr. Kenny.

2 MS. LEUNG: I have no further
3 questions.

4 THE REPORTER: Anything further, Doug?

5 MR. WENTZEL: Yeah, I have a few
6 questions.

7 EXAMINATION

8 BY MR. WENTZEL:

9 Q. So, Dr. Kenny, you agree that the
10 optical housing 400 and the EMI shield 1010 would be
11 understood by a POSITA to block light in
12 Abdul-Hafiz; correct?

13 A. I think the housing would be
14 understood to block light, as it's described. I
15 think the EMI shield could block light. It would
16 depend on the details of how it's made and its other
17 sort of characteristics, how it's assembled.

18 The objective of the EMI shield is to
19 block EMI inside of a housing that's already blocked
20 the light. So it might be pretty bad at blocking
21 the light on its own.

22 And by "the light" here, I'm talking

1 about ambient light and piped light, not the
2 intended signal light.

3 Q. You agree that a common material for
4 EMI shields is optically opaque materials, like
5 copper, metal; correct?

6 A. They could be. You could make a
7 useful EMI shield out of a copper mesh that wouldn't
8 necessarily be opaque. And you could make a useful
9 EMI shield out of thinner films of copper that might
10 not be opaque.

11 There are some EMI shields that are
12 constructed of conductive plastic in certain
13 products, and those might or might not be opaque
14 optically.

15 Q. Well, you said earlier that a common
16 material for EMI shielding is just normal cooper,
17 metal; correct?

18 A. I think in most cases it would be a
19 metal foil, but you could make a metal mesh, if you
20 wanted. There's maybe some costs or other benefits
21 to that.

22 Q. Did you discuss any of the questions

1 that your attorney asked you during the break?

2 A. No, I didn't.

3 Q. So you still haven't discussed any of
4 your testimony substantively outside of on the
5 record today?

6 A. I haven't had any communication since
7 before we started, so yes.

8 MR. WENTZEL: Okay. I have no further
9 questions.

10 Thank you for your time.

11 THE WITNESS: Thank you.

12 MS. LEUNG: Thank you, Dr. Kenny.

13 THE REPORTER: Okay. We're off the
14 record.

15 (The examination concluded at 5:38
16 p.m. Eastern Daylight Time.)

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2)
3 COUNTY OF WESTCHESTER)
4)

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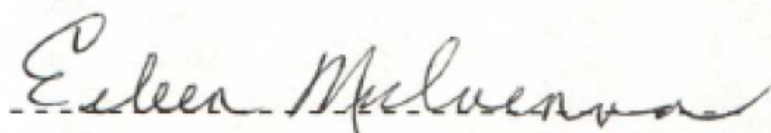
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EILEEN MULVENNA, CSR/RMR/CRR/RDR

Page 164

1 Dr. Thomas Kenny, c/o

2 KNOBBE, MARTENS, OLSON & BEAR, LLP

3 2040 Main Street

4 Irvine, California 92614

5

6 Case: Apple Inc. v. Willow Laboratories, Inc.

7 Date of deposition: October 4, 2024

8 Deponent: Dr. Thomas Kenny

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A	145:10,15	accommodating	43:3 73:4,6,9	allows 110:2
a.m 163:9	146:3,9,20	65:2	73:12 76:4,5,7	112:5
abbreviation	147:5,6,13,16	accuracy 88:11	76:12,17 77:10	ambient 133:10
16:2	147:18 148:1	153:10 155:3	77:15,20 78:20	134:18 135:21
Abdul 49:18	154:4,13,18	accurate 7:17	79:6,11,14 80:8	136:19 137:1,7
Abdul-Hafiz 4:16	158:9,16,20	11:21 46:13	80:15,16,19	137:13,22
12:18,22 13:3	159:3,11,13,18	85:2 163:12	81:14,20 82:1	138:6,12
29:12 43:1	160:12	accurately	84:2,9,14,15	139:21 140:17
48:10 50:19,20	Abdul-Hafiz's	149:17	85:3 88:18 91:8	141:4 158:13
51:4,8,12,18	75:10 108:5,13	accuses 23:12	94:12 108:3	158:21 159:3
52:6,11 53:12	108:20 122:5	achieving 132:4	121:20 142:1	159:14,21
54:1 55:18 58:5	131:6 158:5	acknowledge	143:1,11	161:1
58:17,20 60:6	ability 78:2 92:7	165:10	147:10 149:16	amount 20:19
71:6,21 72:4,7	able 8:15 18:18	action 2:3 163:16	151:1	77:7 153:5
72:10,15,18	18:19 19:22	163:16	additive 73:8	155:4
73:3,9,18,21	22:4 32:15 50:4	activate 150:15	adds 43:3	amplifying 17:6
74:6,15 75:3	75:20 76:16	active 109:3,6,12	adequate 159:21	amplitude 152:19
76:1,4,15 77:21	77:15 79:12	110:9,18 111:4	admitting 127:21	analysis 24:22
78:5,13,15	80:18 83:20	114:19,21	adopted 157:12	30:14 39:13
79:11,19 80:4	84:11 86:18	115:5 118:2,8	157:18	55:11 86:16
81:1,22 82:2,15	89:3 90:5,22	118:13 119:4	adult 144:4,7	89:2 123:4
83:2 84:11,20	91:6 92:11,12	119:14 120:3	149:8,20	157:20
85:4,17 86:1	93:12,15 119:9	133:11 134:1	advanced 21:20	analyte 84:14
89:15,18,22	149:17	134:13,20	22:3	88:18
90:1,12,13 91:1	above-titled 2:3	135:10,21	advise 164:14	analytes 75:16,21
91:2,7,13,21	absence 34:14	136:20 150:16	advised 164:10	76:10,12,17,18
92:2,3,7,11,12	37:2	activities 41:21	ago 14:4,14,21	76:20 77:11,20
92:18 93:1,6,8	absent 115:17	152:2	69:9 126:22	78:3,8,15 79:18
93:16,21 94:4	164:21	add 12:2 76:4,15	agree 7:11 11:20	79:20,22 80:8
94:17 95:1	absolute 59:18	78:14 79:4,11	22:7 28:5 30:10	80:19,21 81:14
107:2,10,22	absorption 77:7	80:3,18,22 82:1	39:19 41:5	81:20 82:18
111:8 113:13	152:17	82:14 83:12,17	42:21 46:18	84:2,15 86:7
117:13,20	access 138:17	90:5,22 92:7	49:4 51:13 53:2	87:1,2 94:12
119:12 122:12	accessible 81:21	94:2 95:5 134:9	58:2 61:1 67:9	analyze 23:10
124:3,4 125:8	accidentally	147:10	67:17 97:3,15	24:18 32:16
126:3,18 128:6	159:8	adding 51:7	124:11,11	analyzed 126:20
128:17 129:3	accommodate	63:18 74:5,10	125:1,9 126:8	analyzing 28:8
129:17 131:11	69:20 76:5	74:10 75:4,9,22	127:1,8 130:1	30:13 42:12
131:16 132:3	148:20	77:20 78:4,13	130:10,12,19,20	44:9 127:15
132:10,16,17	accommodated	79:18 83:2	160:9 161:3	anatomical
134:10,16	68:18	84:20 85:3,7	al 4:12 9:11	150:19
136:15 137:5,8	accommodates	89:21 90:6,11	allow 66:17	and/or 164:14
141:20,22	46:15 48:2 49:2	91:18 93:15	109:22 136:7	angle 133:10
142:8,11,14,17	50:17 51:3,12	94:17 95:1	141:2	angles 35:2 60:14
143:20 144:8,9	51:21 52:15	addition 78:17	allowed 164:16	114:20 115:1,2
144:16 145:1	53:10 55:18	89:14 94:9	allowing 106:19	136:11 138:17
	62:5 64:8	additional 20:19	134:2,3	answer 7:8,8,11

22:12 25:6 50:4 51:5 59:7,8,9 70:11 74:21 94:20 106:8 107:12 118:22 119:9 128:1,3 138:3 139:3 145:18 153:11 answered 87:11 158:11 159:6 answering 7:13 99:1 answers 43:14,16 165:13,16 antecedent 65:8 65:15 anticipated 72:5 133:1 apart 96:10 aperture 110:5 118:7 119:12 119:15 120:2 133:21 134:12 134:19 136:14 138:14 141:3 141:14 apparent 48:6,9 49:13,16 51:19 53:13 54:5,13 APPEAL 1:3 appearances 5:9 appeared 69:21 appears 26:9 Apple 1:5 5:18,19 9:3 15:9,12 23:13 24:7 26:4 28:16 38:3,22 40:6 41:13 45:21 155:6 164:6 165:7 166:8 Apple's 9:21 24:12 25:9 26:13,15 27:18 28:5 29:3 30:11 32:12 38:13 39:14,19 40:22	41:5,12,16,18 68:21 69:3 applicable 164:16 application 37:22 45:15 48:6,9 49:5,7,13,17,18 50:13,21 54:5 54:14 74:2 154:3 156:22 applications 29:19 81:7 149:14 applied 27:22 31:5 39:14 46:9 47:17 51:13 53:3,19 56:9 59:2,9 125:14 126:11 127:11 157:19 applies 49:15 apply 26:15 27:18 29:3 31:7 35:5,16 40:22 44:10 47:19 51:19 53:14 158:3 applying 46:21 48:12 appreciate 84:10 150:13 appropriate 165:12 approximately 2:4 14:10 area 109:4,6,12 110:9,18 111:4 114:19,21 115:5 118:3,8 118:13 119:4 119:14 120:3 133:11 134:1 134:13,20 135:10,21 136:20 140:16 areas 109:7 114:16	argues 26:5 28:16 38:3 40:6 41:13 argument 39:19 44:5 arguments 24:7 24:13 25:9 42:4 43:9 arranged 147:2 arrangement 52:9 134:7,19 139:4,14 140:6 140:8 142:2 150:16 arrangements 154:20 array 147:17 150:14 arrive 44:9,10 arrived 132:7 art 12:13 16:1 18:22 20:3,9 22:4,16 24:19 25:16 29:16 30:6,15 35:10 36:9 37:3 42:17 42:19,20 56:13 57:18 64:22 65:18 66:20 68:9 71:5 72:2 72:4,20 74:14 75:1 76:3 77:17 78:11 79:9 80:18 84:10 88:22 89:7 90:8 91:5 92:10 93:5 93:20 95:5 96:12,17 97:15 98:8,15 99:7,18 100:15 101:4 101:15 102:20 123:15 127:1 129:22 130:10 130:18 131:22 133:3 139:9 143:4,10 146:9 150:6,13,22 153:18 154:22	157:9,21 ascribe 60:12 aside 112:22 119:8 157:5 asked 23:10 24:17 31:22 42:7 43:7 47:16 57:19 70:12 106:3 126:5 127:21 158:10 159:5 162:1 asking 38:17 59:2 87:13 98:17,21 113:16 115:7,8 124:2 143:18 aspects 20:21 74:12 142:21 143:13 assemblable 102:7 assemble 105:4 assembled 63:6 101:18 144:4 160:17 assembly 46:16 49:3 50:17 51:12,22 53:11 55:18 62:5,9,15 62:18,22 63:2 63:13 64:4,11 64:14 65:3,5,16 67:10,18 68:12 69:13 74:20 101:11 102:5 103:2 104:9 107:1,9,16,22 108:5,15 112:2 119:11 120:1,5 assembly' 48:2 assertion 93:18 assertions 120:22 assessed 30:22 32:9 assessing 43:18 associated 18:2 23:22 41:21 155:2	assume 7:3 38:15 92:21 102:11 159:20 assuming 88:1 113:7 attached 165:15 attention 123:6 attorney 156:5 162:1 163:15 163:15 attorney-client 69:8 attorneys 15:6 24:2 author 128:15 authors 126:17 automatically 158:3 available 24:22 92:4 132:9 153:21 avoid 74:17,19 103:16 aware 11:17 23:12,17 26:4,8 28:15,20 29:8 38:2,11,13,17 38:20,22 40:5,8 40:10,17,18 41:13,15 69:1 88:9 133:4 157:17 awareness 23:15 axis 109:5
B				
B 4:9				
Bachelor 20:10 151:16				
back 14:13 24:2 31:11 45:19 47:10 61:7,10 105:22 109:10 109:13 110:14 111:10 113:20 117:7,10 148:14 155:17				

156:8,15 bad 98:12 99:7 160:20 badly 153:13 base 143:18 based 43:5 57:7 71:17,20,22 82:11 83:8 98:8 100:13 145:1 145:10 146:1,2 146:21 148:19 basic 152:18 basically 82:5 152:13 basis 12:6 40:18 65:8,15 Bates 4:15 12:21 BEAR 3:12 164:2 bearing 24:4 beats 153:7 bedrooms 7:20 began 14:4,14 behalf 2:2 3:3,11 5:14,18 believe 18:17 24:20 30:14 36:4 37:13 39:5 42:18,21 43:7 46:1,19 47:22 53:11 54:1,18 65:10 71:4,16 72:1 76:22 80:6 80:22 81:8 83:4 86:15 95:13,18 113:17 121:19 128:11,14 129:22 130:18 132:2 144:9 148:5 149:15 152:6 159:1 believed 24:19 157:6 believes 128:15 bell 38:6 bench 31:11 beneath 109:16 beneficial 147:8	benefit 11:13 73:22 76:11 121:22 154:3 benefits 73:7 80:14 141:9 150:22 161:20 best 7:14 33:7 43:15 124:5 beyond 77:15 128:9,22 bit 57:6 59:19 76:6 91:15 118:19 123:5 123:21 block 28:17,19 29:4,6,10,13,17 30:3,12,17 32:13 34:11,18 35:7 38:3 39:3 39:15,20 44:20 44:21 45:10 46:4,10,14 47:13,17 48:18 50:15,16 51:2 51:14,20 52:3 53:4 54:2,7 55:14 57:15 61:17,21 62:4 62:19 63:13 64:7,13 66:15 66:17 68:1,18 68:20 69:3,12 69:18 70:7,8,15 71:14 72:8 111:16,19 112:2,3,8,16,18 112:19 113:2 113:13,17,18 119:21,21 120:1 122:14 125:6 127:2 132:8,11 136:9 137:8 139:4 158:12 159:9 159:11,13 160:11,14,15,19 block' 48:1	blocked 133:15 135:16 138:6 160:19 blocking 112:20 133:19 134:22 136:19 141:4 160:20 blocks 46:6,15 47:14 48:1 49:1 49:2 50:16 51:2 51:3,10,11,21 52:13,14 53:5 53:10 54:10 55:13,17 62:4 69:19 114:16 114:18 115:11 137:1,8 blood 75:16,21 76:20 77:9 78:3 78:8,15 80:9 81:14 83:20 84:2 86:19,21 94:10,12 152:16,21 153:6 BOARD 1:3 body 26:7,17 27:20 28:7 44:12 bone 150:11,20 bottom 26:20 29:15,21 49:9 73:17 91:17 137:19 138:10 150:10 bounce 119:6 138:21 boundaries 114:13 115:6 boundary 69:8 box 31:10 46:17 67:1,5 70:2 165:12 boxes 129:12 boxy 125:20 129:10 break 8:13,15,16	52:19,20 61:3 61:12 115:19 115:22 117:12 117:18 155:11 156:8 162:1 breaks 155:22 brief 146:6 briefing 26:1 broad 77:19 broader 36:6 93:18 build 91:6 92:5 92:11 93:9 99:14 built 64:21 67:3,5 151:19,22 bullet 12:17 13:6 13:7,16 bulleted 12:14 C C 3:1 57:5 c/o 164:1 cable 26:21 27:11 27:12 95:15 96:21 97:7 98:1 99:22 100:4,19 103:8 104:17 104:20,21 calibrate 80:12 California 3:7,15 164:4 call 37:1,13 125:14 164:17 called 23:1 58:1 152:10 calls 96:2 Camino 3:6 capabilities 84:12 89:17 91:9,11 capable 89:21 90:11 capture 16:14,19 17:1,11 18:14 19:13,16 20:12 20:13 21:9,18 22:10 73:5,11	94:12,16,22 95:3 139:7,10 capturing 17:19 19:2,8 20:5 82:6 carbon 86:8 carboxy 84:19 85:20 carboxyhemogl... 75:17 78:17 80:2,11 83:14 85:7,16 86:4,12 87:15,21 88:3,7 88:10 153:9 care 137:11 carefully 20:8 21:8 153:14 case 8:7 23:5,14 23:17,22 24:1,8 25:19 26:1 28:16 29:12 32:18 35:12,12 38:3 40:6 41:22 42:12 43:21 45:21 56:1 68:22 69:4,9 74:5 103:13 106:15 128:2 159:10 164:6 165:7 166:8 cases 42:5 86:7 119:8 161:18 category 70:19 124:14 cause 86:4 87:21 causes 152:21 caveat 130:7 143:3 cavity 26:5,13,16 27:10,13,19 28:1,4,6,13 95:17 96:14 99:9,10,21 100:17 center 44:15 certain 132:15 150:19 161:12
---	---	---	---	---

certainly 24:3 105:2 119:15 154:11 155:13	66:21 67:16,22 70:8,18 71:4,18 71:19 112:6 157:4,12,17	83:11 92:15 93:12 142:15 143:17,19 144:6 147:4,11 148:10	components 64:14,17 68:14 101:14	131:19 132:3 149:9
certainty 59:18	claimed 40:6	combinations	comprising 44:21	considerations
Certified 2:6,7	45:10 55:22	132:21 142:5	70:9	23:1
163:6,6	56:5	144:7,11	computer 8:9	considered 41:7
certify 163:7,14	claims 18:20,21	141:19 142:22	concentration	53:9 56:12
cetera 22:19 34:4	20:1,2 22:5,6	143:1	77:8 87:2	considering
79:1 91:22	22:15,20 24:21	come 42:9 66:5	concept 22:21	37:16 74:14
112:13 147:21	25:1,12 26:6	69:14 115:1	23:2 65:7	130:8 140:13
change 121:7	28:18 30:21	138:20 156:8	conceptual	consistent 30:4
135:1 136:8	31:15,17 32:1,4	164:12	146:12	44:12 50:15
166:11	32:16,22 33:9	comes 75:3	concerning 8:19	52:7 58:3,5,21
changed 11:1,6,8	33:14 34:16	comfortable	9:4	61:22 67:13
11:16 120:16	35:22 36:4,5,6	127:13	concluded 162:15	122:15 128:15
changes 121:10	36:10,12 37:6	coming 80:6	conclusion	constructed
134:8 152:16	37:19,21 38:4	133:15,22	125:12	112:18 161:12
165:14	40:7 41:1 42:15	134:2 136:5	conductive	construction 24:7
changing 133:6	42:19,22 43:2,3	138:12	105:14,14	24:13 25:9 26:1
characteristics	43:17 44:9	commencing 2:4	106:6,9,10	26:9,13,15
132:13 152:17	60:20 63:19	163:8	112:10,13	27:18 28:5,9
160:17	65:8 67:11,20	comments 40:3	161:12	29:3,9 30:11,14
Check 165:12	72:3,5 111:17	common 16:2	configuration	32:12 38:13
choice 131:5,12	112:7 121:1,8	113:8 161:3,15	30:2 31:7	40:22 41:6,17
132:2	124:10 132:22	commonly 29:18	configurations	41:18 42:4 43:9
choices 137:5	157:1,8,21	105:11 106:4	32:7	50:8,11 51:19
147:19	clarify 14:12	112:10	configured 44:22	53:3,13 56:14
choose 131:14,22	127:7	communication	65:22 66:1,9,14	62:18 63:12
circle 109:8	cleaning 112:14	162:6	68:7	64:13 65:6,16
circuit 73:5	cleanly 6:20	community 80:8	connect 97:2	67:18 68:13,19
circuits 18:6 74:8	clear 20:8 24:21	80:14 82:11	connection 63:4	68:21 69:2,4
91:21	32:11 33:19	companies 154:1	connections 66:4	152:2
cite 71:12 87:19	35:9 36:11	154:11	66:19 67:2	constructions
cited 77:19 80:6	47:21 53:16,18	compensate	connector 27:1	25:4 39:10
80:20 83:5	67:17 89:9 90:9	20:20 85:17,21	27:13 96:11	41:14 44:10
citing 81:10	119:2 157:7	86:10 87:14	97:1,6 100:4	71:13,20,22
claim 24:7,13	clearly 57:3	complaint 25:18	103:9,17,20	157:4,12,18,20
25:9,22 26:9	clutter 135:6	complete 11:21	104:22	158:1
30:4 32:4,6,7	coefficients 86:16	106:8 163:12	consent 164:22	construed 43:18
33:4,7 35:15	coined 39:12,15	164:11 165:13	consequence	Cont'd 117:5
38:13 39:9	39:20	165:15	132:14	contact 74:18
41:16,18 42:3	colored 108:3	completely 11:12	consider 18:21	104:12,14
43:8,22 44:10	Column 63:1	52:16	24:18 31:3,15	137:20
44:16 46:10	97:8,20 99:2	complicated 82:9	33:5 36:9 42:19	contacting
57:8,19 58:4,22	combination		57:19 73:21	103:19
62:10,15 63:21	48:10 74:3		78:13 83:11	contacts 63:15
65:11,13,21			93:15 131:15	contained 77:9
				124:21

contains 11:20 91:18	54:17 56:2,11 60:22 61:19	107:13 121:20	166:10,22	17:10,21 18:15
content 77:16	62:5 67:20	coursework 152:2	day 163:8,17	19:1,7,11,18
contention 48:17	68:17 70:4	court 6:19 23:14	Daylight 162:16	20:6 21:2,17
contents 143:22	72:11,15 75:12	44:6,7 157:11	dealing 134:18	22:9 58:6 65:10
context 25:14	75:18,19 76:1	157:18 163:6	dealt 138:1	92:16
30:22 31:15	76:21 83:14	courtroom 6:17	December 10:16	degree 21:16,20
42:20 54:21	85:8,19 88:8	cover 17:10 31:18	11:2 23:18	21:22 22:8
55:2 58:11	89:18,19 91:13	32:1 36:4	121:15	153:10
157:7	94:13,14 95:13	covered 27:10,14	Declarant 2:2	degrees 20:10
continues 108:17	95:18,21 105:9	36:5 100:18	declaration 4:13	Delaware 23:14
144:20	107:10,18,19	101:6 108:21	9:20 10:4,7,13	23:17 24:8,13
controversial	108:7,8,15,22	covers 28:19 29:5	10:15,18 11:2,9	25:9,19 26:1,4
69:18	109:5,19 110:1	100:22 115:12	11:18,20 12:7	26:13 28:15
convenience	110:7 111:7,12	create 80:16	15:15,18,20	30:11 32:12
129:16	111:20 112:11	140:2	16:7 23:3,6,18	38:2 40:5 41:19
conversations	113:3,9,14,15	critical 15:19	24:9 25:20 26:2	41:22 45:21
14:22	114:2,7,10	cross-sections	26:17 27:16,21	56:1 68:21 69:4
convert 17:7	115:12 117:20	34:4	29:7 38:14,18	157:12,19
converted 110:20	119:4,19 120:4	CSR/RMR/CRR	39:17 40:9 41:3	delay 33:17
cooper 161:16	121:12,13,18,18	1:18 2:5 163:5	44:14 46:11	deoxyhemoglo...
copper 113:8,10	124:20 125:17	CSR/RMR/CR...	47:11,18 48:14	75:17 78:16
113:12 161:5,7	126:12 130:6	163:22	49:11 51:15	80:1 83:13
161:9	131:7 132:19	current 122:1	53:7,20 55:12	depart 56:21
copy 9:18 10:10	133:16 140:11	currently 121:19	56:11 59:6	departures 57:14
74:1 164:13	141:20 142:15	curriculum 22:1	61:13 69:10	58:19 59:12,16
Copying 164:21	143:2 144:1,8	curvature 57:1	71:13 72:13	depend 136:1
Copyright	145:3 146:21	curvatures 58:15	73:15 75:9,14	160:16
164:20	148:4,12,13,22	60:1,8,13	81:3 84:17	depending 21:22
corners 57:4,13	149:1,5,22	curved 128:18	86:14 87:18	81:6 112:1
58:16 60:4,14	151:7,8,12,14	curves 57:12 60:4	88:16 89:11	119:17 134:6
125:21 128:14	151:17,20	125:21 128:13	95:8 106:22	136:9
129:19	152:8,11	129:13	107:4,8 108:10	depends 114:19
correct 7:13 8:20	160:12 161:5	cut 115:15	113:17 117:17	153:11
8:21 9:6,17	161:17 165:13		120:11,13	depiction 96:15
10:1,10 11:22	165:15	D	121:3,11,15,18	depicts 26:19
12:16,20 13:9	cost 129:15 151:1	D 4:1	122:3 125:13	deponent 164:8
13:10,13,18,21	costs 161:20	D.C 1:21 165:3	131:1 133:8	164:12,14
15:4,20,21 16:9	counsel 5:1,2,9	166:3	141:17 144:19	deposed 6:11
16:10,18 23:5	7:6 15:3 56:3	damage 74:19	148:7 152:7	deposition 1:14
24:10,11 27:17	163:15,16	data 16:14,19	157:20	2:1 8:9,18 14:2
32:14,15,19	164:14,15	17:3,3,5,7	deficit 20:20	14:11,16,20
39:18 40:10	counter 106:17	19:14,17 20:12	define 138:14	15:6,9,22
43:19 44:18	COUNTY 163:3	20:14 21:9	141:14	121:21 163:8
45:2 46:7,8,22	couple 14:22 75:4	91:21	defined 93:20	163:12 164:7
48:7,13 49:22	course 11:10	date 15:19 164:7	defining 81:16	164:15 165:9
52:3 53:7,22	22:17 36:7	165:9,19,22	136:10	165:11 166:10
			definition 16:9	depth 96:15

99:16 102:1 describable 123:16 describe 26:19 51:7 60:18 154:9 158:20 described 14:21 28:2 32:22 35:2 35:15 51:20 56:12 57:11 59:12 63:14 64:18 67:4 85:10 86:2 87:7 87:8 88:14 89:18 90:1,13 91:2,7,13 92:18 93:1 94:3,13 99:2 101:3 132:17 144:14 159:12 160:14 describes 32:5,7 33:4 52:11 57:19 58:20 62:22 73:1 77:4 83:3 84:6 87:20 97:8,20 144:9 154:19 describing 32:20 48:22 51:18 66:21 70:19 88:13 102:21 114:3 147:15 description 25:14 26:8 28:3 35:7 36:17 46:13 57:21 71:2 82:17 88:2 93:6 93:7 96:6 97:5 98:9 100:14 104:8 115:13 118:10 123:20 125:6 144:17 146:7 148:6 descriptions 52:8 descriptive 60:16 70:18 design 97:21	131:5,12,12 132:2 140:13 141:1 147:19 154:14 designed 131:10 151:19 159:13 159:14 designs 132:9 desire 81:12 82:17 84:1 desk 8:5 destroy 101:17 destroyed 96:19 101:10 102:5 detail 17:4 21:22 38:20 39:11 43:3 60:12 74:13 77:6 124:13 detailed 86:15 99:16 101:13 134:7 details 93:22 94:1 112:1 136:10 142:1 143:5 144:10 154:19 160:16 detect 65:22 66:1 66:9,14,18 67:8 68:2,7 detected 110:20 detecting 111:5 114:22 detection 110:19 118:2 detector 29:17,20 44:21 45:1 46:5 46:6,16 47:14 47:15 48:2 49:1 49:3 50:17 51:3 51:10,11,12,22 52:13,14,15 53:5,6,11 54:10 54:11 55:13,14 55:18 62:5,9,14 62:18,22 63:3,5 63:6,8,13,17,22	64:2,4,7,8,14 64:16,19,20 65:1,2,5,15,18 65:22 66:5,11 66:12,18,19 67:6,8,9,18 68:1,2,6,8,11 68:12,14,16 69:20 107:1,9 107:16,17,22 108:5,6,14,15 108:20 109:3 109:14,22 110:3,7,9,17 111:2,5,7,9,12 111:20 113:3 113:14 114:1,5 114:6,10,12,13 114:19 115:9 115:11,12 118:2,9,14 119:4,10,11,14 120:1,4,9 133:11,15 134:2,4,14,20 135:10,16,22 136:7,11,20 137:14 138:5,7 138:13,16,18 140:16,18 141:14 150:9 158:19 detector's 109:6 detector-LED 148:20 detectors 55:1 150:17 determine 83:1 determining 140:16 developed 89:17 90:1,3,13 91:2 91:12 92:18,22 93:3 device 31:1,18 32:1,5,5 33:10 33:15 65:6 97:2	140:1 devices 17:2 diagram 101:13 Diego 3:7 difference 52:10 150:4 differences 17:22 52:8 122:21 different 31:12 34:2 41:18 42:5 44:1 49:21 65:3 75:10 131:6 145:3,12 146:13 148:3 148:11,20,21,21 149:2,3,5,8,20 150:2,14,18,18 154:10 difficult 47:4 Digital 1:20 164:19,20 165:1 166:1 dimensional 96:15 dimensions 60:2 60:8,13 96:16 99:17 102:2 diminishing 139:12 direct 38:6 74:18 direction 30:8 106:21 directions 134:1 disagree 120:22 138:4 154:12 disagreeing 51:6 disagreement 130:16 disassemblable 102:7 disassemble 105:4 disassembly 103:3 104:9 disciplines 21:16 21:21 22:8 disclosed 131:16	discloses 51:4 53:12 54:2 55:19 95:16 disclosure 26:19 28:13,14 29:13 54:20 55:3 58:20 92:6 93:16,22 94:2 100:13 disclosures 76:3 83:9 discuss 77:5 161:22 discussed 15:8,11 24:2 28:21 61:15 147:7 155:20 162:3 discussing 12:5 17:4 117:19 127:17 discussion 31:6,7 displaying 99:8 distinct 52:16 distinction 18:10 18:12 48:16,21 49:6,8 127:19 distinguish 19:16 34:11 35:6 36:18 86:6 144:12 distinguishing 33:19 district 23:14 157:11,18 Doctor 105:17 doctorate 21:15 22:8 Document 3:20 33:16 40:16 47:1 50:1 62:20 70:16 72:16 77:3 90:15 100:1 123:8 124:7 137:3,16 144:2 145:4,17 151:13 154:16 documents 8:2
--	---	--	--	---

121:21 doing 10:19 82:9 150:6 153:5,12 153:12 domain 125:22 Doug 6:8 52:17 160:4 Douglas 3:13 5:14 douglas.wentze... 3:17 downloading 8:10 downwards 30:1 34:8 dozen 69:14 Dr 1:14 2:2 4:3 4:13 6:1,7 9:14 10:4 11:15 14:8 28:22 42:2 47:4 50:3 52:18,21 53:2 58:7 61:10 82:13 83:17 87:12 115:7 117:2,10 120:12,21 124:2 140:20 155:20 156:19 160:1,9 162:12 163:8 164:1,8 165:8 166:9 draft 69:7,14 draw 127:19 drawing 29:14 104:7 138:10 drawings 59:22 due 74:18 duly 6:2 163:10	156:21 158:4 161:15 earlobe 149:10 150:5 easier 153:16 Eastern 162:16 easy 132:15 edge 119:8 education 20:19 20:19 22:14,17 eight 55:7 156:9 Eileen 1:18 2:5 6:2 163:5,22 either 65:5 98:10 El 3:6 electrical 63:4 65:19 66:4,18 67:2 110:21 electromagnetic 111:22 158:18 electronically 164:21 electronics 105:9 element 29:20 33:4 39:12 44:16,16,19 45:3 46:22 48:6 48:11,13 49:5 49:13,19,21 50:21,22 54:5 54:14 63:8 102:8,15 104:11,12 107:14 109:9 112:3 121:5 136:10 142:18 147:12 elements 17:14 18:4 22:6 40:1 42:22 43:4 63:16 64:9 65:4 66:10 72:19 74:3 103:6 132:22 141:21 142:19 147:5,6 154:20 elevational 26:20	eliminate 139:19 139:21,22 eliminated 138:19 embodiment 36:3 38:5 39:3,16,21 99:16 embodiments 144:12 EMI 63:5 105:8 105:12 106:4 106:14,16,19 107:17 108:6 108:14,21 109:19,21 110:6,16 111:1 111:6,9,11,14 111:18 112:9 112:16,17,20 113:1,4,7,8,11 113:12,16,18,19 114:9,15 117:13,19,22 118:7,13,19,21 119:3,7,13,16 119:20,21,22 120:2,6 122:17 123:1,4,7,11,18 124:3,6,12,18 125:2,10 126:7 126:11 127:4 127:11,17 130:4,8,12,13 130:20 133:16 133:18 134:5 134:11,14,22 135:4,20 136:8 136:14 140:9 140:21 141:1,6 141:7 158:6,15 158:20 159:2,7 159:20 160:10 160:15,18,19 161:4,7,9,11,16 emitted 140:18 emitter 29:22 emitters 26:22	27:3 100:7,9 employee 163:15 163:15 empty 40:7 41:2 41:6 enables 27:2 100:6 enabling 92:6 enclosed 108:14 encloses 108:6 111:11 enclosure 73:8 109:1 112:19 120:6,7 123:7 126:4,18 127:14 130:10 130:15,19 135:15,18 136:6 138:22 139:2 encompass 45:16 56:6 encompasses 56:15 59:4 125:16 encounter 86:17 engineering 59:22 101:13 enter 139:2 enters 110:11 entire 114:1 138:11 entirely 138:1 entirety 21:1 73:16 envision 143:16 equally 128:19 equations 87:5 errata 164:15 165:15 166:6 errors 85:17,21 86:11 87:14 ESQ 3:5,13 et 4:12 9:11 22:19 34:4 79:1 91:22 112:13 147:21	eventually 111:4 evidence 1:20 23:8 164:19,20 165:1 166:1 exact 42:9 55:2 60:1,13 101:2 exactly 56:20 69:21 78:21 85:10 99:16 112:20 113:5 examination 4:2 6:5 117:5 156:17 160:7 162:15 examined 6:4 163:9 165:11 example 17:3,9 28:14 29:14 34:6 50:9 57:1 64:1 73:3 74:16 80:19 83:3,15 85:4 86:4,8 107:11 113:8 133:1 137:2 139:18 143:7 144:15 146:8 149:19,20 153:12 examples 28:2 71:1 77:5 78:19 79:13,16 80:9 81:10,18 82:5 84:3,15 106:17 128:11 149:8 150:5 Excellent 9:19 excerpts 72:18 157:15 excess 27:4 97:21 100:8 excited 81:19 exclude 64:21 exclusively 17:18 18:13,13 20:16 38:1 executes 88:20 Exhibit 4:11,13
---	--	--	--	--

4:15 9:8,10 10:3,4,7,13 12:8,19,21 13:2 13:8,11,17,19 44:14 142:12 exhibits 8:10 exist 43:1 existence 24:1 140:21 expand 81:13 82:17 84:1,11 experience 16:13 17:19 18:13 19:2,8,13,20,21 20:4,11,13,20 21:5,9,18,21 22:10,17 experiences 19:19 expert 14:6 40:2 experts 50:18 explain 88:17 121:3 135:8 explained 86:13 87:17 explaining 58:7 58:10 explains 80:11 explanation 67:14 84:9 explicit 101:13 explicitly 50:7,10 51:16 67:21 68:8 101:3,7 102:1 explore 11:13 exposed 66:3 express 41:14 157:4 164:22 expressly 49:20 extends 50:6 extent 71:9 111:12 143:21 extra 136:9 extract 82:7 83:7 87:5 extracted 102:22	104:1 extracting 102:15 extreme 139:18 F F 117:1 facing 29:21 30:1 34:7,8 35:4,12 35:13 36:15,18 36:19 37:4 fail 68:6 fair 7:4,5 42:5 43:9 55:16 62:2 118:10 119:14 fairly 60:12 132:12,12 falls 124:13 130:2 153:6 familiar 22:21 23:2 65:7 105:8 far 34:12 119:6 feature 63:18 features 34:22 56:21 60:6 64:10 112:6 128:14,17 129:14 132:21 144:13 150:19 159:9 FedEx 31:11 feel 157:3 field 12:1 133:2 figure 29:14 30:6 30:19 34:2,11 35:20,22 36:16 37:11,15 55:4,7 56:19 57:2,3 58:13,14 59:13 59:17 60:11,21 63:1,10 67:1 72:17 79:15 95:16,19,22 96:5,9 97:17 99:13 101:19 102:22 103:2 103:22 104:2 104:11,12	107:11 108:2,4 109:8,10,11,12 109:14 110:14 111:10 114:1,7 114:9,22 115:4 115:8 117:20 122:9,17 123:20 124:4,6 125:11 128:10 128:12,12 129:9 130:1,2,5 133:9,14,17,19 133:20 135:2 135:11,13 136:15,21 137:5 140:22 142:7,8,9,12 143:19 144:16 145:22 figures 34:15 57:5,21 59:21 60:7 71:18 72:18 95:11 144:17 filed 38:18 film 106:18 films 161:9 filtering 17:6 final 143:17 financially 163:16 find 11:11 28:22 42:22 55:9 72:6 77:19 88:1 93:3 94:2 finding 154:17 finger 29:21 30:1 31:5 137:20,21 138:22 142:20 149:6,8 150:5,7 150:20 finger nail 150:9 finish 7:12 93:13 first 6:15 12:17 16:11 20:7 45:8 46:2 62:3 89:13 96:19 98:13	112:6 144:22 145:9 Fish 3:4 5:17 fits 124:18 five 52:21 fixed 108:21,21 109:21 111:1 111:18 114:2,5 115:10,11,14 117:19,22 120:2 flat 98:6 flow 152:21 flows 152:16 flush 96:22 97:11 97:13,17 98:3 98:10 99:4 102:14 103:10 104:20 105:1 focused 81:7 134:21 foil 63:5 161:19 follow 93:8 follow-up 88:19 followed 101:16 following 138:18 follows 6:4 117:4 forbidden 164:21 foregoing 165:11 forehead 149:4 form 151:21 152:18 formed 27:13 forming 15:19 27:20 29:6 39:16 41:2 46:10 47:18 48:13 51:14 53:6,20 56:10 59:5 forth 24:7 46:11 46:19 forward 164:15 found 27:9 88:19 100:16 131:5 four 26:21 27:9 27:12 75:15,21	76:20 77:14 78:8,9,15,22 86:18,19,22 87:3 89:16 95:16 96:1 100:9,17 109:7 109:15,16,18,21 114:8,17 117:22 118:5,7 118:12 119:2 119:12,16 140:9 145:2,2 145:11,11,11,16 146:4,13 147:1 148:3,4,10,10 148:11 fourth 94:9,11 95:4,6 Francisco 7:21 frankly 24:3 Friday 2:4 front 8:6 78:7 froze 105:16 full 89:13 114:6 function 57:15 66:11 67:7 74:4 75:6 86:22 106:11,16 111:21 functionality 111:16 functioning 111:14 functions 67:4 151:11 further 20:18 22:2 65:12 117:4 125:10 135:20 156:6 160:2,4 162:8 163:14 G gained 22:17 gap 139:1 general 60:3 74:22 76:11
---	---	---	---	--

77:6 79:2 86:18 93:4 124:8 generally 18:8 30:1 43:21 67:7 80:7 105:13 106:11,13,15 123:19 141:19 geometries 126:17 134:11 geometry 135:1 give 7:16 14:18 96:14 104:7 126:15 150:15 given 11:15 38:12 81:21 120:16 131:11 139:16 165:13,16 gives 35:16 71:1 125:22 134:10 go 6:12 31:11 47:10 54:17 105:18,19 109:10,12,13 110:14 111:10 113:20 146:11 146:17 goes 82:21 87:3 89:11 95:9 131:1 going 6:12 15:22 36:22 37:2 38:14 40:14 42:9 62:12 73:2 96:3 100:14 102:14 153:3 157:15 good 5:13 6:7,8,8 6:10 60:12 84:5 99:8 115:20 134:14 139:15 144:15 148:5 156:11 governing 164:16 great 7:15 8:12 8:17 156:2 greater 20:18 137:14 153:10	green 135:14 ground 6:12 Group 1:20 164:19,20 165:1 166:1 guess 8:5 103:15 108:10 guidance 157:22 guided 54:19 56:19 126:14 128:10 H H 4:9 34:2 half 52:18 69:14 halfway 75:14 handed 69:15 happens 37:10 153:22 hard 9:17 heard 65:9 heart 153:4,7 heartbeat 152:20 heat 27:4 97:21 100:8 heating 74:18 held 2:3 27:1 100:4 help 80:12 121:3 123:20 helped 24:18 helpful 38:16 149:15 helpfully 58:13 helps 55:8 105:13 hemoglobin 77:9 Henry 3:20 12:10 98:18 146:15 hereunto 163:17 hesitate 164:17 Hey 52:17 highlighted 78:7 81:1 90:10,20 hired 9:3 hole 110:22 holes 109:18 111:1 114:9	115:10 118:1,5 118:7,12,16 119:3,13 120:2 135:19 136:14 136:18 140:10 141:8 hollow 95:19 101:19 102:11 hollowed 26:16 hollowed-out 26:6 27:19 28:6 home 7:20 honestly 41:7 44:3 157:14 hope 73:14 132:14 hopefully 55:4 99:8 horizontal 133:22 hour 8:16 52:18 155:8 163:9 hourly 155:6 hours 14:17,18 household 8:5 houses 27:2 100:5 housing 107:18 108:7 111:14 112:4,19 113:1 113:4,12,18 122:5,13,19 124:19 125:2,8 127:11 128:6 130:4 131:7,10 131:12,14 132:9 133:6,21 134:13 135:9 135:12 136:3 136:12 137:8 137:19 139:19 140:3,14,15 141:3,13 142:17 143:21 144:13 158:6,9 159:4,11,13,19 160:10,13,19 housings 131:16	huge 138:9 hypothetical 118:18 I idea 60:3 77:13 98:12 99:7 115:20 ideas 99:8 identical 68:20 69:3 identified 43:4 44:16 81:2 107:21 112:5 113:16 125:20 identifies 26:12 identify 24:18 48:16 121:10 ignore 133:18 140:21 ignores 133:14 illustrate 133:10 illustrated 138:15 140:6,8 illustrates 144:3 illustration 29:15 30:7 34:7 36:7 96:7,14 97:12 99:15 107:14 114:3,4,14 115:14 134:8 134:21 135:7 143:9 146:7,13 illustrations 27:14 34:1,6 124:5,10 125:7 125:19 126:14 129:9 images 108:11 immediately 127:19 impinges 27:6 100:11 implication 103:21 implied 111:13 implies 73:15	important 18:9 18:12 48:16 64:18 76:8 84:7 86:7 93:21 101:8 importing 158:2 improve 73:12 75:3 88:11 151:6 improved 72:22 92:14 improvements 154:21 improving 155:2 inaccuracies 11:18 inaccuracy 154:15 inadvertently 159:8 inaudible 49:18 incidence 134:3 138:17 incident 135:2 incidentally 112:1 include 17:6 18:4 19:18,19 20:15 21:21 39:9 50:13 64:10 65:4 72:19 73:4 76:13 91:8 107:16,17 115:4 123:3,15 124:15 145:2 147:18 149:16 included 42:1 50:19 68:4,10 90:4 91:21 107:13 133:1,9 135:4 includes 17:17 19:12 21:13 33:22 56:16,21 57:12 60:4 63:2 63:15 64:4,17 70:21 81:9 82:2
--	--	---	--	--

120:6 128:8,22 140:9 142:1,17 including 14:5 16:15,20 19:14 20:17 21:3,10 55:4 64:14 69:11 80:19 84:15 109:3 150:12 164:21 inconsistent 42:3 43:8 64:6 129:11 incorporate 143:6 incorporates 63:13 increased 86:3 87:21 88:3 independent 112:7 independently 88:5 indicate 153:15 indicated 57:5 97:11 indicates 85:1 97:5 indication 153:4 indications 115:6 indicia 22:22 23:4,7,10 individual 101:14 industry 20:20 inexpensive 132:12 infant 149:7,19 influence 158:18 information 16:14,16,20,21 17:12,20 18:15 19:3,9,14,15 20:6,12,14,15 20:16 21:4,6,6 21:10,11,13,19 22:11 23:11 25:4 36:3,8 39:13 40:1	41:22 51:8 57:7 66:6 80:15 88:6 94:10 123:17 149:18 157:7 157:10 infringement 42:12 43:19 45:16 infringing 23:13 inherently 99:21 inserted 17:15 102:21 103:9 104:22 inserting 102:15 insertion 99:11 99:11 inside 63:6 67:6 160:19 insight 11:15 120:16,20 inspiration 147:9 inspired 73:10 85:12 149:15 installation 74:20 instruction 26:12 instructs 7:7 instrument 18:3 instruments 17:2 18:1,1,4,9 19:17 intend 47:3 98:12 intended 30:2 35:11 60:2,16 78:10 96:10 103:22 112:16 112:19 113:1 114:4 154:21 161:2 intending 96:20 intent 96:2 135:13 139:6 146:22 interact 104:8 intercept 111:22 134:6 135:5 interconnect 26:21 27:11,12	95:15 96:21 97:7,22 98:12 99:21 100:3,19 103:8 104:17 104:20 interest 77:19 80:7 84:10 interested 31:14 76:9 78:11 79:14 81:5 144:11 163:16 interesting 76:10 78:12 79:7,10 80:10 134:17 interfere 97:1 interference 103:15 111:22 158:18 interfering 103:17 interpret 46:14 58:10 59:20 101:4 interpretation 24:22 33:7 46:9 46:22 47:17,19 48:13 49:21 51:14 52:2,3 53:21 54:6 56:9 59:3 97:19 125:15 126:10 127:10 129:5,5 129:6 interpretations 53:19 54:3 61:22 interpreted 53:3 interprets 45:10 46:4 47:12 55:22 56:5 intervening 137:10 invalidity 42:13 invasive 17:14 18:1,8 19:17,21 invasively 17:12 17:20 18:14	inventive 133:5 inventors 60:17 involved 42:11 163:16 IPR 1:11 8:3,19 9:4,15,21 10:8 11:22 15:11 24:9,15,16 25:11,20 26:2 41:12,17 155:7 irrelevant 121:6 Irvine 3:15 164:4 issues 43:18 93:22 94:1 150:17 Item 99:13 111:15 J job 136:3 141:4,6 141:6 job's 137:11 K keep 40:14 Kenny 1:14 2:2 4:3,14 5:12 6:1 6:7 9:14 10:5 47:4 50:3 52:18 52:21 53:2 58:7 61:10 82:13 83:17 87:12 115:7 117:2,10 124:2 140:20 155:20 156:19 160:1,9 162:12 163:8 164:1,8 165:8 166:9 key 81:11 Kim 3:5 5:17 15:1,2 69:6 kind 63:16 129:11,18 143:8 kinds 18:5 Knobbe 3:12 5:14 164:2	know 6:11 7:3 8:14 20:18 24:6 24:12 25:8 32:8 32:10 38:10 41:16,20 57:9 65:10,12 66:2,3 68:19 69:7 70:17 74:16 78:6 79:17 80:7 81:11,15 82:8 92:3 96:18 103:12,14,17 105:1 106:7,9 125:4 129:10 129:10 131:18 136:1,13 138:16 139:3 149:6 150:7 153:22 157:11 157:14 knowing 113:5 known 82:11 87:6 131:10 Kuenster 83:3 L L.L.C 165:1 labeled 109:9 laboratories 1:8 5:16 154:1 164:6 165:7 166:8 laboratory 152:1 language 32:19 50:18 157:8 large 141:12 largely 18:2 larger 147:17 layers 110:10 137:10 lead 105:3 leader 154:8 leave 68:5 LED 94:9 95:6 142:1 145:11 148:3 150:8,16 LED-oriented
---	--	---	---	--

139:22 LEDs 27:9,12 73:4,10 74:5,15 74:19 75:4,5,9 75:15 76:1,4,16 77:14,20 78:4 78:13,14,20 79:3,4,11,14,19 80:3,16,18,22 82:1,3,14 83:2 83:12,17 84:20 85:7 86:18 89:15,16,21 90:4,6,6,11,22 91:9,18,19 92:8 93:9,15 94:3,17 95:1,16,20 96:1 96:7,13,16,21 97:6,12,16 98:3 98:5,10,21 99:4 99:9,12 100:17 100:22 101:9 101:20 102:3 102:12,14,18 103:1,6,16,18 104:4,6,14,16 139:7 140:19 143:1,8,12 145:2,3,12,12 145:15 146:4 146:13,21 147:1,10,12,17 147:20 148:3,4 148:9,10 149:16 150:8 150:14 151:1 154:20 left 98:19 137:10 142:8 149:11 leg 149:4 legal 40:2 44:4,5 let's 9:8 10:2 11:3 12:7 15:14 44:13 45:6 72:12 84:16 85:13 94:6 95:7 105:19 107:20	109:13 115:21 117:16 122:2 127:7 130:22 131:19 133:7 137:2 141:16 142:12 144:18 156:8,9 Leung 3:5 4:5 5:5 5:6,7,17,17 52:17 156:7,18 158:14 159:17 160:2 162:12 level 22:20 86:18 124:13 levels 86:3 87:21 88:3,4 life 58:1 light 27:2,4 28:17 29:13,17 30:3 30:12 32:13 34:10,18 35:7 38:3 39:3,15,20 44:20,21 45:10 46:4,6,10,14,15 47:12,14,17 48:1,1,18 49:1 49:2 50:14,16 50:16 51:2,2,3 51:10,11,14,20 51:21 52:3,13 52:15 53:4,5,10 54:2,6,11 55:13 55:14,17 57:15 61:17,21 62:4,4 62:19 63:12 64:7,13 66:1,3 66:15,17 68:1,3 68:18,20 69:3 69:12,18,19 70:6,8,15 71:14 72:7 77:7,17 97:8 100:6,8 106:20 109:22 110:2,4,15,19 110:22 111:16 111:19 112:2,3 112:8,11,18,19	113:2,13,17,18 114:16,18,20 115:1 118:1,4,6 118:13 119:3,9 119:13,19,21 120:1,3,9 122:14,14 124:6 125:6 127:2 132:8,11 133:10,15,19,22 134:2,18,18 135:1,2,11,14 135:14,21 136:4,5,11,19 137:1,7,7,13,22 138:5,6,11 139:7,21,22 140:3,4,17,17 140:18 141:2,4 141:5,14 149:12 152:14 152:15,20 158:13,13,21 159:3,9,10,14 159:21 160:11 160:14,15,20,21 160:22 161:1,1 161:2 limitation 53:15 132:19 limitations 32:6 limited 16:15,20 17:17 19:14 20:17 21:3,10 21:14 35:22 37:19 38:4 39:3 39:15,20 60:21 84:13 limiting 31:13 60:15 line 97:8 114:21 115:3 166:11 lines 63:2 111:16 112:6 linguistically 20:8 list 12:14	listed 21:16 77:12 lists 78:8 literal 151:21 literally 21:12 literature 88:1 litigation 23:14 45:11,20 157:13,19 little 54:22 57:6 59:19 76:6 118:19 123:5 123:21 130:14 143:8 153:16 LLC 166:1 LLP 3:12 164:2 located 97:6 location 95:22 101:3 115:5 134:13 136:2 136:13 locations 136:16 150:14 locked 96:4 logic 47:6 long 8:14 14:10 74:21 longer 59:7 look 9:8 12:7 13:6,15 16:6 44:13 46:20 55:3 57:20 72:3 73:22 75:13 85:13 89:2,10 95:7 107:3,20 108:9,18 109:2 117:16 122:2 125:8 126:3,3 130:22 131:3 133:7 141:16 142:11 144:18 146:15 148:14 151:2 155:11 looked 55:5 56:14 125:10 140:10 looking 36:10 40:11 61:12 72:7 79:22	109:14 122:9 122:17 123:12 124:10 125:5,7 128:10 lot 8:4 59:1 130:17 138:11 142:18 lots 12:2 low 73:8 lueng@fr.com 3:9 Luncheon 116:3 lying 31:10 M M 1:21 165:2 166:2 machine 112:14 Madasetti 120:21 Madasetti's 28:22 42:2 120:12 Madisetti 11:15 14:8 Madisetti's 121:3 magical 34:9 main 3:14 139:5 164:3 majority 139:5 making 42:3 127:13 manipulating 82:6 manner 58:21 manufacturing 129:15 132:11 March 15:18 marked 9:12 10:5 13:1 market 88:14 Marte 3:20 Martens 3:12 5:14 164:2 Masimo 11:14 23:12 45:10,21 46:4 47:12 55:22 56:4
---	---	--	---	--

126:9 127:9 154:5,7 157:16 Masimo's 25:18 26:11 45:16 46:21 48:12 49:22 51:14,19 52:1 53:13,21 56:14 59:2 61:22 120:12 125:14,14 129:4,6 material 113:9 118:19,20 119:17 121:1 161:3,16 materials 8:3,6 14:3 23:21 105:11,13,14 106:3,7,10,14 118:21 120:15 121:21 161:4 math 87:4 mathematics 86:16 matter 59:19 131:5,12 132:2 158:1 164:11 mean 17:1 21:4 26:11 37:11 46:20 72:3 92:1 93:13 119:5 127:3 meaning 24:20 25:3,17 28:1 29:11 32:17 33:7 42:18 43:5 44:1,2,11 51:1 55:2 56:18 61:17,21 66:13 157:1,5,6 meaningful 48:20 49:8 means 21:12 26:6 26:16 27:19 28:6,18 29:5 54:21 65:19 66:2,4,10 71:4	71:10 110:20 measure 75:21 76:7,12 77:7,10 77:15 78:3,15 79:3,4,7,12 80:19 81:19 82:18 83:13,18 83:20 85:16 86:19 88:5 152:13 153:1,2 153:9 measured 78:20 measurement 17:8 85:18,22 86:11 88:8 153:5 measurements 17:7 76:17 85:2 85:3 86:11 87:4 87:15,15 88:10 88:12,18 94:12 94:16,22 95:3 150:6 measures 153:13 measuring 75:15 78:7 79:14,17 80:8 84:19 85:7 85:20 153:5 mechanical 18:6 mechanics 69:6 meet 19:1,7 21:17 22:9 32:5 159:15 meets 53:12,15 memorize 43:15 mentioned 38:21 75:22 76:19,21 mentions 76:19 151:10 Merit 2:6 163:6 mesh 161:7,19 meshes 112:13 metal 112:12 139:20 161:5 161:17,19,19 metallic 106:18 metals 105:14	106:7,12 112:10,12 methemoglobin 75:18 78:17 80:2 83:14 84:19 85:8,16 85:21 86:12 87:16 88:10 153:9 method 132:4 methods 151:6,9 microprocessors 18:7 middle 45:18 84:22 85:1 100:3 142:7 143:9 mind 60:18 155:10 minimize 139:11 140:4 minutes 50:3 52:21 126:22 127:16 130:9 156:9 mistake 64:1 mistaken 121:6 mistakes 11:17 modest 130:15 modification 91:10,19 146:5 148:19 modifications 73:19 143:4 modify 73:3 92:12 146:3 147:15 149:16 150:16 modifying 72:9 72:15 91:8 145:1,10 146:20 moment 14:21 28:22 77:2 122:1 123:13 monitor 132:5 monitoring 81:14	84:1 monoxide 86:8 months 24:8 morning 5:13 6:7 6:8 motivated 75:22 76:3,15 78:4 79:18 80:18,22 83:22 84:20 85:15 92:14 94:17 95:1,4 148:18 motivation 76:7 78:12 79:2,10 79:21 80:3 82:14,19 83:9 83:10,12 85:5,6 85:9,11,14 89:1 89:9 94:5 153:19 motivations 85:11 mounted 142:20 146:14 mounting 75:4 143:11 149:9 multiple 87:4,5 138:21 146:4 multiply 145:16 148:9 Mulvenna 1:18 2:5 6:2 163:5 163:22	66:11 147:3 need 6:21 7:8 8:13 19:2,8 21:5 68:17 79:17 80:15 103:16 106:21 121:17 147:7 157:3 159:4,10 needed 17:7 143:5 needs 64:2 82:1 119:12,15 120:2,7 neonatal 144:10 never 39:14 42:11 49:20 151:19 152:4 new 2:8 6:3 133:5 163:1,7 noise 73:8 noninvasive 18:1 18:8 19:17,20 noninvasively 19:4,10 153:8 nonobviousness 22:22 23:4 Nope 8:1 156:1 normal 134:2 161:16 nose 150:6 Notary 2:7 6:3 163:6 165:22 noted 165:14 notes 8:2 155:11 163:11,13 noticing 164:15 noting 164:15 number 12:13 33:22 50:6 131:14 138:18 139:1 146:4 154:19 numbers 4:15 12:21 29:1 NW 1:21 165:2 166:2
---	---	--	---	--

O	156:10 162:8	opinion 16:8,12	107:18 108:7	82:10,20,22
O 117:1,1,1	162:13	30:21 31:17,22	113:1,12 122:5	83:11,22 84:4,9
oath 6:16	OLSON 3:12	32:11 33:8,13	122:13,18	85:12 88:22
object 7:6	164:2	36:11 40:3 41:8	124:19 125:1	89:7 90:7 91:5
Objection 158:10	Once 138:14	41:11 42:11,15	127:11 128:5	92:4,10 93:5,19
159:5	ones 76:19 80:20	43:10 48:4,5	130:4 131:6,10	95:5 96:12,17
objective 22:22	81:1 84:4	49:16,20 50:5	131:11 132:9	97:14 98:8,15
23:4,7,9 132:5	opaque 106:13	54:13 61:20	134:15 135:12	99:6,18 100:15
159:16 160:18	106:17 112:11	62:3 70:1,5,13	158:5,8 159:4	101:4,15 102:3
objectives 98:9	118:21,22	75:20 78:4	159:19 160:10	102:20 123:15
objects 32:8,8	135:5 161:4,8	79:15,16 83:16	optically 100:5	124:9 125:4
oblique 115:1,2	161:10,13	89:20 90:9,21	106:16 118:20	126:2 127:1
obtain 72:21	open 8:8	93:19 94:15,21	118:22 161:4	129:21 130:9
obtained 17:12	opening 27:5,11	95:14 97:16	161:14	130:18 131:13
17:20 18:14	29:14 30:3,19	98:7 99:20	optics 22:18	131:21 133:3
19:4,10	32:18,20 33:1	108:1 122:5	optimization	137:18 138:8
obvious 27:9 31:9	34:5,7,21 35:2	123:10 130:16	139:15	139:8 140:5,13
72:5 99:13	35:14 36:20	131:9 132:19	optimize 140:7	141:11 143:4
100:16 102:19	37:18 40:6 41:1	148:17 154:11	option 164:14,14	143:10 146:8
103:4,5 104:15	41:6 96:2,9	opinions 9:4	options 112:17	147:14 150:13
131:10,15,19	97:18 98:4,22	10:22 11:4,5,7	order 64:2 65:6	150:21 153:18
147:19	99:5,10 100:10	11:16,22 12:2,5	72:21 73:5	157:1,5,9
obviously 141:9	100:18,21	12:6 15:19 23:3	76:16 79:12	orientation 30:18
obviousness	101:20 102:12	23:7 24:4,14	80:16,18 89:3	31:14,16 33:5,6
121:1 132:19	103:9 104:19	25:10 27:20	93:14 102:5,17	33:9,14 35:18
occurred 121:11	109:1,2 110:2	29:7 39:16 40:2	143:12 148:19	36:13,20 37:7
October 1:15 2:4	110:11,15	41:2 46:10	149:16	37:10
163:8,17 164:7	112:5 135:9,15	47:18 48:14	ordinary 16:1	orientations
165:9 166:10	135:17 136:2,6	49:12 50:13,13	20:9 24:20 25:3	31:12 34:3
offer 24:14 121:4	136:12 138:9	50:15 51:7,15	25:16,17 28:1,4	37:17
130:9	138:11 139:6	53:6,20 56:10	28:10,12 29:11	oriented 30:8
offered 12:6	139:19 140:2	59:5 61:16	29:16 30:5,15	33:2
25:10	140:14	106:22 107:8	31:3 32:17 33:3	original 69:13
offering 130:17	opening/window	120:17 121:7	34:19 35:10	164:15
131:15	95:20	121:10,14,18,22	36:9 37:3 42:16	ought 59:20
office 1:1 164:12	openings 110:6	155:7	42:17,19 43:5	158:1
164:17	114:13,17	opportunities	44:11 50:22	outer 114:13
Oh 105:16	119:16 120:7,8	79:10 81:19	51:1 57:18	outside 83:21
114:11 137:4	136:2 137:14	85:2	63:21 64:15,22	98:11 138:21
okay 5:8 8:22	138:5 141:8,12	opportunity	65:18 66:7,9,16	162:4
9:19 10:12	operation 32:9	73:11 76:12	66:19 67:15,22	overall 70:6,14
15:16 39:6	32:10 64:9,18	77:22 80:16	68:9 71:5 72:1	73:13
40:14 61:2,7	149:17 158:19	83:4 88:19	72:20 73:2,20	overcome 141:9
95:10 106:5	operations 8:5	94:11,16,22	74:14,22 76:2	150:17
115:21 144:21	17:6	150:15	76:14 77:17	overestimation
155:9,14,17	opine 84:18	opposite 30:8	78:11 79:8	86:5 87:22
	opining 129:3	optical 18:4	80:17 81:5 82:4	overlook 21:1

overwhelming 139:5	16:7 26:14 29:1 29:1 38:7 39:5	87:19 89:10 90:10 92:21	104:11,12 149:10	65:8 67:1,4,14 71:1,7,9,17,18
Owner 1:9 3:11 5:15 14:9 26:11 28:21 29:1 38:7 40:20 48:21 120:22 121:2	40:13 44:13,15 45:7 46:21 72:12,14,17 73:1 84:17 89:11,12,13 91:17 93:10 94:7 95:8,9,9 107:3,20 108:10,11,18,19 109:10,11 110:15 113:20 117:16 122:3 131:1,3,18 133:8,9 141:16 141:18 144:19 144:20 146:7 146:12,16,19 148:15,16 151:3 164:15 165:6 166:11	94:6 95:7 100:3 107:17,20 108:9,17 113:21 122:2,4 122:8,10 130:22 133:7 136:21 144:18 144:22 145:9 148:14 150:2 151:2,4	pass 110:4 118:1 118:4 passed 27:2 100:6 passes 27:4 97:9 100:9 110:5,10 110:15,16,16,22 118:6 passing 135:12 135:14 paste 74:2 patent 1:1,3,9,12 3:11 4:11,16 5:15 8:20 9:1,1 9:5,9,10,15,21 10:8 11:1,8 12:18,22 13:8 13:17 14:5,9 16:9 18:18,20 20:1,1 22:4,6 22:15,19 23:13 23:14 24:8,14 24:15,17,21 25:10,11,13 26:5,9,11 28:2 28:12,18,21 29:1 30:22 31:18 32:1,16 33:1,14,22 34:15,20 35:3 36:1,10,12,17 37:15,19 38:4,7 39:4 40:7,20 41:1,13 42:5,16 43:17 44:9,17 44:19 48:6,9,17 48:21 49:5,7,12 49:16 50:7,11 50:14,21 54:4 54:13,20 55:4 56:13 57:8,21 57:22 58:3,5,11 58:12,17,22 59:13 60:7,21 62:10,16,21	72:1,2 82:12 91:6 92:3 111:17 118:11 119:20 120:22 121:2 123:14 123:19 126:14 126:16 128:14 128:18 129:9 132:6 154:5,19 155:1 157:8 159:12
oximeter 29:18 31:4,5,9 55:1 86:6 149:10 151:20	110:15 113:20 117:16 122:3 131:1,3,18 133:8,9 141:16 141:18 144:19 144:20 146:7 146:12,16,19 148:15,16 151:3 164:15 165:6 166:11	paragraphs 48:4 50:6,9,20 51:17 80:6 93:18	patent 1:1,3,9,12 3:11 4:11,16 5:15 8:20 9:1,1 9:5,9,10,15,21 10:8 11:1,8 12:18,22 13:8 13:17 14:5,9 16:9 18:18,20 20:1,1 22:4,6 22:15,19 23:13 23:14 24:8,14 24:15,17,21 25:10,11,13 26:5,9,11 28:2 28:12,18,21 29:1 30:22 31:18 32:1,16 33:1,14,22 34:15,20 35:3 36:1,10,12,17 37:15,19 38:4,7 39:4 40:7,20 41:1,13 42:5,16 43:17 44:9,17 44:19 48:6,9,17 48:21 49:5,7,12 49:16 50:7,11 50:14,21 54:4 54:13,20 55:4 56:13 57:8,21 57:22 58:3,5,11 58:12,17,22 59:13 60:7,21 62:10,16,21	patents 92:13 path 136:6 pathway 119:19 138:19 149:12 pathways 119:6 120:9 137:6,21 141:15
oximeters 38:1 152:1	141:18 144:19 144:20 146:7 146:12,16,19 148:15,16 151:3 164:15 165:6 166:11	parameters 17:9 82:8 83:1,7 84:7 87:6 88:6	part 21:21 29:15 29:17 32:21 36:14 37:12 59:8 64:10 65:5 92:6 96:22 97:20 118:11 131:3 134:15 142:16	patient 18:3 26:20 27:3,4,7 31:5 74:18 97:21 100:7,8 100:12 142:20 147:21 150:18
oximetry 17:3 144:4 151:7 152:5 154:8,14	141:18 144:19 144:20 146:7 146:12,16,19 148:15,16 151:3 164:15 165:6 166:11	Parker 131:17 132:18,21	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	patients 148:21 149:21
oxygen 77:16 78:18 85:18,22 86:5,10 87:14 87:22 88:4,11 153:10,13,16 155:3	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	part 21:21 29:15 29:17 32:21 36:14 37:12 59:8 64:10 65:5 92:6 96:22 97:20 118:11 131:3 134:15 142:16	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
oxygenation 79:1 79:4 80:13 88:8	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	part 21:21 29:15 29:17 32:21 36:14 37:12 59:8 64:10 65:5 92:6 96:22 97:20 118:11 131:3 134:15 142:16	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
oxyhemoglobin 75:16 78:16 80:1 83:13	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
P	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
P 3:1,1 P-O-S-I-T-A 16:2 p.m 1:16 2:5 162:16 pads 63:3 64:1,19 64:21 65:20 67:2,11,19 68:3 68:8,10,14,17 page 4:2,10 8:10 9:7 11:3,5 12:8 12:15,18 13:7 13:16 15:15	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 46:19,20 47:10 47:22 48:8,19 49:4,10,15 50:10 52:2 53:19 54:7,16 55:21 61:13,16 62:1 68:20 69:11,22 71:12 73:1 75:8,13 76:6 81:9 82:16 82:21 84:16,18 84:22 85:1,13 85:14 86:3,9	partially 46:5 47:13 48:22 51:9 52:12 53:4 54:10 55:12 64:7 65:1,2	particular 34:10 39:11 44:12 69:16 76:10 81:6,9 82:7 84:14 85:4,6,9 87:1 88:20 99:15 149:7 155:4	patients 148:21 149:21
	pages 165:11 paid 123:6,7 pair 90:4 91:8 94:3 paper 8:4 88:1 paragraph 11:4 12:8,12 15:14 15:17 16:6,11 21:17 22:9 26:18 27:16 45:6,7,9,14,18 45:20 46:3,13 4			

35:10 36:8 37:3 42:18 57:18 63:20 67:15 71:4 72:1,20 73:2,20 74:13 76:2,14 78:10 78:13 79:8 80:17 82:10,20 82:22 83:10,22 84:4,9 90:7 91:5 92:10,17 93:4,19 95:5 98:7,15 100:15 123:15 124:9 125:4 126:2,22 129:21 130:9 130:18 131:13 131:21 133:3 137:17 138:8 139:8 140:12 141:11 143:3 143:10 146:8 147:14 157:9 163:16 personally 152:3 persons 92:4 perspective 55:8 59:19 perspectives 129:18 petition 9:21 41:12,17 Petitioner 1:6 2:3 3:3 5:19 14:9 Ph.D 151:17 photoplethysm... 81:13 152:8 phrase 28:16 38:3 45:10 55:22 62:9,14 65:9,10 69:21 physical 18:2 physics 151:17 physiological 16:15,21 17:3,9 17:11,20 18:15 19:3,9,15 20:5	20:15 21:4,5,11 21:13,19 22:11 83:1 132:5 pick 36:22 37:2,4 picking 35:17 piece 66:22 67:5 pipe 159:3 piped 133:10 134:18 135:21 136:5,19 137:1 137:7 139:21 140:17 141:5 158:13,21 159:14,21 161:1 pipng 138:5 place 81:6 96:4 110:19 placed 29:21 plain 24:20 25:2 25:17 28:1,11 29:11 32:17 42:17 43:5 44:11 51:1 67:15 156:22 157:5 plans 122:1 plastic 161:12 plastics 106:10 112:13 plays 122:14 please 5:9 164:10 164:14,15,16 plenty 83:9 plus 48:10 63:8 78:22 80:5 point 6:13 12:17 13:7,8,16 81:11 101:8 104:13 110:19 134:8 136:4 139:12 pointed 30:19 pointing 79:6 poisoning 86:8 POPR 39:5 portion 65:22 68:3 110:17	114:12 143:19 portions 48:18 114:19,21 115:9 135:4 POSITA 16:2,3,9 16:12 17:10,21 18:16 19:1,7,11 20:6 21:17 22:9 27:8 85:15 89:17,20,22 90:10,12,22 91:1,11,20 92:17,22 93:2 102:9 131:4 132:7 140:21 143:16 148:17 151:5 159:19 160:11 position 38:10 39:2,14 74:17 140:15 143:7 147:5,16 positioned 66:2 109:4 137:19 150:8 positioning 74:15 75:5 143:12 positions 38:13 41:17,18 134:12 possibilities 133:4 possibility 104:10 121:20 131:20 possible 77:10 138:20 141:3 153:8 potential 154:3 PPG 77:16 79:3 152:10,12 153:1,3,17 preceding 131:18 precise 60:8 61:1 96:15 104:8 precisely 59:20 80:12 predominant	119:18 preface 48:5 preliminary 26:12 40:12,19 42:1 120:12 preparation 14:13,15 22:3 24:16 69:7 130:17 prepare 14:1,19 22:3 prepared 10:8 22:14 40:3 41:8 128:1 preparing 14:11 15:6 presence 87:1 134:5 150:19 present 3:19 18:8 60:8 99:21 115:16 118:15 122:11 129:14 141:10 presented 23:8 25:3 60:2 124:13 presents 33:1 pressure 83:20 pretty 137:22 160:20 prevent 133:22 prevents 66:18 previously 117:3 147:7 148:2 primary 111:21 136:10 147:9 prior 12:13 18:22 20:3 22:4,16 23:18 24:19 25:19 26:1 42:20 45:14 56:13 65:11 72:4 86:3 113:20 148:9 151:10 157:21 163:9 privilege 69:8	probably 14:17 37:13 44:6,6 82:3 83:19 89:4 113:5 115:20 119:21 120:1 125:12 127:1 127:18 128:4 130:11,20 132:12 140:6 probe 75:15 probe-end 27:6 100:11 problem 89:8 problems 105:3 Procedure 164:16 proceeding 8:19 9:4 15:12 24:10 44:1 155:7 proceedings 41:21 42:13 43:20 158:2 process 74:20 86:17 87:3,9 101:11 102:6 103:3 132:11 132:14,17 processing 16:14 16:19 17:1,5,11 17:19 18:14 19:3,9,13 20:5 20:12,14 21:9 21:18 22:11,18 74:9 89:2 91:22 produce 92:14 produced 14:4 product 33:6 products 161:13 professor 12:1 project 14:4 152:2 properly 66:2 75:6 89:5 143:5 143:13 proportions 60:9 propose 72:9,14 75:9 144:22
--	---	---	--	--

145:9 146:20 proposed 64:13 146:5 148:2,6 148:18 proposing 78:14 78:21 141:19 142:22 143:1 145:14 146:1,2 147:11 148:9 protect 102:17 143:13 147:20 147:21 protecting 27:3 97:21,22 100:7 protection 98:2 protruding 105:3 provide 9:4 16:8 48:3 49:20 54:13 63:4 66:4 66:5 67:2 73:11 76:11,17 77:21 78:12 79:21 82:14 84:8 85:14 94:10 101:12 106:19 122:4 154:21 155:7 157:4 159:2,8,20 provided 9:20 14:7 58:13 98:3 121:2 provides 49:15 52:14 55:7 61:16 65:15,19 75:2 82:16,19 83:10 111:15 112:4,17 132:13 146:12 158:21 159:18 providing 49:12 52:6 66:10 80:3 90:21 94:11 Public 2:8 6:3 163:6 publication 4:17 12:18,22 published 92:3	152:4 pull 10:2 pulse 17:3 29:18 31:4,4,9 38:1 55:1 78:22 80:13 86:6 88:8 144:4 149:9 151:20 152:1,4 154:8,14 purchased 164:13 purely 56:20 purpose 60:5 68:2 133:20 135:7 158:8,12 158:15 purposes 45:15 pursue 84:5 put 66:22 101:16 141:7 Q qualified 93:8 question 7:4,8,12 7:12 8:14 11:11 25:6,8 31:20 33:11 42:8 44:4 44:5,7 47:4,8 50:4,12 59:1 62:17 70:10,11 70:13 78:2 87:11 90:5,17 94:21 99:3 107:6 127:22 138:3 145:6 questions 6:22 7:3,7 12:3 43:13 128:1 155:12 156:5,6 156:20 160:3,6 161:22 162:9 164:16 165:14 165:16 quite 70:11 104:15 112:21 quote 16:12 78:6 81:12 85:17	92:22 131:4 148:19 quoted 157:16 R R 3:1 117:1 radii 60:13 Raley 13:8,12 26:19 28:2,13 28:14 33:1 37:15 43:1 48:10 72:10,15 72:19 73:10,16 73:21 74:13 75:1,22 76:9,11 76:16,18,22 77:4,13 78:3 80:1,11 81:2,12 81:22 82:2,13 82:16 83:10 84:6 93:7 94:1 94:13 95:11,19 96:10,20 97:5 97:14,19,20 98:8,9,16 99:2 99:3,8,22 101:11,12,17,19 102:6 141:20 141:22 142:6 142:21 145:1 145:10,15 146:3,10,14,21 147:12,16 148:1 Raley's 75:15 95:14 96:21 102:20 Raley-Abdul... 147:10 range 57:16 138:15 139:15 rate 153:4 155:6 rationale 121:4 ray 138:20 rays 114:20 115:1 134:6 135:4,6 135:14,16	136:4,9 137:9 138:11,18 reach 109:22 110:3,6 118:1 118:13 119:4 119:14 120:3 125:12 134:3 reaches 110:18 111:2,4 118:8 reaching 46:6 47:15 51:10 52:13 53:6 54:11 55:14 111:19 113:2 113:14 133:11 134:1 135:16 135:21 136:20 138:6 140:17 read 18:18,19 20:1 22:4,14 92:12 93:20,22 94:19 98:8 120:11 165:10 reading 11:13 20:7,18 21:7 27:15 28:12 63:21 71:17,18 76:6 100:2 124:9 125:5 155:3 ready 164:11 Real 3:6 really 33:18 41:20 42:9,10 59:18 98:12 106:21 123:6 126:5,21 133:5 135:6 144:12 Realtime 2:7 163:6 reason 7:16 48:15 104:2 134:14 reasonable 74:2 74:16 75:5 97:22 98:11 147:19 159:19 reasonably 37:13	81:21 reasons 84:6 104:14 105:5 129:15 recall 23:22 24:3 43:12,13 69:21 120:10,18 156:21 158:4 received 9:11 10:5 12:22 recess 44:22 61:6 74:17 96:16 99:9,14,17 101:5 102:10 103:5 104:15 116:2,3 147:20 155:16 156:14 recessed 27:10,13 95:17 96:8,13 97:12 98:4,14 98:16 99:20 100:17 101:9 102:4,16 103:16 104:6 105:2,5 147:7 recited 62:10,15 67:11,20,21 68:8 recites 70:8 recognize 75:1 recollect 69:9 record 5:10 43:11 53:16 61:5,6,8 105:18,20 106:1 116:1,2,3 117:8 149:18 155:15,16,18 156:13,14,16 162:5,14 recorded 165:14 165:16 recordings 17:2 rectangle 57:6,14 58:19 rectangular 45:17 46:17 54:19 56:6,15
--	---	--	--	---

56:17,20,22 57:10,11 58:9 58:15,18 59:5 59:11,16 70:2 70:21 71:8 123:1,11 125:16 128:9 128:22 129:2,8 rectangular-ish 129:18 red 135:16 redirect 156:4 reduce 135:20 158:17 reduction 137:13 158:22 159:3 159:21 refer 8:22 10:13 13:2,11,19 16:1 45:3 50:7 51:8 54:4,12 59:11 62:18 64:13 reference 43:2 50:10 59:13 77:18 88:20 131:17 154:5 referenced 164:11 references 12:14 14:5 18:19,22 20:3 22:5,16 24:19 25:15 42:14,20 43:1 56:13 65:11 72:4 77:18 79:6 80:5,20 83:5 84:8 87:8,20 88:17 92:5 132:22 143:7 153:15,19 referring 13:3,12 13:20 15:2 16:4 16:21 45:4,13 45:20 54:6,15 59:15 60:11 65:11 68:13 109:7,9 110:12	120:20 149:3 150:1 151:9 refers 12:12,18 13:8,17 33:9,14 36:12 37:7 49:4 67:10,19 70:6 70:14 152:7 reflect 132:16 reflected 152:15 152:19 reflection 152:17 reflections 139:1 reflects 12:4 regard 17:16 59:15 regarded 134:15 regarding 10:8 39:9 42:4 156:22 158:5 regardless 18:11 region 115:4,6 regions 115:15,15 Registered 2:6 163:6 relate 22:6 related 8:5,7 20:2 152:20 relates 103:18 relating 10:22 11:7 relation 98:22 relationship 18:2 18:21 88:2 134:11 135:8 140:7 relationships 32:8 47:6 relative 34:17 77:8 97:12 101:9 102:2,16 103:7 134:19 136:2,14 140:15,18 150:16 151:1 163:14,15 relatively 74:6 relevant 16:13	19:13 20:11 21:8 22:19 37:17 106:18 relied 25:2 rely 34:18 144:7 157:22 relying 80:3 82:13 88:15 91:20 92:1,2 93:6,7 107:1,9 108:1 132:18 132:20 142:5 142:14 remember 42:8 69:16 117:14 REMOTE 2:1 remotely 5:3 rendered 72:5 repeat 19:5 43:15 70:10 107:5 repeatable 132:13 repeated 99:11 report 11:4 12:4 12:6 14:6 24:5 24:17 26:14,18 28:22 39:9 42:2 56:8 62:7 83:5 91:16 121:2 123:3 126:21 135:8 reported 1:18 163:7 reporter 2:6,7,7 5:1,6,8 6:19 61:5,7 105:16 105:22 116:1 117:7 155:14 155:17 156:12 156:15 160:4 162:13 163:6,6 163:6 reports 14:7 121:21 157:16 represent 38:9 representative 77:1 78:9 81:4	135:3 representatives 84:6 represented 129:8 request 163:13 required 41:14 101:7 102:8 requirement 92:16 147:3 requirements 20:21 30:4 requires 40:7 41:2,6 research 88:14 residing 98:11 respect 39:13 49:16 54:14 63:1 respond 6:21 response 11:14 26:10,12 28:21 29:2 38:7 40:12 40:19 42:1 120:12 responses 14:8 rest 34:17 97:2 115:10 restricts 37:22 result 136:18 140:1 resulting 89:15 results 17:8 resumed 117:3 return 61:14 returns 139:12 reusable 96:11,20 review 24:17 25:18,22 33:16 40:16 47:1 50:1 62:20 70:16 71:21 72:16 77:3 90:15 100:1 123:8 124:7 137:3,16 144:2 145:4,17 151:13 153:18	154:16 163:13 164:13 reviewed 12:13 14:3,7 Richardson 3:4 5:18 right 6:17,22 9:5 9:16,22 10:9,11 10:13 12:15,19 13:4,17 15:3 16:4 23:1,4 27:16 32:2,14 33:10,15 36:13 39:17 40:14 41:10 44:17 45:1,22 46:11 47:20 49:14 51:15 52:4 54:8 54:16 55:15 56:1,7 59:14 60:9 61:4,18 62:1,8,11 63:14 65:14 66:14,15 67:12 68:15 70:3 71:15 72:10 75:11 76:19 78:18 80:4 82:15 84:21 85:18 90:2,14 91:3 92:19 94:18 95:2,12,17 97:2 97:18 101:1 103:11 107:2 108:1 111:3 114:11,17 118:3,4,9,14,17 121:15 122:6 122:10,19 124:2,4,18,22 133:12 143:20 145:13 149:21 152:5,10 154:5 156:12,15 rings 38:6 rises 153:6 role 106:11
---	---	--	--	---

122:14 room 7:22 130:16 roughly 35:19 rounded 57:4,13 58:16 60:4 125:21 128:13 128:19 129:19 roundings 60:14 rows 147:2 rule 53:9 rules 6:12 164:16 rulings 44:6,7	130:3 132:1 scraping 99:12 scratched 105:6 screen 81:2 90:21 screens 8:8 scroll 81:8 Secker 13:17,20 43:2 141:20,22 142:6,21 145:2 145:11 146:1,2 146:10,21 147:16 148:8 148:19 151:6 Secker's 151:10 second 9:8 13:6,7 54:15 55:20 94:8 secondary 23:1 section 39:9 87:19 91:16 see 6:8,10 11:3 12:12,17 13:7 13:16 15:17 16:17 25:12 36:16 37:21 44:15 45:8,12 46:21 49:14 52:9 56:19 58:14,17,18 60:6 71:5 72:4 75:14 89:14 95:11 108:4 114:21 115:9 126:3 127:19 129:12,22 130:2 131:4,19 137:2 141:18 142:7 155:12 seeing 115:4,5 seen 23:21 57:17 58:1 124:15 segment 26:21 27:1,12 95:15 96:22 98:1 99:22 100:4,19 103:8 104:18 104:20,21	selected 164:14 selecting 131:11 selection 151:11 semitransparent 119:7 sense 126:15 129:17 134:10 136:16 sensitive 140:16 sensor 88:9 142:4 142:7,13 143:2 143:19 144:1,4 144:7 145:1,10 145:15 146:3 148:1,2 sensors 18:5 22:18 37:20 88:13,14,15 sentence 20:7 21:7 22:13 45:8 45:14 46:2,12 46:18 47:22 54:15 55:20 61:16 62:6 69:22 89:14 90:20 91:4,14 93:10 94:8 151:4,10 sentences 91:16 separate 32:10 42:13 separation 104:3 109:17 sequence 88:21 set 24:7 42:14 46:10 69:13 90:7 124:5 145:3,12 163:17 sets 46:19 145:2 145:11,11 setting 112:22 shading 108:3 shape 35:1 45:17 46:17 54:19,21 55:3,6,10 56:6 56:16,17,20	57:5,8,9,11 58:6,9,11,18,21 59:5,11,12,16 60:3,19 70:2,6 70:14 72:8 102:3 122:15 122:18 123:2,4 123:6,12,16,18 123:21 124:6 124:12,20 125:3,7,9,10,16 125:20 126:1,4 126:7,16 127:2 127:2,3,4,17 128:6,8,16,21 129:2,8,11,16 129:17 130:1,3 130:5,8,11,12 130:13,14,19,21 132:4 133:6 159:15 shaped 132:8 shapes 56:12 70:20 71:9 124:16 128:8 128:22 131:6 131:14,19,20,22 132:15,16,16 sheet 139:20 164:15 165:15 166:6 shield 63:5 106:14 107:18 108:6,14,21,22 109:3,19,22 110:6,16 111:1 111:6,9,11,14 111:18 112:16 113:2,4,7,8,11 113:13,16,19,19 114:2,5,6,9,15 114:18 115:10 115:11,14 117:13,19,22 118:8,13,15,20 119:3,7,13,16 119:20,22	120:3,6,8 122:18 123:1,4 123:7,11,18 124:3,6,12,18 125:2,11 126:7 126:11 127:4 127:11,17 130:5,8,12,13 130:20 133:16 133:18 134:5,7 134:12,14,22 135:4,20 136:8 136:15 140:9 140:22 141:2,7 141:8,12 158:6 158:16,21 159:2,7,20 160:10,15,18 161:7,9 shield's 141:6 shielded 107:1,9 107:15,21 108:5,15 119:11 shielding 105:8 106:19 161:16 shields 105:12 106:4,16 112:9 118:21 161:4 161:11 shoe 46:17 70:2 129:12 shoebox 28:17,19 29:4,6,10 30:12 30:16,20 32:13 32:21 33:20 34:1 36:15 37:1 37:12 44:21 45:1,15,17 46:16 54:7,14 54:18,19,20 55:3,6,10,22 56:5,6,10,15,17 57:2,8,9,11,20 58:3,6,8,9,11 58:21 59:4,5,11 59:12 60:18,19
---	--	---	---	---

61:17,21 70:1,5 70:9,14,18 71:8 71:14 72:8 122:6,11,16 123:2,11,16 124:19 125:2,6 125:9,15,16,20 126:1,4,9,10,11 126:15 127:2,4 127:9,10,12 128:7,8,15,21 129:2,2,4,8,17 130:1,3,5,11,19 130:21 131:20 132:1,4,8 shoebox-like 124:15 shoebox-shaped 70:22 shoeboxes 55:1 57:17 58:2 124:15 shoebony 70:20 shoes 129:16 short 155:11 shorthand 2:6 163:11,13 show 99:3,16 101:19 102:1 108:13,20 114:5,9 123:21 128:12 132:22 133:21 135:11 144:13 146:22 showing 115:16 124:5 135:2 shown 27:14 28:14 29:13 35:20 36:5 57:2 59:16 63:9 73:17 74:12 97:16,17 103:22 107:11 109:11 110:14 114:14 115:3 125:11,18 132:16 136:21	136:22 140:22 141:22 143:8 143:16 shows 37:12 57:5 72:14,18 95:19 95:22 96:1 101:22 115:14 132:3,11 137:6 142:16 143:21 146:20 sic 139:3 side 29:21 34:3 137:20 149:11 side/right 149:11 sides 111:12 sight 114:22 115:3 sign 10:15 164:12 164:13 signal 22:18 66:5 77:16 80:13 88:7 89:2 97:7 110:21 139:10 139:11,17 153:3,16 161:2 signals 65:20 73:6,11 74:9 76:5,7 82:6 83:6 151:11 signature 163:17 164:11,15 165:6,19 166:22 signed 10:18 11:1 11:8 164:15 significant 49:6 signing 120:11 121:11 164:14 silicon 66:22 67:6 similar 52:5 58:19 60:6 112:21 122:18 122:21 129:20 similarities 122:20 similarly 128:18 simple 22:12	56:22 57:6 58:19 90:19 94:21 128:9,22 simpler 59:1 simply 56:17 74:1 131:5,12 133:1 Sincerely 164:18 single 43:20 sir 51:13 sit 41:10 121:9 site 148:21 149:2 149:7 150:2,18 sites 149:3 size 102:2 135:9,9 138:16 140:15 159:15 sized 148:21 149:21 150:18 skewed 57:6 skill 16:1 20:9 25:16 28:4,10 28:12 29:16 30:5,15 31:3 33:3 34:19 35:10 36:9 37:3 42:17,19 50:22 57:18 63:21 64:15,22 65:18 66:8,9,16,20 67:15,22 68:9 71:5 72:1,20 73:3,20 74:14 75:1 76:2,14 77:17 78:11 79:8 80:17 81:5 82:4,4,11,20,22 83:11,22 84:4,9 85:12 88:22 89:7 90:7,8 91:5 92:4,10 93:5,20 95:5 96:12,17 97:15 98:8,15 99:6,18 100:15 101:4 101:15 102:4 102:20 123:15 124:9 125:5	126:2 127:1 129:21 130:10 130:18 131:13 131:21 133:3 137:18 138:8 139:8 140:5,13 141:11 143:4 143:10 146:8 147:14 150:13 150:21 153:18 157:9 skills 82:10 89:7 92:8,13 slants 60:4 slid 96:4 103:22 104:5 slide 96:8 sliding 103:1 104:3 slight 59:11,17 slightly 115:1 sloped 128:18 slopes 57:13 58:16 60:15 125:21 128:13 129:14,19 small 109:7,15,17 139:1 smaller 135:19 137:14 138:4 138:16 Smith 4:12 9:11 software 18:7 solder 63:3,15 64:1,19,21 65:20 67:2,10 67:19 68:3,8,10 68:14,17 solid 26:6,17 27:20 28:7 139:20 solve 89:8 solving 87:4 somewhat 57:10 soon 52:19 sorry 14:9 19:5 33:17 37:11	40:14 57:3 82:2 104:18 107:5 109:12 112:14 114:11 127:3,5 128:12 137:4 144:19 sort 51:5 70:20 96:3 125:20 135:3 137:6 138:16 149:11 159:14 160:17 sorts 55:9 131:16 sounds 40:2 44:4 156:11 space 26:6,16 27:19 28:6 40:7 41:2,6 95:20 101:20,22 102:2,11 150:12 154:8 154:12 spacings 148:20 spare 62:12 speaking 123:19 special 34:17 species 77:9 specific 28:9 30:14 34:15 39:3,16 54:3 83:16 155:1 specifically 76:9 specification 38:5 39:4,21 63:14 63:19 specifications 101:14 spend 14:11 41:9 spent 28:8 30:13 33:18 39:22 127:14 spoken 142:18 spot 140:7 square 109:7 114:8,17 115:10 118:1,5 118:7,12 119:3 119:13,16
--	--	---	--	--

135:19 136:14 136:18 140:10 squares 109:15 109:17,18,21 ss 163:2 stage 135:7 stand 117:4 121:14 standpoint 134:17 star 143:8 start 7:13 65:12 95:9 started 106:6 162:7 starts 89:11 95:8 131:1 144:19 state 2:8 5:9 6:3 15:18 16:11 45:9 46:3 55:21 62:3 70:1 75:15 89:14 94:8 113:22 131:4 154:22 163:1,7 stated 20:21 51:16 59:3 120:10,15 122:7 statement 11:21 51:6 55:16 69:12 77:6 127:14 154:12 statements 47:7 93:17 127:18 154:18 states 1:1 4:11 9:10 49:11 step 45:19 steps 88:21 93:12 93:14 sticking 96:18 stipulate 5:2 store 129:12 story 74:22 straightforward 74:7,11 87:10 91:19 93:4 94:2	stray 46:6 47:14 49:1 51:10 52:13 53:5 54:10 55:13 street 1:21 3:14 112:14 164:3 165:2 166:2 strictly 57:10 strike 104:18 structural 34:21 63:16 142:19 structure 28:17 28:18 29:5,17 29:22 30:7,12 30:20 32:13,21 33:9,15,20,21 34:1,17,18,20 35:11 36:13,15 37:1,7,9,12 44:22 45:1,15 46:15,16 48:1 49:2 50:16 51:2 51:11,21 52:12 52:14 53:10,12 54:7,15,18 55:6 55:8,17,19 56:1 56:5,10,21,22 57:20 58:4,18 59:4 60:18 61:18,21 62:4 69:19 70:6,9,14 70:19 71:14 72:8 73:16 96:1 96:3,4,20 101:2 101:10 102:21 102:22 103:2 104:5 110:8,13 111:15 122:6 122:11,15,16 125:15,19 126:9,10,12 127:9,10,12 128:9,13 129:1 129:2,4 134:15 146:14 147:6 147:17 149:14 159:15	structure' 70:2 structure/light 28:19 29:4,6,10 30:17 structures 18:6 30:18 58:3 63:7 63:9 64:3,5 67:10,19 71:6,6 82:5 99:12 103:22 104:1 107:13,15 students 151:22 stuff 73:18 147:12 subject 9:15 156:4 submitted 24:9 38:14 submitting 23:18 25:19 26:2 subsequent 48:4 substance 155:21 substantial 52:10 substantially 138:19 substantively 162:4 suffering 154:14 suffice 21:6 sufficient 94:4 Suite 1:21 3:6 165:2 166:2 summarizes 11:5 summary 11:3 supplement 121:17 supplementing 121:22 support 9:21 50:20 60:17 63:9,16 71:13 74:9 supporting 64:3 67:10,19 68:13 73:4 80:20 supports 52:7 58:8	suppose 113:15 130:15 Supreme 44:7 sure 6:14 19:6 23:22 31:21 32:18 33:12 44:4 47:6,9 52:22 65:9 70:11 74:3 82:8 94:20 103:12 105:1 106:18 145:20,22 surface 34:10,12 36:18,19,22 37:4 97:10,13 97:13 98:3,6,11 102:13,14,17 103:7,18,19 104:16 138:22 surfaces 101:10 103:1,6 104:8 surround 64:20 111:9 surrounding 44:20 63:22 64:16,17 65:1 68:1 96:22 97:18 98:6 101:9 102:14 102:17 103:7 104:4,16 surroundings 158:19 surrounds 46:5 47:14 49:1 51:9 52:12 53:5 54:10 55:13 64:7 111:6 suspect 126:6 swear 5:1 sweet 140:7 sworn 5:3,20 6:2 117:3 163:10 system 17:14 72:10,22 73:13 75:10 76:4 78:21 79:11	84:11 85:3 89:15,18 90:1,4 90:6,13 91:2,7 91:8,12,18,20 92:1,6,14,18 93:1,3,9 94:3 102:6 142:16 142:19 143:14 149:17 154:14 systems 74:8 83:2 90:6 T T 4:9 117:1 table 31:10 take 6:20 8:15,16 14:18 24:6 38:10 52:19 61:2 62:13 73:15 77:2 115:18,21 137:10 145:14 146:9 147:11 155:11 taken 39:2 93:11 93:14 163:13 takes 110:19 talk 15:5 83:6 121:5 talked 118:18 talking 14:12 17:14 31:3 66:13,14 106:6 117:12 160:22 tape 63:3 targets 155:2 taught 76:16 teach 92:5 teaches 50:20 71:9 102:6 151:6 teaching 51:18 52:6 81:22 132:2,10 144:16 teachings 18:22 20:3 58:12
---	--	--	--	---

73:22 74:1 75:2 92:2 93:8 101:16 141:21 142:9 143:6 146:9 tear 96:9 Technician 3:20 technique 151:11 technology 83:21 tell 96:7 119:7 123:12 telling 59:8 tells 34:16 36:4 ten 126:22 ten-minute 156:8 term 17:13 26:5 30:11 32:13 39:12,15,20 43:22 46:14,19 65:12 67:16 68:21 69:4 70:18 terms 24:21,22 25:3 30:9 42:4 42:18 43:6 143:16 157:4,6 testified 6:4 117:4 testify 163:10 testifying 6:16 7:19 9:16 testimony 7:17 155:21 156:22 158:5 162:4 text 144:17 thank 5:8 8:17 38:16 39:6 61:11 75:19 117:11 147:22 156:3 162:10 162:11,12 Thanks 156:7,19 160:1 theory 45:16 49:7 Thick 113:10 thickness 148:22 149:2	thicknesses 148:22 149:5,8 150:2,18 thin 106:18 thing 35:5,16 37:16 59:18 64:22 81:16 things 22:18 32:9 40:15 53:15,17 55:9 56:16 57:16,22 58:14 60:5 65:20 68:16 70:21 71:2 77:15 78:10,19,22 79:5,6,12,13 80:9 81:6 83:19 106:15 124:14 150:20 151:22 154:2 think 7:18 11:10 12:4 15:13 17:13 18:7,9,11 18:17 19:11,22 20:8,18 21:12 21:20 22:12,13 25:12 28:9,11 30:5 31:2,6,13 31:13 32:3,3,7 32:15,17,22 33:3,19 34:9,18 34:19 35:9,14 35:19 36:8,14 37:3,6,9,12 42:7 43:20,22 44:3,8 46:12 48:20 49:6,8 50:15,18,22 51:4,7,17 52:1 52:5,11,15 54:22 55:16 57:4,16,16,20 57:22 58:8,20 60:1,10,16 62:2 63:20,20 64:6 64:15 65:17 66:1,7,9,16,19	66:20 67:3,13 67:22 68:9 69:5 69:17 70:17 72:6,20 74:11 74:21 76:2 77:13 78:9 79:8 79:20 80:13 81:4,8,11,16,20 82:10 84:13 86:2 88:21 89:6 90:6 91:5 92:7 92:20 93:17 94:19 96:6,10 97:14 98:2,4,14 99:6,17 100:13 100:21 102:3 102:16,19 103:21 104:2 104:14,17,19 105:4,16 106:20 107:12 107:19 108:8 108:16 111:13 114:4 115:13 118:10 119:8 119:19 120:5 120:19 121:6 122:14 123:5 123:13,14 124:8 125:4,22 126:2,17,22 127:17 128:3,5 128:18,19 129:7,11,16,21 131:21 132:10 132:15 133:20 134:8,14 136:4 136:22 137:1,5 137:17 138:8 139:8,13 140:4 140:12 141:1 141:11,21 142:22 144:10 145:18 146:6 146:22 147:14 147:18 148:15 149:6 150:12	150:21 153:11 153:15 154:10 154:21 158:17 160:13,15 161:18 thinking 33:3 35:18 39:22 41:9 71:19 127:15 140:14 153:20 thinner 161:9 third 13:16 94:9 94:10 95:4,6 Thomas 1:14 2:2 4:3,13 5:11 6:1 10:5 117:2 163:8 164:1,8 165:8 166:9 thought 11:12 43:8 126:5 127:22 128:3 129:1 three 75:21 76:20 76:20 78:8,15 81:15 time 23:20 24:2 24:19 28:8 29:9 30:13 33:18 38:8,17 39:22 40:8 41:9 62:12 82:12 91:6 92:9 96:19 98:13 105:4,6 126:21 127:15 145:19 153:2 154:22 156:4,6 162:10 162:16 163:13 164:16 times 119:18 138:21 146:4 tissue 17:15 27:6 100:11 148:21 149:2,3,10 150:2,10 152:14,15,16 153:6 tissues 152:22	today 6:16,20 7:7 7:17,19 8:13,19 9:16 10:12 12:5 14:2,11,20 15:6 15:22 23:21 40:4 155:22 156:4 162:5 today's 14:15 told 25:7 56:3 tools 82:18 153:21 top 28:16 29:4,9 30:1,3,11,16,17 30:20 32:13,21 33:2,8,13,19 34:3,13,16 35:3 35:14 36:12,14 37:1,6,10,14,18 40:13 57:2 93:10 98:5,19 99:12 108:18 148:15 150:8 top/bottom 149:12 topic 50:5 total 148:4,11 TRADEMARK 1:1 tradeoff 139:9,16 transcribed 163:11 transcript 43:14 163:12,14 164:10,12 165:11 transcription 163:12 165:13 165:15 transmission 31:4 37:20,22 86:19,21 106:20 149:9 151:6 transmissive 100:5 transmitted 100:9 139:7
--	---	--	---	--

152:14,20 transmitter 29:18 TRIAL 1:3 trivial 89:6 93:3 true 39:8 76:22 93:11 120:14 140:12 163:12 165:13,15 truth 163:10,10 163:10 truthful 7:17 try 7:14 8:16 43:15 44:11 45:5 140:3 153:20 154:1 trying 33:18 42:8 48:16 53:16 64:12 65:14 79:15 127:22 139:10,11 145:22 turn 15:14 45:6 72:12 84:16 94:6 142:12 two 16:13 19:12 20:11 21:8 42:5 42:13 48:18 73:5 74:5,7,9 74:10 75:9,22 76:5 78:4,14 79:3,19 80:3 82:2,3,4,9,14 83:12,17 84:20 86:6 88:6 89:14 90:5 91:18,19 92:8,13 93:9,15 94:17 95:1 142:3 143:6 144:12 150:11 156:9 typewriting 163:11 typewritten 163:12 typically 29:20	U.S 1:12 8:20 Uh-huh 108:12 unable 67:8 underlying 114:10 118:2 underneath 110:1 understand 6:15 6:21 7:2,9 8:18 9:14 10:19 13:3 13:12,20 16:4 17:13 18:18,20 20:2 22:5,15,20 25:13 27:22 28:4,11 29:16 30:6,16 43:17 45:4 47:5,6 55:2,6,9 56:2 57:9 59:10 60:5 60:7,20 63:21 64:12,16 65:1 65:14 66:8,10 66:17 67:15 68:10 71:3 72:2 73:7 79:9 88:22 89:1 93:5,21 94:1 96:13 98:15 99:7,18 101:15 102:4 102:10 112:2 120:21 137:18 138:9 140:5 142:4 150:22 153:19 154:4,7 157:10 understandable 25:15 42:16 understanding 45:9 46:3 47:12 48:18 50:14 55:21 56:4,18 57:12 67:16,22 76:15 97:14 98:10 109:20 111:8 119:20 125:22 126:13 129:1 154:6	understands 139:9 understood 7:4 27:8 29:9 80:14 81:21 100:16 103:5 104:15 122:16 126:16 139:14 151:5 160:11,14 United 1:1 4:11 9:10 unknowns 87:5 unquote 16:16 unusual 54:22 uppermost 28:18 29:5 upwards 29:22 30:19 34:7 35:4 65:12 use 30:7 31:8,16 32:7 33:2,6 35:4,18 37:10 72:2 81:13 82:17 84:1 88:7 96:19 98:13 106:12,13 118:6 131:6,10 143:14 149:13 useful 64:2,16 65:6,19 67:16 77:14 161:7,8 useless 64:21 140:1 user 137:20 usually 150:8,10	variations 152:19 various 77:8 125:21 129:15 141:15 144:6 149:14 verbally 6:21 version 144:10 versus 30:9 149:20 VIDEOTAPED 2:1 view 26:20 34:3,3 58:8 72:10,15 126:8 127:8 130:6 147:16 148:8 viewed 35:1 views 55:8 58:15 58:16 visible 114:1,7,12	wavelengths 73:12 75:10 86:20,22 146:14 147:1 148:4,11 way 11:11 14:13 17:15 22:16 31:6 33:19 35:17,17 43:18 51:18 60:15 61:1 64:17 75:5 96:10 139:20 141:2 154:9 ways 73:22 122:22 128:19 we'll 12:5 17:4 we're 9:7 17:14 31:3 32:20 60:10 61:5,7 66:13,14 79:22 105:22 114:3 116:1 117:7 144:11 155:14 155:17 156:12 156:15 162:13 we've 55:5 56:14 90:10,20 93:20 112:5 113:16 119:17 127:16 142:18 144:14 147:7,15 web 8:10 week 42:8 43:7 Welcome 61:10 117:10 well-described 130:14 well-known 82:22 well-understood 87:10 went 112:15 Wentzel 3:13 4:4 4:6 5:4,13,14 6:6 9:13 10:6 12:9,11 35:21 40:21 47:2 50:2
U		V	W	
		v 1:7 164:6 165:7 166:8 vague 23:15 valid 154:10 validity 24:14,18 25:11 43:19 121:7 values 17:9 82:7 87:6 van 31:11	wanted 25:8 161:20 Washington 1:21 165:3 166:3 wasn't 23:8,10 25:3 29:8 waveforms 153:17 wavelength 94:11 95:4 145:3,13	

52:20 53:1 61:2 61:9 63:11 71:11 75:7 78:1 90:18 98:18,20 100:20 105:19 106:2 115:18 115:21 117:6,9 123:9 124:1,17 137:12 138:2 144:5 145:7,21 146:15,18 151:15 155:5 155:10,19 156:3,11 158:10 159:5 160:5,8 162:8 WESTCHEST... 163:3 WHEREOF 163:17 width 135:17 wife's 8:4 Willow 1:8 5:15 164:6 165:7 166:8 window 27:2,5,5 27:10,14 96:2 97:8,10,18 98:5 98:22 99:1,5,10 100:5,10,10,18 100:22 101:20 102:12 103:10 103:10 104:19 104:21 105:5 window/opening 101:5,5 windowpane 101:6 witness 4:2 5:2,3 5:11,20 33:17 40:17 52:22 61:4 62:21 70:17 72:17 77:4 90:16 100:2 115:20 124:8 137:4,17 144:3 145:5,18	146:17 151:14 154:17 155:13 156:10 158:12 159:7 162:11 163:8,9,17 164:13 165:8 165:19 166:9 word 42:10,10 62:13 wording 42:9 words 52:9 69:14 work 12:4 16:13 19:13 20:11 21:9,22 44:8,12 72:21 73:9 74:2 81:7 83:6 89:5 89:5,8 96:11 143:11,12 152:3 153:21 worked 69:6,10 69:11 151:21 worried 106:21 wouldn't 24:12 25:8 66:20 67:7 68:5 83:20 102:13 135:1 135:19 136:18 137:9,13 158:2 161:7 write 39:10 written 36:17 96:6 164:22 wrote 69:15 X X 4:1,9 Y yeah 37:11 38:16 40:17 44:3 45:13 48:8 68:16 84:22 90:19 94:21 95:3 105:19 108:2 120:5 124:21 125:18 126:13 127:5	145:8 148:15 159:22 160:5 year 14:4,13 69:9 127:16 years 12:2 16:13 19:12 20:11 21:8 York 2:8 6:3 163:1,7 Z zoom 12:10 14:22 98:18 0 1 1 32:4 62:10,15 65:21 95:11 96:5,9 102:22 103:2 104:2,12 1[c 48:10 49:13 54:5 10 4:13 12:18 13:7,16 15:15 27:6 40:13 99:13 100:11 123:20 124:4 127:16 10,984,911 1:12 4:12 8:20 9:11 1000 107:2,10,14 107:16,22 108:5,15 142:18 1001 4:11 9:8,10 1003 4:13 10:3,4 10:7,13 12:8 44:14 1004 4:15 12:19 12:21 13:2 142:12 1005 13:8,11 108:22 109:19 109:22 111:2 111:18 114:2 115:11 117:19	117:22 118:8 119:13 120:7 1006 13:17,19 101 107:20 1010 108:7 122:18 123:4 125:2 126:11 127:12 140:9 158:6,16,21 159:2,20 160:10 105 141:16,18 106 133:7 136:21 109 151:3 10C 124:6 125:11 11 11:3,5 26:14 114:22 115 144:19 116 144:20 148:16 117 146:7,12,16 146:19 11B 109:8,13,14 111:10 114:1,9 115:8 117:20 136:15 12 4:15 16:7 12:00 1:16 2:5 163:9 126 108:9 127 108:17 113:21 12860 3:6 13 29:1 63:1 15 104:12 127:16 144:19 156 4:5 16 12:8,12 27:5 27:14 99:1 100:6,10 103:10 104:21 146:13,21 147:1,12 148:12 160 4:6 151:2,4 169 144:18,22 145:9 148:14	150:2 17 15:14,17 27:1 27:13 100:4 103:9,17 104:22 1730 1:21 165:2 166:2 1C 44:16,19 45:3 46:22 48:6,13 49:5,21 54:14 1st 15:18 2 2 39:7 137:5 2:30 156:9 20 14:17,18 26:21 95:15 96:22 97:7 98:1 99:22 100:4 102:21 103:8 104:11 104:18,20 20036 1:21 165:3 166:3 2005 15:18 202 1:22 165:4 202)-232-0646 164:17 202)232-0646 166:4 2023 10:16 11:2 23:19 121:15 2024 1:15 2:4 163:8,17 164:7 164:20 165:9 166:10 2024-00296 1:11 2040 3:14 164:3 21 11:4 95:16 99:4 100:22 22 16:6,11 21:17 22:9 232-0646 1:22 165:4 24 63:1,10 95:16 99:4 100:22 26 27:5 95:20 97:18 98:22
---	---	---	---	--

99:5 100:10,18 100:22 101:21 102:12 103:10 104:19	135:15 136:3 158:6,9 159:4 159:19 160:10 41 89:11 42 89:12,13 128:10,11 43 94:7 450 155:8 470 109:8 110:2 110:16 111:1 118:7 119:12 119:15 120:2 136:14 4th 163:8	79 26:18 27:16 95:7 100:3 7C 142:7,8,12 143:19 144:3 7th 163:17	41:1,12 42:16 44:17,19 54:20 55:4 56:13 57:22 58:3,11 58:22 59:13 60:11,17,21 62:10,16,21 67:1,14 71:1,7 71:17 72:1,2 91:6 111:17 112:7 121:1,8 123:14 124:9 124:11 125:5,7 125:19 126:14 128:11 129:9 129:20 155:1 92 130:22 92130 3:7 92614 3:15 164:4 93 108:10 110:15 94 108:10,11 949.760.0404 3:16 95 108:19 117:16	
3	5	8		
3 95:11,16,19,22 97:17 99:13 101:19 103:22 104:11 30 12:2 14:18 32 34:2,11 35:22 36:16 55:4 56:19 58:13 59:13,17 60:11 60:21 67:1 128:12 129:9 130:1 3210 34:6 32A 34:2,8,12 35:7 36:18 37:11 57:5 32B 34:6,12 35:8 35:20 36:19,20 37:11 57:2 32C 57:3 32D 57:3 32F 57:5 32H 57:4 36 73:1 38 63:1 39 72:12,14,17 73:17	5 97:8,20 99:2 5:38 162:15 52 63:2 97:8 53 95:8 54 95:9,9	85 45:7,9,20 46:3 46:19 47:10,22 48:19 49:10 52:2 53:19 54:7 54:16 55:21 61:13,16 68:20 69:22 71:12 858-678-5070 3:8 86 46:20 48:8 49:4,15 50:9 51:17 87 50:9 51:17 107:17 88 50:10 51:17 89 50:10 51:17		
4	6	9		
4 1:15 2:4 164:7 165:9 166:10 40 84:17 400 3:6 107:18 108:7 109:1 111:15 112:3,4 112:18 120:6 122:5,13 124:19 125:2,8 126:4,18 127:11,14 128:6 130:10	6 4:4 37:15 130:2 130:5 60 44:13 45:7 63 107:3 64 75:13 65 73:1 75:8 76:6 122:3 66 82:21 131:1 67 84:16,18 86:3 86:9 87:19 131:2,3 68 85:13,14 69 89:10 90:10 92:21 6A 29:14 30:6,19 107:11 108:4 109:11 110:14 122:9,17	10:8 11:1,8 14:5 16:9 18:18 18:20 20:1 22:4 22:6,15,19 23:13 24:8,13 24:15,17,21 25:10,13,14 26:5 28:12,17 30:22 31:18 32:1,16 33:14 33:22 34:20 36:1,12 37:19 38:4 39:4 40:7		
	7			
	71 94:6 74 107:20 750 144:1,4,7 78 133:8,9			