

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

_____)

APPLE INC.,

Petitioner,

Case IPR2024-00806

v.

Case IPR2024-00807

RESONANT SYSTEMS, INC.,

Patent 9,941,830

Patent Owner.

Patent 8,860,337

_____)

VIDEOTAPED DEPOSITION OF KEITH W. GOOSSEN, PH.D.

May 8, 2025

10:12 a.m. Eastern Time

Reported by: Lori J. Goodin, RPR, CRR, RSA,
California CSR #13959

DIGITAL EVIDENCE GROUP

1730 M Street, NW, Suite 812

Washington, D.C. 20036

(202) 232-0646

1 REMOTE VIDEOTAPED DEPOSITION of
2 KEITH W. GOOSSEN, PH.D., in the above-titled
3 action, held on Thursday, May 8, 2025, commencing
4 at approximately 10:12 a.m. before Lori J.
5 Goodin, RPR, CRR, RSA, California CSR #13959,
6 Registered Professional Reporter, Certified
7 Realtime Reporter, Realtime Systems
8 Administrator, and Certified Shorthand Reporter,
9 and Notary Public of the State of Florida, State
10 of California, State of Maryland, District of
11 Columbia, and State of Delaware.

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21

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1 REMOTE APPEARANCES:

2 ON BEHALF OF PETITIONER:

3 FISH & RICHARDSON P.C.

4 BY: THOMAS ROZYLOWICZ, ESQUIRE

5 1000 Maine Avenue, SW

6 Washington, D.C. 20024

7 202-626-6395

 rozylowicz@fr.com

8 AND

 FISH & RICHARDSON P.C.

9 BY: SANGKI PARK, ESQUIRE

 60 South Sixth Street

10 Minneapolis, Minnesota 55402

 612-335-5070

11 spark@fr.com

12

13 ON BEHALF OF PATENT OWNER:

14 RUSS AUGUST & KABAT

 BY: KRISTOPHER, R. DAVIS, ESQUIRE

15 12424 Wilshire Boulevard, 12th Floor

 Los Angeles, California 90025

16 310-826-6991

 kdavis@raklaw.com

17

18

19

20

21

22

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1 INDEX TO EXAMINATION

2 WITNESS: KEITH W. GOOSSEN, PH.D.

3

4 EXAMINATION BY

PAGE

5 MR. ROZYLOWICZ

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1 THURSDAY, MAY 8, 2025, 10:15 a.m.

2

3 PROCEEDINGS

4 * * *

5 Whereupon,

6 KEITH W. GOOSSEN, PH.D.,

7 a witness called for examination, having been
8 first duly sworn, was examined and testified as
9 follows:

10 * * *

11 EXAMINATION

12 BY MR. ROZYLOWICZ:

13 Q. Good morning, Dr. Goossen. My name
14 is Tom Rozylowicz. It is good to see you again.

15 A. Good morning.

16 Q. And, I was told that you went
17 through back surgery about a month ago.

18 A. Actually, four weeks to the day.

19 Q. Okay. And how did that go?

20 A. Very well.

21 Q. Okay. Great, I am glad to hear
22 that. I went through a pretty extensive back

1 surgery a year ago. I certainly, in fact -- I
2 don't know what was done, but for me it was quite
3 a trek. So, I understand --

4 A. Did you have fusion performed?

5 Q. No, I actually had a -- I actually
6 had a rather large tumor removed from my spine
7 so --

8 A. Oh, okay.

9 Q. Anyway, so, you know I say that
10 because I don't think we will need the whole day
11 today. I think we can make our deposition pretty
12 short. I plan on taking a break around every
13 hour.

14 But if you need a break in the
15 meantime, please feel free to ask and we will
16 accommodate.

17 I would, however, ask that if we can
18 agree if there is a question pending, that you
19 answer the question before we take a break.

20 A. Of course.

21 Q. Okay. And, you understand that we
22 are covering both the '830 and the '337 patent

1 today?

2 A. The 7, 67 -- or '337, you said?

3 Q. Yes.

4 A. Okay, yes.

5 Q. Okay. So, to be clear you

6 understand that we are covering both the '830

7 patent and the '337 patent today?

8 A. Yes.

9 Q. Okay. So, I am curious, so to
10 prepare for today, you obviously were deposed
11 yesterday.

12 How much time did you spend
13 preparing for today's deposition on the '830 and
14 the '337 patent?

15 A. Well, I earlier in the week re-read
16 my report.

17 Q. Okay.

18 A. As well as the patents in suit.

19 And, met with counsel for about an hour and a
20 half.

21 Q. Okay. Again, so we talked about,
22 you know, kind of coming off a procedure four

1 weeks ago.

2 Is there any reason why we can't
3 rely upon the testimony that you are going to
4 give today?

5 A. There is not.

6 Q. Okay. All right. Now, to save time
7 and make both of our jobs easier today, I am
8 primarily going to reference the '830 patent
9 today.

10 But, again, do you understand that
11 the quotes, insofar as we are referencing the
12 specification of the '830 patent, that also
13 applies to the record insofar as speaking of the
14 specification for the '337 patent?

15 A. Yes, I do.

16 Q. Okay. Do you understand that the
17 parties assert that certain claim elements are to
18 be interpreted under a means-plus-function
19 construction?

20 A. Yes, I understand.

21 Q. Okay. Now what is your
22 understanding of the standard for determining

1 whether certain terms --

2 What is your understanding of

3 whether a certain term is under a

4 means-plus-function construction?

5 A. Well, I mean, I understand that the

6 construction for these two patents has included

7 parts of the specification --

8 Q. Okay.

9 A. -- is my way of explaining it, I

10 suppose.

11 Q. And how do you go about determining

12 the means-plus-function construction in that

13 circumstance?

14 A. Well, I mean, as it was presented to

15 me and as written in my report, I could read off

16 what the construction is, if I can find it.

17 I, by the way, I have a clean paper

18 copy of my report, as well as the '337 and '830

19 patents.

20 Q. Okay.

21 A. Do you want me to go over the

22 construction?

1 Q. Yes, please.

2 A. Okay. So, for the '830 patent, that
3 is on Page 23 of my report.

4 Q. Okay.

5 A. And I mean, in terms of the driving
6 component, that is fairly straightforward in the
7 sense that that is the coil.

8 And then the control component for
9 '830, it has been construed that the, on top of
10 the claim language in Claim 1, that it requires
11 the steps shown in Figure 7A, 7B, and 7C --

12 Q. Okay.

13 A. -- not including step 734.

14 Q. And why not including step 734?

15 A. What I remember of step 734 is it is
16 not part of the default mode. And so, it would
17 not be part of the overall control system.

18 Q. So, you said it is not part of the
19 overall part of the default mode.

20 Can you further explain, please?

21 A. Well, if we go to the '830 patent.
22 So, step 734 -- okay. So, in step 732, it

1 determines whether it is in the default mode
2 where it is using continuous feedback.

3 Well, okay. So, I guess maybe I got
4 it wrong. In step 734, I thought it was not in
5 the default mode then. That was my memory.

6 But, it says, you know, more complex
7 operational modes may be represented in step 734.

8 Q. Okay.

9 A. Perhaps if we go to the figure it --
10 that is where I remember that from. Yeah, 734 is
11 shown as not in the default mode.

12 That is not part of the feedback
13 system. So, not part of -- I mean, to me not
14 part of the control loop.

15 Q. You know, help me understand that.
16 Because I --

17 A. Oh, okay -- I mean, do you want to
18 bring up Figure 7B of the '830 patent?

19 Q. Sure.

20 MR. ROZYLOWICZ: Yes, you can pull
21 that up.

22 BY MR. ROZYLOWICZ:

1 Q. But, before we turn to Figure 7B, I
2 guess my question is, default can mean a lot of
3 things in this context.

4 And so I'm really trying to
5 understand the context of the overall flow chart.

6 When you say it relates to -- let me
7 pull up here what you said there. It is not -- I
8 think your words are and I am looking at -- you
9 said, yeah, 734 is shown as not in the default
10 mode; that is not part of the feedback system.

11 So, when you say it is not shown in
12 default mode, how would you -- what is your
13 definition of that?

14 I will ask again, what is your
15 definition of default mode, when you say 734 is
16 not shown in default mode?

17 A. I am not using my definition. If
18 you -- I mean I can read through the patent and
19 where he describes what default and not default
20 mean.

21 So I suppose -- I mean do you want
22 to bring up the patent so we can both refer to

1 it? Or --

2 Q. Yes, if you can pull up 7B. I can
3 take a look at that as well.

4 A. I mean, are you introducing the
5 patent into evidence, so to speak, or something,
6 I mean, so we can both look at it at the same
7 time, or how are we doing this?

8 Q. Yes, we can pull up exhibit -- we
9 can look at Exhibit 1001, the '830 patent,
10 Figure 7B.

11 A. Okay. How are we doing that?

12 MR. ROZYLOWICZ: Let me pull it up.

13 Sangki, do you happen to have it,
14 Exhibit 1001 ready to go?

15 MR. PARK: Yes, I can drop that
16 exhibit on the chat box.

17 MR. ROZYLOWICZ: Thank you.

18 MR. PARK: It is in the box.

19 THE WITNESS: Okay.

20 (Whereupon, previously marked

21 Exhibit 1001,
22 first referral.)

1 BY MR. ROZYLOWICZ:

2 Q. Okay.

3 A. So, I'm sorry. I'm not -- I don't
4 remember what the pending question was.

5 (Whereupon, the record was reread by
6 the reporter as requested.)

7 THE WITNESS: Well, I mean, if you
8 look at the figure, step 732, if it is not in
9 default, it goes into box 734 that is not
10 part of the loop.

11 Q. Okay.

12 A. So, it is not using feedback any
13 more.

14 Q. Okay. Thank you.

15 Okay. So, turning then to
16 independent Claim 1 of the '830 patent, do you
17 have that in front of you? That is part of the
18 same exhibit.

19 A. Yes.

20 Q. Okay. And, you understand the scope
21 of the claims, correct?

22 A. I understand the claim elements,

1 yes.

2 Q. Okay. And as we have been talking
3 about, the claims recite this control component,
4 correct?

5 A. Yes.

6 Q. And you understand that the parties
7 construe the term "control component" under the
8 means-plus-function interpretation?

9 A. Yes. In the sense that I understand
10 it has been construed to include the steps shown
11 in Figures 7A, B, and C, other than Steps 734.

12 Q. Okay. And you understand that the
13 Board adopted the same construction adopted in
14 District Court in parallel litigation?

15 A. I believe that is true, yes.

16 Q. Okay. And then in your declaration
17 you appreciated that the Board summarized its
18 construction of the control component, right?

19 A. Yes.

20 Q. Okay. And you appreciated that the
21 Board requires its construction to include
22 algorithmic structure for computing an output

1 value corresponding to a user-selected amplitude
2 of oscillation and outputting the value to the
3 claim power supply so that the power supply
4 outputs an appropriate current to the coil,
5 correct?

6 A. Are you reading the construction?

7 Q. I am.

8 A. Okay. I mean, it is, it is like we
9 can go to construction, I mean just to confirm.
10 So, my understanding of the construction is in my
11 Paragraph 63.

12 Q. Uh-huh.

13 A. Well, inasmuch as the construction
14 is as shown in 7A through 7C. "In summary, the
15 corresponding structure of the control component
16 under a means-plus-function interpretation."

17 And I mean the part you read, I'm
18 not sure where you read that.

19 Q. Okay. That is from the District
20 Court claim construction. But, go ahead, if you
21 want to proceed with Paragraph 63, for example.
22 And, you know, I've got it pulled up as well.

1 If you can proceed.

2 So, Dr. Goossen, I presume that you
3 are looking at -- you have Paragraph 63 in front
4 of you right now as you were reading a portion of
5 it?

6 A. Yes.

7 Q. So, in your declaration you made
8 reference to two things that are required by the
9 algorithmic structure, right. So, there is --
10 you see Section 1, which is operating a timer.
11 Correct?

12 There is two, I guess
13 parentheticals, we will call them, for the
14 algorithmic structure?

15 A. Well, so, my understanding is that
16 the construction requires, in addition to the
17 language in the claim itself, a microcontroller,
18 a processor, a microprocessor, or a CPU that
19 performs the algorithm shown in Steps 706 through
20 716 in Figure 7A.

21 With reference to all of the steps
22 shown in Figure 7B other than step 734 --

1 Q. Okay.

2 A. -- and all of the steps shown in
3 Figure 7C.

4 So, that is what I understand the
5 construction to be.

6 Q. Thank you, Dr. Goossen. But let's
7 focus on Paragraph 63 of your declaration in
8 particular. Again, I want to call your attention
9 to two things that you identify in Paragraph 63.

10 So, you make reference to the
11 sentence that begins -- or I'm sorry, that speaks
12 to, "As corresponding structure further requires,
13 algorithmic structure for at least four. 1."
14 And then you included a -- and there is a, I
15 guess in parens, operating a timer. That makes
16 reference to a few different aspects.

17 And then there is a 2, closed
18 parens. And I would like to you read the part
19 that begins with the 2, closed parens, if you
20 can. It appears at the end of the paragraph.

21 A. "Computing an output value
22 corresponding to a user-selected amplitude of

1 oscillation and outputting the value to the
2 claimed power supply so that the power supply
3 outputs an appropriate current amplitude to the
4 coil."

5 Q. Okay. Thank you.

6 So, then, you know, I will call your
7 attention to Paragraph 67. Then you opine that
8 the corresponding structure of the control
9 component requires an algorithmic structure for
10 computing an output to the power supply and
11 providing that output to the power supply
12 corresponding to step 762 of Figure 7C into
13 step 762 as described in Column 8, Lines 26
14 through 30 of the '830 patent.

15 Correct?

16 A. Yes, the -- the claim
17 construction -- well, I mean the claim itself
18 recites a power supply receiving a -- controlling
19 the supply of power.

20 And the construction requires that
21 the -- there be a processor that send a signal P
22 to a power supply in order to have that function.

1 Q. Can I ask you to please, just to
2 make sure we are all on the same sentence, can I
3 ask you to please read the first sentence of
4 Paragraph 67 from your declaration, Goossen
5 Exhibit 2009.

6 (Whereupon, previously marked
7 Exhibit 2009,
8 first referral.)

9 THE WITNESS: "Under either
10 Petitioner's proposal or the Board's
11 preliminary construction, the corresponding
12 structure of the control component requires
13 algorithmic structure for computing an output
14 to the power supply and providing that output
15 to the power supply corresponding to 7 --
16 step 762 of Figure 7C."

17 Q. Okay. And can you please proceed to
18 read the rest of that sentence?

19 A. "And to step 762 described at
20 Column 8, 26 through 30 of the '830 patent."

21 Q. Okay. What is a power supply?

22 A. A power supply is a device that

1 supplies power to other parts of the system.

2 Q. Okay. Do you agree that a power
3 supply is an electrical -- I will word it a bit
4 differently.

5 Would you agree that a power supply
6 is an electrical device that functions to supply
7 electric power to an electric load?

8 A. Well, I mean, if we are talking
9 about the claimed power supply, it has further
10 condition that it has to be able to receive a
11 signal from a processor that governs how much
12 power it supplies.

13 Q. I understand your position for what
14 you think is required by the claim.

15 But, outside of --

16 A. I'm just reading what is required by
17 the claim. I'm not interpreting it any
18 differently.

19 Q. But in general, how would somebody
20 define a power supply?

21 A. That is not part of my analysis. My
22 analysis is for what the claimed power supply is.

1 MR. ROZYLOWICZ: Okay. I would like
2 to introduce Exhibit 1050 into the chat box.
3 Give me one second.

4 (Whereupon, previously marked
5 Exhibit 1050,
6 first referral.)

7 BY MR. ROZYLOWICZ:

8 Q. Please let me know when you receive
9 that and have it pulled up.

10 A. Yes. I have it.

11 Q. Can I ask you to please read the
12 first sentence appearing on this page.

13 A. The first sentence in this Wikipedia
14 article?

15 Q. Yes, please.

16 A. The Wikipedia article, first line,
17 "A power supply is an electrical device that
18 supplies an electric -- supplies electric power
19 to an electrical load."

20 Q. Okay. Is there anything more -- any
21 reason you disagree with that first sentence, the
22 definition of a power supply?

1 A. Well, again, I mean this isn't the
2 claimed power supply. It doesn't have all of the
3 requirements of the claimed power supply.

4 Q. Understood. But is there anything
5 that, where you would disagree with the
6 definition of the power supply as defined in the
7 Exhibit 1050?

8 A. No, that is not part of my analysis
9 here.

10 Q. What --
11 Would a POSITA agree with this
12 definition of a power supply as it appears in
13 Exhibit 1050?

14 A. That is not part of my analysis
15 here.

16 Q. Okay. Is there any reason to
17 believe that a POSITA would accept this
18 definition appearing on Wikipedia?

19 A. Again, my analysis is confined to
20 the power supply as meeting the claim limitation.

21 MR. ROZYLWICZ: Okay. I would like
22 to -- I will be sending -- I'm sorry.

1 I will be introducing another
2 exhibit into the chat window. The
3 Exhibit 1051, a Comprehensive Dictionary of
4 Electrical Engineering.

5 (Whereupon, previously marked
6 Exhibit 1051,
7 first referral.)

8 BY MR. ROZYLOWICZ:

9 Q. Please let me know when you have
10 been able to pull it up.

11 A. Okay, I have it.

12 Q. Again, if you could please read the
13 title as you see on Page 1 of Exhibit 1051.

14 A. Okay. So this is titled the Second
15 Edition of the Comprehensive Dictionary of
16 Electrical Engineering.

17 Q. Okay.

18 A. And, in that dictionary, power
19 supply, it says, "An electronic module that
20 converts power from some power source to a form
21 which is needed by the equipment to which the
22 power is being supplied."

1 Q. Okay. To be clear, what page are
2 you reading from now? I asked you to speak to
3 Page 1, but since you --

4 A. Oh, I'm sorry. I thought you said
5 as to the -- what else do you want me to read?

6 Q. Let's just stop with Page 1 of what
7 you see here.

8 So, is there any reason to believe
9 that a POSITA would not rely upon the
10 Comprehensive Dictionary of Electrical
11 Engineering?

12 A. Well, that depends I mean upon what
13 the requirements of it, of the engineer's design
14 were.

15 Q. Is this something --

16 A. It is to be -- I mean, for a
17 particular design, this could be incomplete.

18 Q. And why would it be incomplete?

19 A. I'm just saying it might be.

20 Q. Is there any reason to believe that
21 it might be incomplete?

22 A. Well, it is a dictionary of terms.

1 And so, it is not describing detailed design or
2 anything that might be required in a actual
3 circuit design.

4 Q. But would you turn to a
5 comprehensive dictionary for a detailed design?

6 A. I never have.

7 Q. Okay. When would you turn to a
8 comprehensive dictionary -- when -- let me
9 clarify. I will withdraw that question.

10 When would a POSITA turn to a
11 Comprehensive Dictionary of Electrical
12 Engineering?

13 A. I honestly have no idea.

14 Q. You have no idea when a POSITA would
15 turn to a Comprehensive Dictionary of Electrical
16 Engineering?

17 A. Well, no. A POSITA would refer to,
18 you know, engineering textbooks, technical
19 documents, you know.

20 I'm actually not sure -- I mean in
21 my own career I have never used one in aiding me
22 in performing any sort of device design or

1 anything like that.

2 So, I don't know why a POSITA would
3 use this.

4 Q. Okay.

5 A. I mean I'm just being honest. I
6 mean, I -- you know, if I were -- you know, if I
7 were tasked with designing some circuit to
8 perform some function, I can't think that I would
9 ever go to a dictionary to figure out how to do
10 it.

11 Q. Would you agree that a dictionary
12 provides a definition of a term that is commonly
13 understood in the relevant industry?

14 A. It might. I mean, I have no
15 experience to support that statement.

16 Q. But, I mean we have dictionaries, so
17 there is a market for dictionary.

18 Do you think people commonly turn to
19 dictionaries to understand terms in the relevant
20 industry?

21 A. There, I mean, I -- again, I can't
22 think of any time I have referred to a dictionary

Page 30

1 in order to understand part of a design I was
2 working on.

3 Q. Okay. Is there any reason to
4 believe that a dictionary in general would be
5 inaccurate?

6 A. I don't know.

7 Q. Okay. Thank you.

8 I will call your attention to
9 Page 3, please.

10 So, at the top of the page, there is
11 a -- in the second dictionary entry, there is a
12 term that appears called power supply.

13 Do you see that?

14 A. Yes.

15 Q. Would you please read the
16 dictionary -- this dictionary definition of a
17 power supply?

18 A. So, what this dictionary has listed
19 under the heading "power supply" is, "An
20 electronic module that converts power from some
21 power source to a form which is needed by the
22 equipment to which power is being supplied."

1 Q. Would you disagree with this
2 definition of a power supply?

3 A. In certain circumstances, yes, for
4 sure. And particularly with regard to the
5 claimed power supply. It is incomplete.

6 Q. Okay. But, for other circumstances
7 you would agree that this is a accurate
8 definition of a power supply?

9 A. I would have to be shown, you know,
10 the particular circumstance and whether this
11 statement encompasses all of the requirements of
12 a power supply in a particular design.

13 Q. Is this a good dictionary definition
14 of a power supply?

15 A. Actually in reading it, it is sort
16 of odd. I mean, it is extraordinarily general.
17 "Converting power from some power source to a
18 form which is needed by the equipment to which
19 the power is being supplied."

20 That is extraordinarily general and
21 doesn't provide really very much information.

22 Q. All right. Thank you, Dr. Goossen.

1 MR. ROZYLOWICZ: If we can -- I will
2 introduce another exhibit. I will be
3 introducing Exhibit 1052, which is the -- I
4 will send it to you momentarily.

5 (Whereupon, previously marked
6 Exhibit 1052,
7 first referral.)

8 THE WITNESS: Can I ask a question
9 here regarding this line of questioning?

10 BY MR. ROZYLOWICZ:

11 Q. Sure thing.

12 A. It seems to me that you are asking
13 me to perform claim construction by using
14 different documents to redefine what is meant by
15 the term "power supply" in the claim here.

16 And I am fairly certain I am not
17 supposed to do that. And, in fact, I am fairly
18 certain neither of us are supposed to do that.

19 Q. Dr. Goossen, is there a question you
20 have?

21 A. Are we performing claim
22 construction; is that the objective here?

1 Q. Dr. Goossen, we are simply walking
2 through definitions of the term "power supply" as
3 it exists in different referenced materials that
4 are contemporaneous with the filing of this --
5 with the filing of this patent application and
6 asking if there is any reason why you would
7 disagree with the terms as they are defined in
8 these different sources.

9 A. The reason I am uncomfortable is
10 that I'm not supposed to be performing claim
11 construction.

12 And so as long as our discussion
13 does not have anything to do with the claim power
14 supply, as long as we can take that as a
15 boundary, I am willing to answer your questions
16 about these dictionaries and Wikipedia articles
17 on power supply.

18 But, only with the proviso that it
19 has nothing to do with the claimed power supply,
20 because otherwise we are performing claim
21 construction.

22 Q. Okay. Dr. Goossen, in your

1 deposition you weighed in on the perspective of a
2 POSITA, correct?

3 A. Can you -- I mean, refer me to
4 exactly what I said.

5 Q. Certainly. So, Dr. Goossen, if I
6 can call your attention to -- speaking to, I
7 think it is exhibit, to be clear, Exhibit 2009.
8 This is your declaration, correct?

9 A. I guess so, yes. Yeah, right, yes,
10 it is.

11 Q. Okay. No magic in it. I'm just
12 trying to make sure we are looking at the same
13 reference document.

14 A. My report, yes.

15 Q. Can you please turn to Paragraph 15.

16 A. Yes.

17 Q. Can you please read the first line
18 as it appears in Paragraph 15 -- actually, the --
19 first, please read the first two lines if you
20 can.

21 A. "It is my opinion that a POSITA at
22 the time of the invention would have had, one, a

1 bachelor's degree in electrical engineering,
2 mechanical engineering, or a comparable field of
3 study."

4 Q. Okay.

5 A. "And, two, at least two years'
6 professional experience with electromechanical
7 control systems or other similarly relevant
8 industry experience."

9 Q. Okay.

10 A. The next line, too?

11 Q. No, thank you. We will stop there.

12 So, Dr. Goossen, can we agree that
13 you are weighing in on what a POSITA would
14 consider at the time of the invention?

15 A. No. I'm saying what would qualify
16 someone to be a POSITA.

17 Q. I understand that one in the
18 sentence. But you are sharing your perspective
19 on what a POSITA would think at the time of the
20 invention.

21 A. And -- no, I'm just saying what
22 would qualify someone to be a POSITA.

1 Q. Okay. Well --

2 A. What the minimum qualifications
3 would be.

4 Q. But, okay. I understand. But
5 Dr. Goossen, who would think --

6 Who was thinking that these would be
7 the minimum qualifications?

8 A. This is my definition.

9 Q. Okay. But is it -- is that -- but,
10 it is your definition --

11 Is that your definition today for
12 what a level of ordinary skill in the art would
13 consider?

14 A. This is my -- my statement of what I
15 feel a POSITA -- my opinion of what a POSITA
16 would have to possess in terms of training and
17 experience.

18 Q. So, at the time of the filing, it is
19 not what you -- it is not your background. It is
20 who would have considered this in the field of
21 the invention at the time of filing?

22 A. Well, no. I mean, I am a POSITA. I

1 fulfilled these qualifications at the time of the
2 filing.

3 Q. Dr. Goossen, what is your definition
4 of a POSITA?

5 A. What I just read there. My
6 opinion -- I mean do you want me to re-read it?

7 Q. Sure.

8 A. "It is my opinion that a POSITA at
9 the time of the invention would have had, one, a
10 bachelor's degree in electrical engineering,
11 mechanical engineering, or a comparable field of
12 study.

13 "And, two, at least two years'
14 professional experience with electromechanical
15 control systems or other similarly relevant
16 industry experience."

17 Q. Okay. Can you please read the last
18 sentence -- at least the beginning of the last
19 sentence?

20 A. Of Paragraph 15?

21 Q. Of Paragraph 15, thank you.

22 A. "I also understand the capabilities

1 of a POSITA at the relevant time because I was
2 working with and providing technical direction to
3 others with similar levels of training and
4 experience during that period."

5 Q. Okay. Is there a reason to
6 believe --

7 So, relating what you have said in
8 Paragraph 15 to the definitions we have seen on
9 Wikipedia and then the other, Exhibit 1052, is
10 there a reason to believe that a POSITA would,
11 with these capabilities, would not consider these
12 sources?

13 A. I haven't formed any such opinion.

14 Q. Okay. Dr. Goossen. If you can
15 please turn to Paragraph 32, please.

16 A. Of my report?

17 Q. Of your report, please. Can you
18 please read the first and second sentences.

19 A. "I understand that there is a heavy
20 presumption that claim terms carry their full
21 ordinary and customary meaning unless the accused
22 infringer can show that the patent be expressly

1 relinquished claim scope.

2 "The ordinary and customary meaning
3 of a claim term is a meaning that the claim term
4 would have to a POSITA at the time of the
5 invention."

6 Q. So, the terms that appeared in
7 Exhibits 1051 and 1052, is there a reason to
8 believe that a POSITA would not consider these
9 definitions to be within the ordinary and
10 customary meaning of the claim term?

11 A. Yes. Inasmuch as the claim term has
12 other construed requirements. Otherwise the
13 POSITA would be performing claim construction
14 which they can't do.

15 Q. Can you please turn to Paragraph 79
16 of your declaration.

17 A. Yes.

18 Q. Can you please read the last
19 sentence of Paragraph 79.

20 A. Okay. Paragraph 79, by the way, is
21 regarding the '767 patent.

22 But, the last sentence of

1 Paragraph 79 says, "Even if they were considered
2 to be analogous art, the differences between them
3 mean that a POSITA would not be motivated to
4 combine them as proposed by the petition."

5 Q. Okay. So, while we are speaking
6 here in particular to the '767 patent, insofar as
7 you are considering obvious combinations, do you
8 agree that you are weighing in on the perspective
9 of what a POSITA would consider and think?

10 A. What I am saying is, I mean in this
11 section, is that because of the differences in
12 the art, a POSITA would not be motivated to
13 combine Shahoian with Cosper. And I give my
14 reasons there.

15 Q. Would you agree that you are
16 weighing in on the perspective of what a POSITA
17 would think?

18 A. I am not saying anything about what
19 a POSITA may or may not think.

20 I'm saying a POSITA would not be
21 motivated to combine these two references.

22 MR. ROZYLOWICZ: I will be

1 introducing Exhibit 1053. It now appears in
2 the chat window. Please let me know when you
3 have been able to pull it up.

4 (Whereupon, previously marked
5 Exhibit 1053,
6 first referral.)

7 THE WITNESS: Yes.

8 BY MR. ROZYLOWICZ:

9 Q. Can you please read the title
10 appearing on Page 1?

11 A. It says Dictionary of Science and
12 Technology.

13 Q. I'm sorry, the connection was a
14 little bit garbled. Can you kindly read that
15 again, please?

16 A. Dictionary of Science and
17 Technology.

18 Q. Okay. Do you have any reason to
19 believe that a POSITA would not consider a
20 Dictionary of Science and Technology?

21 A. As a POSITA in this case, I have no
22 idea if they would even look at this. I have no

1 reason to believe they would.

2 Q. Is there any reason to believe that
3 they would not consider this?

4 A. I have no -- I have not formed an
5 opinion about whether a POSITA would use a
6 dictionary to design anything in this case.

7 Q. Is there anything in the record that
8 suggests that a POSITA would not consider
9 Exhibit 1053 as a dictionary?

10 A. Well, it says dictionary, so it is
11 claiming to be a dictionary.

12 Q. Is there anything in the record that
13 suggests that Exhibit 1053 could not be relied
14 upon for the definition of a power supply?

15 A. Well, certainly, because this
16 dictionary would have no idea what the
17 construction of the claim terms would be.

18 Q. Dr. Goossen, let's take away the
19 particular claim terms.

20 Is there any reason to believe that
21 a POSITA would not consider the definition of
22 supply in Exhibit 1053 to be something that can

1 be relied upon?

2 A. Yes. Absolutely. Because the --
3 they wouldn't go to a dictionary to understand
4 what a claim term means in this case, because the
5 claim terms have both requirements within the
6 claim as well as constructions required by the
7 court.

8 And so, you know -- again, you know,
9 to me you are asking me to perform, I mean an
10 activity I'm not supposed to perform which is
11 claim construction.

12 Q. Dr. Goossen, is there a reason that
13 a POSITA would not consider this dictionary?

14 A. For what?

15 Q. Is there --

16 Dr. Goossen, is there a reason to
17 believe that a POSITA --

18 Is there anything in the record that
19 suggests that this dictionary, Exhibit 1053,
20 could not be relied upon?

21 A. And I guess, I have to ask you to
22 qualify that statement.

1 What would a POSITA be referring to
2 this document for?

3 Q. Dr. Goossen, let's turn to Page 3 of
4 this exhibit, please.

5 A. Of the dictionary here?

6 Q. Of Exhibit 1053.

7 A. Okay.

8 Q. Can you please read the --

9 Do you see the term that appears
10 "power supply"?

11 A. Yes.

12 Q. Can you please read the definition
13 of the power supply appearing here?

14 A. As written in this dictionary, under
15 the heading "power supply", it says "An
16 electrical circuit that provides certain direct
17 current voltage and current levels from an
18 alternating current source for use in other
19 electrical circuits."

20 Q. Okay. Can you continue to read the
21 next sentence, please?

22 A. And then it has in italics, "If the

1 power supply from the amplifier to the gauge
2 fails, the needle slowly falls to zero."

3 Q. Okay.

4 A. I don't -- I guess it is using the
5 term in the sentence.

6 Q. I think so. Is there anything that
7 leads you to believe that this definition of a
8 power supply is inaccurate?

9 A. Well, I mean even, even outside the
10 bounds of the requirement for the patents, it is
11 inaccurate.

12 Q. In what sense is it inaccurate?

13 A. Well, you can have power supplies
14 that provide alternating current, generally.

15 Q. But does this definition account for
16 an alternating current source?

17 A. The words say that. I mean, again,
18 this is some sort of dictionary term that does
19 not supply a definition for the claim term.

20 Q. Dr. Goossen, is there any reason to
21 believe that the power supply cannot be -- that
22 this definition of a power supply cannot be

1 relied upon in a dictionary?

2 A. Yes. Because, if the POSITA in this
3 case tried to use this dictionary to define the
4 claim term, they would be ignoring both the
5 requirements of the claim itself and the
6 construction.

7 And, again, I don't like -- you
8 know, I mean I'm very hesitant in this line of
9 questioning because I am not supposed to be
10 performing claim construction.

11 Q. Okay. Dr. Goossen, how many
12 dictionaries have we looked at so far in the
13 past, I don't know, 30 minutes or so?

14 A. Well, there was a Wikipedia article
15 and there is two dictionaries up on my screen.

16 Q. Okay. So, that is, could we agree
17 that we have looked through three definitions of
18 power supply?

19 A. We have looked at a Wikipedia
20 article and two dictionaries that had the term
21 "power supply" in them.

22 Q. Okay. So, we are talking about

1 three exhibits in the record, correct?

2 A. That we have referred to, yes. You
3 also introduced another one that we didn't refer
4 to.

5 Q. Okay. Do you only use dictionaries
6 to look at one patent?

7 A. I'm sorry?

8 Q. Do you only use --

9 Would you only use Exhibit 1053 to
10 look at one patent?

11 MR. DAVIS: Objection, form.

12 THE WITNESS: I -- I don't
13 understand the question. Would I use a
14 dictionary for a patent? I'm -- I guess the
15 answer is generally, no.

16 In the sense that, to understand a
17 claim term, a dictionary would be
18 insufficient, generally.

19 BY MR. ROZYLOWICZ:

20 Q. Dr. Goossen, would you use
21 Exhibit 1053 as a dictionary in other contexts?

22 A. I can't think of one where I have

1 used such a dictionary.

2 Q. Dr. Goossen, does anyone use a
3 dictionary?

4 A. Well, I'm saying in the performance
5 of my job as a professor and scientist, working
6 in the laboratory, working on designs, I have
7 never used a dictionary to help me do engineering
8 work.

9 Q. Dr. Goossen, why do we produce
10 technical dictionaries?

11 A. I don't know, to tell you the truth.
12 I mean, in teaching courses, I have never used a
13 dictionary to, you know, teach a student what
14 things are.

15 So, I mean, inasmuch as my career as
16 a professor and a scientist, I have -- or a
17 teacher, I have never used one.

18 Q. Dr. Goossen, would you agree that at
19 least there is -- somebody perceived a commercial
20 need for dictionaries?

21 A. Well, I mean certainly, in the
22 English language, generally people use

1 dictionaries.

2 Q. But would you agree that somebody
3 saw fit as a business or educational need to
4 produce a technical dictionary?

5 A. Well, I guess we are looking at
6 examples of them.

7 I am just saying from my experience,
8 I, in teaching how something works or in, you
9 know, asking my grad students to design something
10 or design something myself, I have never referred
11 to a dictionary in order to help with any
12 engineering or design work.

13 I am just telling you the truth. I
14 never have.

15 Q. Okay.

16 A. It seems very odd to me. I mean,
17 you know, I would never -- for example, yesterday
18 I was teaching a class how MOSFETs work. And, it
19 seems, you know, kind of silly. I would never
20 tell the students, go look at a dictionary.

21 Q. Okay. Do you have reason to doubt
22 this dictionary definition of a power supply

1 appearing in Exhibit 1053?

2 A. Well, I have said so for two
3 reasons. I mean, one, for the claimed power
4 supply, it is insufficient. Also, even outside
5 the requirements of the patents, it is sort of
6 incomplete.

7 Q. Do you have any reason to doubt that
8 definition of the power supply as it exists in
9 Exhibit 1052?

10 A. I don't think we have looked at
11 1052.

12 Q. Let's turn to 1052.

13 A. Yes, I just -- I never downloaded
14 it.

15 Q. If you can kindly --

16 A. Okay.

17 Q. -- reference it again.

18 A. All right. I have it up.

19 Q. Okay. Can you read the title page,
20 please?

21 A. It says Lotus Illustrated Dictionary
22 of Electrical Engineering, and then it says

1 withdrawn. I don't know what that means. And it
2 has a photo of a man in some sort of hazard suit,
3 it looks like?

4 Q. Can you turn to Page 3, please.

5 A. Okay.

6 Q. Can you please read the definition
7 of the term "power supply"?

8 A. This, I think it is a dictionary,
9 yes. This dictionary under the heading "power
10 supply". It says, "a separate unit or part of a
11 circuit that supplies power to the rest of the
12 circuit or to a system."

13 Q. Do you have reason to doubt this
14 definition of a power supply appearing in
15 Exhibit 1052?

16 A. I mean, again, it is incomplete in
17 terms of describing the claim term, because it
18 doesn't take into account the claim language or
19 the court's construction.

20 Q. Okay. Independent of the '830
21 patent, do you have reason to doubt this
22 definition of a power supply?

1 A. Well, the same thing applies to the
2 other patents in suit. There are claim
3 requirements that aren't shown here.

4 Q. So, should a dictionary definition
5 include the requirements of the '830 patent?

6 A. Well, I don't know why a dictionary
7 would be written for these terms. And, what I am
8 saying is that for understanding the claim terms,
9 you have to take into account the claim language
10 and the court's construction.

11 Q. Or a dictionary? In other words,
12 Dr. Goossen --

13 A. A dictionary wouldn't do that.

14 Q. Dr. Goossen, if you were writing a
15 dictionary of Goossen's Dictionary of Electrical
16 Engineering Terms, is this definition of a power
17 supply something that you would include in your
18 dictionary?

19 A. I have never been asked to write a
20 dictionary and I have no -- I have not formed any
21 such analysis here.

22 Q. Okay. Thank you, Dr. Goossen.

1 If we can please turn to
2 Exhibit 1004, which is Gregorio. Please let me
3 know when you pull that up.

4 (Whereupon, previously marked
5 Exhibit 1004,
6 first referral.)

7 THE WITNESS: I don't have a paper
8 copy. Can you provide it on the screen for
9 me?

10 MR. ROZYLOWICZ: Absolutely. Bear
11 with me. I will drop that into the chat.
12 Bear with me one second.

13 BY MR. ROZYLOWICZ:

14 Q. Please let me know when you've had
15 that pulled up.

16 A. Yes, I have it.

17 Q. Okay. So, again, turning to
18 Figure 1 within Gregorio, please.

19 A. Yes.

20 Q. Okay. Do you agree that Gregorio,
21 as shown here, describes a handheld device as an
22 example of a haptically enabled system?

1 A. Well, what is shown appears to be a
2 handheld device in the figure.

3 Q. Dr. Gregorio [sic], is that is a
4 yes, you agree that this is an example of a
5 handheld device with a haptically enabled system
6 10?

7 A. Well, I mean, I am saying in the
8 figure, it appears to be a handheld device, yes.

9 Q. Okay. Dr. Gregorio, if I can call
10 your attention to Column 3, Lines 1 through 11.

11 A. Yes.

12 Q. If I can please ask you to read the
13 first sentence.

14 A. Sure. "System 10 may be a handheld
15 device such as a cellular telephone, PDA,
16 computer tablet, et cetera, or may be any other
17 type of device that provides a user interface and
18 includes a haptic effect system that includes one
19 or more LRAs."

20 Q. So, Dr. Goossen, would you agree
21 that system 10 could include a handheld device?

22 A. Yes.

1 Q. Would you agree that the '830 patent
2 describes a handheld device like a cellular
3 phone, a PDA, a computer tablet, a table, as
4 examples of a haptic system 10?

5 A. The '830 patent?

6 Q. Yes.

7 A. Well, it -- yes, I mean, the '830
8 patent refers to a handheld device.

9 Q. And this can include a -- again,
10 this could include a cellular phone?

11 A. A cellular phone is an example of a
12 handheld device, yes.

13 Q. A PDA?

14 A. It has been a while. But, I think,
15 yes.

16 Q. A computer tablet?

17 A. Sure.

18 Q. Okay. So let's turn back to
19 Figure 1 of Gregorio, please.

20 Do you have a look at Figure 1 now?

21 A. Yes, I am at Figure 1.

22 Q. Do you see that system 10 includes

1 processor 12?

2 A. Yes.

3 Q. Do you see that it includes a memory

4 20?

5 A. Yes, it is written with memory, yes.

6 Q. Okay. Do you see that it includes a

7 actuator drive circuit 16?

8 A. Yes.

9 Q. Do you see that it includes a LRA

10 18?

11 A. Yes. I mean, I'm just referring to
12 the numbers in the, what is written in the figure
13 here, yes.

14 Q. Okay. Do you see that processor 12
15 is connected to memory 20 at one side and
16 connected to a actuator drive circuit 16 at
17 another side?

18 A. Yes.

19 Q. Okay. Do you see that the actuator
20 drive circuit is coupled to the LRA 18?

21 A. Well, sort of in a, kind of an odd
22 fashion, it is indicating that.

1 Q. Okay. Would you agree that there
2 is, as you referred to in an odd fashion, do you
3 agree that that is coupled to the LRA 18?

4 A. Well, I mean, I would have to, you
5 know, read the text. You know, these little sort
6 of wavy annotations, it sort of, you know, it --
7 the figure doesn't sort of -- it is not clear
8 what is going on.

9 Q. Okay. Dr. Gregorio, let's go to
10 Column 2 of Gregorio, Lines 18 through 20.

11 A. Yes.

12 Q. If you can please read that first
13 sentence?

14 A. "The haptic feedback system includes
15 a processor 12. Coupled to the processor 12 is a
16 memory 20 and actuator drive circuit 16, which is
17 coupled to an LRA actuator 18."

18 Q. Okay. Do you agree that the
19 actuator drive circuit is coupled to the LRA
20 actuator 18?

21 A. Yes, that is what this says here.

22 Q. Okay. Do you agree that --

1 So, I will call your attention to
2 Figure 1, please.

3 A. Okay, yes.

4 Q. Do you agree that Figure 1 shows no
5 connection among the processor 12, memory 20,
6 actuator drive circuit 16 and LRA 18, other than
7 the one between the processor 12 and memory 20,
8 the one between the processor 12 and the actuator
9 drive circuit 16, and the one between the
10 actuator drive circuit 16 and the LRA 18?

11 A. Are you asking what line segments
12 the figure has between the different elements?

13 Q. I'm saying, are there any other
14 connections beyond those shown here in Figure 1?

15 A. Well, Figure 1 is a schematic. And
16 it is indicating, it is indicating connections by
17 straight lines.

18 But, but you would have to refer to
19 the text to get more detail about what actually
20 is happening.

21 Q. Does Figure 1 suggest any other
22 connections beyond those shown in -- between the

1 systems and the block diagrams shown in Figure 1?

2 A. None that I can -- I mean the figure
3 itself is, like I say, incomplete.

4 So, I can't determine any further
5 details than are presented here in the figure.

6 Q. Dr. Goossen, are there any further
7 details presented in the figure here in Figure 1?

8 A. Only what is shown.

9 Q. Okay. And what are those
10 connections shown in Figure 1?

11 A. Well, I mean again, it is -- I mean,
12 these straight lines between the processor and
13 the block to the right and from the processor to
14 the drive circuit, one would gather that there is
15 some sort of communication taking place between
16 them based on that straight line.

17 Q. And that communication, that is --
18 is that -- that's through the processor that is
19 shown here in Figure 1, correct?

20 A. Well, it is just indicating, I mean
21 there is a straight line there.

22 In terms of the detail that is

1 happening, this figure is insufficient.

2 Q. Insofar as we are looking at
3 Figure 1, is there any -- would you agree that
4 the connection between the memory and the LRA
5 drive resonant frequency determination goes
6 through the processor?

7 A. I would have to -- I mean, it may or
8 may not be indicating that. I would prefer to go
9 to the text to get details to what is happening.

10 Q. Dr. Goossen, what does Figure 1 show
11 us?

12 A. It shows a high level schematic of
13 the -- of one of the embodiments of the Gregorio
14 patent.

15 Q. Okay. Can we say that the processor
16 is centrally located for the connections between
17 the memory 20 and the actuator drive circuit 16?

18 A. It is drawn that way.

19 Q. Is that a yes?

20 A. I mean, I'm just saying it is drawn
21 that way. It is a high-level schematic. So, in
22 terms of what actually is happening, you have to

1 read the text.

2 Q. Dr. Goossen, in Figure 1, other than
3 the actuator drive circuit 16, does Figure 1 show
4 any other component coupled to the LRA?

5 A. Well, I mean, there is no other
6 component besides the drive circuit that is
7 indicated, associated or having some type of
8 connection with the LRA.

9 In a sense, it doesn't even show
10 that. I mean, the box actuator drive circuit has
11 kind of a, an arrow on one -- or I don't know
12 what -- it is like a, like the rectangle is drawn
13 with a pointy side that is indicating that there
14 is something happening between it and the LRA.

15 Q. Okay. Dr. Goossen, what is LRA 18?

16 A. Linear resonant actuator.

17 Q. And how would you define -- how
18 would you define that?

19 A. Well, generally a linear resonant
20 actuator is a device in which a mass moves up and
21 down, I mean, in a linear fashion.

22 Q. Okay. Dr. Gregorio, can you please

1 go to Column 1, Line 28, please.

2 A. Of the Gregorio patent?

3 Q. Of the Gregorio patent, thank you.

4 Exhibit 1004.

5 A. Yes.

6 Q. Can I ask you to --

7 There is a second sentence there.

8 Can I ask you to please read the second sentence

9 there?

10 A. Which one? Do you mean "of these
11 actuators"?

12 Q. Yes. "Known actuators used for this
13 purpose."

14 A. Oh, oh, going up further.

15 "Known actuators used for this
16 purpose include an electromagnetic actuator such
17 as an eccentric rotating mass, ERM, and which an
18 eccentric mass is moved by a motor.

19 "A linear resonant actuator, LRA, in
20 which the mass attached to a spring is driven
21 back and forth."

22 Q. Okay.

1 A. Do you want the rest, too?

2 Q. I think that suffices for our
3 purposes.

4 A. Okay, yeah.

5 Q. How does a LRA work?

6 A. Well, generally in the case here, an
7 LRA has a coil that produces a magnetic field
8 that imparts a force on the mass so that it
9 moves.

10 Here it says back and forth, up and
11 down, but in a linear fashion.

12 Q. Would you agree that a LRA requires
13 power to operate?

14 A. Well, it requires current.

15 Q. Does it require power?

16 A. Yes, it requires power.

17 Q. Would you agree that, in our
18 discussion of Figure 1, you agree that the
19 actuator drive circuit is connected to the LRA
20 18, and that Figure 1 shows no other components
21 connected to the LRA in Figure 1 of Gregorio,
22 correct?

1 A. Gregorio is actually very
2 nondescriptive in terms of how the LRA is driven.

3 Q. Let's turn to Figure 1 again.

4 So, you agree that, you know, for
5 our conversation, do you agree that the actuator
6 drive circuit 16 is coupled to the LRA 18?

7 A. Well, that is why he is saying, he
8 is very -- I mean, it is not even kind of shown.
9 I mean, it is just shown that the drive circuit
10 kind of points in the direction of the LRA.

11 Q. Okay.

12 A. He is very, very nondescriptive in
13 terms of how the drive circuit actually causes
14 the mass in the LRA to move.

15 Q. Okay. Dr. Goossen, let's go back to
16 Gregorio Column 2, Line 18.

17 A. Yes.

18 Q. Can you read the sentence, at the
19 last part of that sentence -- actually, just read
20 the second sentence. The sentence that
21 begins "coupled".

22 A. Well, I mean, I know what you are --

1 okay.

2 "In an actuator drive circuit 16,
3 which is coupled to an LRA actuator 18."

4 Q. So, as described here, we can agree
5 that the actuator drive circuit is coupled to the
6 LRA actuator 18, correct?

7 A. What I am saying is that when he
8 uses the term "coupled" -- you know, when I read
9 through the patent I was trying to understand how
10 it is coupled, you know, what actually happens.

11 And it is somewhat nondescriptive.
12 It -- he doesn't really describe how it works.

13 Q. Okay. Would you agree that --

14 A. So, it is -- I'm sorry, I didn't
15 mean to --

16 Q. Proceed, please.

17 A. So, I mean, you know, I mean, both
18 in the figure and in that sentence, I mean the
19 word "couple", it is like, you know, I was like
20 well, what do you mean? I mean, and it is sort
21 of non -- not very descriptive.

22 Q. But, in figure -- I'm sorry.

1 In the discussion in Column 2 here,
2 the actuator drive circuit is coupled to LRA
3 actuator 18, correct?

4 A. He uses the word "coupled". I am
5 saying, you know, I read further and I wasn't
6 sure what exactly he meant in this column here by
7 coupled, you know, what exact -- what the actual
8 circuit was is not described.

9 Q. Would you agree that the actuator
10 drive circuit 16 is coupled to the LRA actuator
11 18 as described -- as set forth in Gregorio
12 Column 2, Lines 18 through 20.

13 A. I am not trying to be difficult. I
14 am saying he says it is coupled.

15 And, I am saying I was -- I couldn't
16 find the circuit, you know, what exactly is
17 happening.

18 Q. Would you agree that this disclosure
19 here corresponds to what is shown in Figure 1?

20 A. Well, he is referring to Figure 1.

21 Q. So, in Figure 1, would you agree
22 that the actuator drive circuit is coupled to the

1 LRA 18, as shown in Figure 1?

2 A. Well, yeah, that is what's funny,
3 because I mean in Figure 1, he doesn't show any
4 circuit components.

5 And, between Box 16, you know, which
6 he labels actuator drive circuit and circle 18,
7 which he labels LRA which I, you know, assume
8 means linear resonant actuator.

9 I remember when I first looked at
10 that, I was like, what is going on.

11 I mean, there is no -- it is not
12 like a circuit diagram. I don't know what he
13 means by coupled. Maybe he means it is
14 mechanically coupled.

15 I mean, there is these funny, you
16 know, zigzag lines. I don't know what they mean
17 in terms of the operation of the device.

18 You know, there is no circuit. So,
19 coupled could mean, I mean in that sentence,
20 mechanically coupled, somehow. I don't know.

21 Q. Okay. Dr. Goossen, as shown in
22 Figure 1, is anything else identified as being

1 coupled to the LRA 18?

2 A. Well, I mean like I am saying, it is
3 not clear what are -- what is even meant by the
4 word "coupled". There is no circuit diagram.

5 Q. Dr. Goossen, is anything else shown
6 as being -- as illustrated as being coupled to
7 the LRA 18?

8 A. In the sense of the word "coupled"
9 as described by the word coupled as indicated by
10 these jagged lines between 16 and 18 -- well, no.
11 Okay.

12 But, I mean, I don't even know what
13 he means by coupled here. I don't know what is
14 meant by these -- these zigzag lines.

15 So, it is very difficult to
16 interpret anything from this figure.

17 Q. Dr. Goossen, is there a line showing
18 any degree of coupling directly between the
19 memory 20 and the LRA 18?

20 A. There is no line between the LRA and
21 anything.

22 Q. Dr. Goossen, is there a line between

1 the memory 20 and the LRA 18?

2 A. And what I am saying is that, I
3 mean, he intended somehow the LRA to operate,
4 right.

5 But, he doesn't have any line drawn
6 to it or any indication of how anything in the
7 system would cause the mass to move.

8 And so, there is no line drawn
9 between the LRA in any of the elements. So, I am
10 presuming, you know, that it means there is lines
11 missing.

12 Q. Dr. Goossen, is there a line between
13 the memory 20 and the LRA 18?

14 A. There is no drawn line.

15 Q. Is there a line drawn between the
16 memory 20 and the processor 12?

17 A. There is a drawn line there.

18 Q. Is there a line between the
19 processor 12 and the actuator drive circuit 16?

20 A. There is a line drawn in the figure.

21 Q. Is there a collection of jagged V/Ws
22 between the actuator drive circuit 16 and the

1 LRA 18?

2 A. There is these jagged lines, and I
3 don't know what they mean.

4 Q. Okay. Would a POSITA conclude that
5 the jagged lines connecting the actuator drive
6 circuit 16 and the LRA 18, is it fair to conclude
7 that that aligns with the portion of the
8 specification shown in Column 2, Lines 18 through
9 20, which says that an actuator drive circuit
10 which is coupled to an LRA 18.

11 Is it fair to --

12 Would a POSITA conclude that those
13 jagged lines illustrate the actuator drive
14 circuit being coupled to the LRA actuator 18?

15 A. I don't think so. Because it -- I
16 don't know why he would -- I mean, if he meant
17 electrically coupled, I don't know why he would
18 use those jagged lines to indicate that.

19 Q. Is there anything in the
20 specification that suggests that those jagged
21 lines do not mean that an actuator drive circuit
22 is coupled to the LRA 18?

1 A. You mean electrically coupled?

2 Q. That would lead you to believe that
3 it is coupled to an LRA actuator 18?

4 A. You mean electrically coupled.
5 Because coupling could mean different things. It
6 could mean mechanically coupled.

7 I'm just saying that the jagged
8 lines don't, in -- I mean, that is not -- even at
9 the high level schematic like this, it is never
10 something I have seen that leads me to a
11 understanding of what is going on in terms of the
12 circuit.

13 Q. Okay. We agree from the discussion
14 of Column 2, Lines 18 through 20, we agree that
15 the actuator drive circuit is connected to the
16 LRA 18, correct?

17 A. Well, the word you used is
18 "coupled".

19 Q. Would you agree that actuator drive
20 circuit is coupled to the LRA 18?

21 A. It says coupled.

22 Q. So, you agree?

1 A. That they are coupled? I mean, that
2 is the word he used.

3 Q. Okay. Are there any other
4 components connected to the LRA 18 in Figure 1 of
5 Gregorio?

6 A. Just so I get it right, can you
7 repeat the question?

8 Q. Are there any other components
9 connected to the LRA 18 in Figure 1 of Gregorio?

10 A. Okay. So, you used the word
11 "connected". And the thing is, in the sense of
12 an electrical connection, there is no indication
13 that there is any electrical connection to the
14 LRA, what is labeled LRA.

15 Actually, what is labeled LRA, I
16 don't understand, because why would you use the
17 circle with a pie shape for an LRA. I -- I don't
18 get that.

19 But there is no connection shown to
20 it at all.

21 Q. Would yours require power to
22 operate?

1 A. Generally an LRA, in order for the
2 mass to move, there has to be power. I am saying
3 Gregorio hasn't described that.

4 Q. Do you agree that an LRA requires
5 power to operate?

6 A. I mean, I mean, generally, for the
7 mass to move, there has to be power.

8 Q. And there is no other components
9 coupled, connecting the LRA to the other
10 components shown in Figure 1?

11 A. In Figure 1, the LRA is not shown
12 connected to anything.

13 Q. Okay. Is it fair to say that a
14 person of ordinary skill in the art looking at
15 Gregorio's Figure 1 would naturally consider that
16 power required to operate the LRA is coming from
17 the actuator drive circuit 16?

18 A. I am not sure how they would come to
19 that conclusion.

20 Q. Well, Dr. Goossen, we know that LRA
21 requires power, right?

22 A. Generally, an LRA -- I mean for the

1 mass to move, there has to be power somehow that
2 gets to it.

3 Q. And nothing else is connected to the
4 LRA in Figure 1, correct?

5 A. And that is what I am saying is that
6 Figure 1 is such a high level diagram it doesn't
7 show anything connected to the LRA.

8 Q. But a POSITA would conclude that the
9 power comes from the actuator drive circuit?

10 A. Your -- your own expert could not
11 conclude that.

12 Q. What is an actuator drive circuit
13 16?

14 A. Again, he doesn't go into detail.
15 He doesn't say what it means. There is no
16 circuit diagram inside there.

17 Q. What does an actuator drive circuit
18 do?

19 A. I mean -- so, I read the patent and
20 I was trying to figure out how it works in the
21 context of Figure 1.

22 And he doesn't describe how the

1 drive circuit works.

2 Q. What is a drive circuit?

3 A. Well, it is meant to drive
4 something.

5 Q. How does it drive something?

6 A. So, I am reading from the patent,
7 Column 2. And -- I just had it. I am looking
8 for the term "drive circuit".

9 "Drive circuit 16 includes
10 electronic components and circuitry used to
11 supply LRA with the required electrical current
12 and voltage to cause the desired haptic effects."

13 That is the limit of his description
14 of the drive circuit. I mean, I was trying to
15 understand, well, you know, how does it work?
16 And he doesn't explain.

17 Q. Dr. Goossen, can you read that
18 again, please?

19 A. Drive circuit, "Drive circuit 16
20 which includes electronic components of circuitry
21 used to supply LRA 18 with the required
22 electrical current and voltage to cause the

1 desired haptic effects."

2 Q. Okay. So, is, how would you --

3 What is the definition of power?

4 A. In electrical engineering?

5 Q. Correct.

6 A. Power is current times voltage.

7 Q. Okay. And the section you
8 referenced also references current and voltage,
9 correct?

10 A. Yes.

11 Q. Would you agree that if you supply
12 current and voltage, that you are supplying
13 power?

14 A. Yes. But, he doesn't explain how.

15 He indicates later on how he is
16 doing it. And I can -- if you can allow me to
17 refer to Figure 5. If you want me to explain, I
18 will explain my understanding of how the system
19 works.

20 Q. Before we get there, so, we can say
21 that drive circuit 16 provides power?

22 A. And my understanding of how this

1 circuit works is that it does not vary the level
2 of power.

3 Q. Dr. Goossen, before we get there,
4 would you agree that drive circuit 16 supplies
5 power to the LRA?

6 A. Not in a variable fashion.

7 Q. Would you agree that drive
8 circuit 16 provides power to the LRA?

9 A. Not in a variable fashion.

10 Q. Dr. Goossen, that is not what I
11 asked.

12 Would you agree that drive circuit
13 16 provides power to the LRA as described in the
14 portion that you just read from the
15 specification?

16 A. The LRA has to be supplied with
17 power.

18 Q. Would you agree that the drive
19 circuit does it?

20 A. The drive circuit is a -- it is not
21 shown what is included in the drive circuit.

22 So, I can't conclude and neither

1 could your expert as to whether the power supply
2 is within the drive circuit or must be outside.

3 And, in fact, the -- your -- what I
4 was asked to do was rebut your expert's theories.
5 And your expert's theory placed the power supply
6 outside the drive circuit.

7 Q. Dr. Goossen, you said that the drive
8 circuit includes electronic components, yes?
9 Reading from Column 2.

10 A. Yes.

11 Q. And circuitry is used to provide the
12 LRA with the required electrical current and
13 voltage. So, it is used to provide the LRA with
14 the required power, correct?

15 A. Yes. And, it is the conduit for the
16 power.

17 Q. Okay. And it does say that it
18 provides the desired haptic effects, correct?

19 A. Yes.

20 Q. Okay, thank you.

21 MR. DAVIS: Can I ask, as well, I
22 know we have been going for a while, if now

1 is a good time for a break.

2 THE WITNESS: Sounds good to me.

3 MR. ROZYLOWICZ: I think that is a
4 wonderful suggestion.

5 (Recess taken -- 11:46 a.m.)

6 (After recess -- 11:56 a.m.)

7 BY MR. ROZYLOWICZ:

8 Q. So, Dr. Goossen, I will ask you to
9 refer to Figure 1 again.

10 A. Yes.

11 Q. So, relying upon the portion you
12 read from in Column 2 there, Gregorio says that
13 the actuator drive circuit has electronic
14 components and circuitry.

15 A. Yes.

16 Q. And that supply is to require
17 electrical current and voltage to LRA 18?

18 A. That is what it says. And you have
19 to read further to understand how it works.

20 Q. Okay. But it is fair to say that
21 the actuator drive circuit is a power supply or
22 includes the power supply?

1 A. There is no power supply shown.

2 Q. But is it fair to say -- I mean, if
3 it supplies current and voltage, is it fair to
4 say that it acts as a power supply?

5 A. Not necessarily. It could only be
6 the conduit for the power.

7 Q. Okay. But, is it fair to say that
8 anything that supplies required electrical
9 current and voltage acts as a power supply?

10 A. Again, I mean, within the context of
11 the '830 claims, no. The power supply is a
12 separate component.

13 Q. But if something supplies electrical
14 current and voltage, in what sense is it not a
15 power supply?

16 A. It could simply be the conduit of
17 the power.

18 Q. So, let's go to processor 12 in
19 Figure 1.

20 A. Okay.

21 Q. Do you agree that the processor 12
22 determines what haptic effect is to be played by

1 the LRA?

2 A. Well, it produces control signals.

3 That is what the sentence says, to cause desired
4 haptic effects.

5 Q. Okay. So, would you agree that the
6 processor 12 determines what haptic effect is to
7 be played with the LRA?

8 A. Well, that sentence is somewhat
9 sweeping. You know, when you -- you have to look
10 at the details of the patent to understand, you
11 know, what it actually can do.

12 Q. Now let's look at the details of the
13 patent.

14 A. Okay.

15 Q. I think you are on Column 2. Let's
16 go to Lines 25 to 30, please. Let me know when
17 you are there.

18 A. All right.

19 Q. Dr. Goossen, can I please ask you to
20 read the sentence that appears at the very
21 beginning at the very end of Column 2, Lines 25?

22 A. "Processor 12 can decide what haptic

1 effects are to be played and the order in which
2 the effects are played based on high level
3 parameters."

4 Q. Okay. Can you please read the next
5 sentence.

6 A. "In general, the high level
7 parameters that define a particular haptic effect
8 include magnitude, frequency, and duration."

9 Q. Okay. So, can we say that the
10 processor 12 determines what haptic effect is to
11 be played?

12 A. Well, within the context of what is
13 written there, yes.

14 Q. Thank you. So, we can agree that
15 the processor 12 determines a particular haptic
16 effect that could include magnitude?

17 A. That is what is listed, yes.

18 Q. And the processor 12 could also
19 determine a particular haptic effect that
20 includes the frequency?

21 A. That is what is listed, yes.

22 Q. And the particular -- I'm sorry.

1 And the processor 12 could determine
2 the particular haptic effect that includes
3 duration?

4 A. That is included in the sentence.
5 And he sort of doesn't explain how.

6 Q. So, let's continue reading Column 2,
7 Lines 20 -- I'm sorry, Line 30. If you can read
8 the next sentence.

9 A. "Low level parameters?"

10 Q. Correct.

11 A. "Such as streaming motor commands
12 could also be used to determine a particular
13 haptic effect."

14 Q. Excuse me. And, Dr. Goossen, if you
15 can please read the remainder of the sentence
16 appearing on Line 32.

17 A. I did. "Low level parameters such
18 as streaming motor commands could also be used to
19 determine a particular haptic effect."

20 Q. Thank you. Thank you, Dr. Goossen.

21 Could you also read the next
22 sentence that begins, "a haptic effect --

1 A. Next sentence.

2 Q. -- may be considered." If you can
3 read that sentence, please.

4 A. "A haptic effect may be considered
5 dynamic if it includes some variation of these
6 parameters when the haptic effect is generated or
7 a variation of these parameters based on a user's
8 interaction."

9 Q. Would you agree that the
10 processor 12 determines these particular haptic
11 effects?

12 A. Well, that is what is written.

13 Q. Okay. Would you agree that the
14 processor 12 controls the actuator drive circuit?

15 A. Well, it says it outputs control
16 signals to the drive circuit.

17 Q. Do you agree that it controls the
18 actuator drive circuit 16?

19 A. It sends -- yeah. Processor 12
20 outputs the control signals to drive circuit 16.

21 Q. Okay. To control the actuator drive
22 circuit, the processor 12 will send a signal to

1 the actuator drive circuit 16, correct?

2 A. That is what it says.

3 Q. Okay. All right. Thank you.

4 So, Dr. Goossen, I understand that
5 you have experience in the optical electronic
6 field?

7 A. Yes.

8 Q. Is that a particular area of
9 emphasis at the University of Delaware?

10 A. Well, I mean, not in an overall
11 basis on the whole university.

12 Q. But where --

13 A. It is in the program in
14 optoelectronics.

15 Q. Okay. What would --

16 What does the University of Delaware
17 do -- and I understand they have a lot of centers
18 of excellence.

19 But what does the University of
20 Delaware do with optoelectronics, in the optical
21 electronic field as well?

22 A. Well, there is various research

1 programs going on in my department and in other
2 departments in the field of optoelectronics.

3 I'm not sure what you are asking.

4 Q. For example, in optoelectronics, do
5 you support the Department of Defense in any
6 grants or research initiatives?

7 A. Myself, personally?

8 Q. In the optoelectronics initiatives,
9 in your department -- I guess I'm trying to
10 better understand the nature of the research in
11 optoelectronics.

12 For example, are you pursuing DARPA
13 grants?

14 A. Myself, right now, no.

15 Q. Okay. Are you pursuing NSF grants?

16 A. Myself, right now, no.

17 Q. Does the department pursue grants in
18 those areas from either of those sources?

19 A. I'm not sure if I can speak as to
20 what the department is doing or what other
21 professors may have going on.

22 I will speak to my own work.

1 Q. Thank you. Can you kindly speak to
2 your own work in optoelectronics?

3 A. Well, currently, I am working on
4 what is called smart windows.

5 Q. Okay. And what are smart windows?

6 A. Well, it is sort of what it sounds
7 like. They are devices where you can control the
8 transparency of a window.

9 Q. When you say window, we are talking
10 about like residential or commercial plates of
11 glass and --

12 A. They could be, yes.

13 Q. Okay. What would be the -- what
14 would be the benefit of smart windows?

15 A. Well, one benefit is in the energy
16 field that you can tailor the amount of solar
17 load on a building.

18 You could reflect more sunlight in
19 the cooling season and absorb more sunlight in
20 the heating season, for example.

21 Q. All right. Has that been --

22 Has that technology been

1 commercially adopted?

2 A. No, we are still working on it.

3 Q. Just out of curiosity, how long
4 before you think that smart windows would be
5 commercially adopted?

6 A. Well, there are, you know, smart
7 window technologies currently. They are
8 relatively expensive.

9 Q. Uh-huh.

10 A. And so that has hindered adoption.
11 We are working on, sort of, more -- or less
12 expensive versions.

13 Q. So, less expensive versions you
14 think would increase commercial adoption?

15 A. It could.

16 Q. Okay. I'm just curious. In terms
17 of the time frame, do you have a sense of is it
18 going to be five years before smart windows are
19 adopted, 10 years, 20 years, any sense?

20 A. I'm not going to specify any
21 timeline under oath, I don't think.

22 Q. Okay. Is there any particular

1 commercial adoptions of smart windows or kind of
2 particular pioneering sites where you think
3 would, you'd say oh, if you want to see the
4 cutting edge of smart windows in practice, check
5 out the so and so building in New York?

6 Anything like that where we could
7 point to as a success?

8 A. I'm -- I'm not forming any such
9 opinions in this case, so I have no such opinions
10 here under oath.

11 Q. Just curious. Do you have any
12 experience in haptic devices?

13 A. Yes.

14 Q. Can you walk me through your
15 experience in --

16 A. Oh, in haptic -- so distinguishing,
17 I'm sorry. In terms of like linear resonant
18 actuators, yes, but not for haptic effects.

19 Q. Have you used paramagnetic materials
20 in your optoelectronic devices?

21 A. Paramagnetic, no.

22 Q. Okay. Have you used paramagnetic

1 materials in any haptic devices you have worked
2 with?

3 A. Well, I again, I haven't performed
4 specific research for haptic effects, meaning on
5 human beings.

6 Q. Okay. Thank you.

7 Can I ask you to please look at
8 Claim 14 of the '830 patent, Mr. Goossen.

9 A. Yes.

10 Q. If you can kindly read Claim 14 out
11 loud, please.

12 A. "The vibration module of Claim 1
13 further including flux pads comprising a
14 paramagnetic material that is shaped and
15 positioned to reduce the reluctance of one or
16 more magnetic circuits within the vibration
17 module."

18 Q. Thank you. So in your declaration,
19 you didn't opine that Claim 14 requires a claim
20 construction, correct?

21 A. I believe there has not been any
22 further construction of Claim 14.

1 Q. Okay. So would you agree that a
2 person of ordinary skill in the art would
3 understand that Claim 14 -- what Claim 14 means
4 is probably in the language of Claim 14, just --
5 I'm sorry. Let me, I will strike that. I will
6 reword the question, please.

7 So, would you agree that a person of
8 ordinary skill in the art would understand that
9 Claim 14 means just what it says by reading the
10 language of Claim 14?

11 A. To -- I mean, yes.

12 Q. Is there anything in your
13 declaration --

14 A. I mean -- I don't believe that there
15 has been any further construction of Claim 14.
16 So, it is the plain and ordinary meaning.

17 Q. Okay. Is there anything in your
18 declaration that suggests you need to look
19 outside the evidence of the -- look at additional
20 evidence outside of the '830 patent?

21 A. Just the plain and ordinary meaning.

22 Let me check and make sure. I

1 haven't listed any construction for Claim 14, so
2 I don't believe there has been any.

3 Q. Okay. So nothing in your -- nothing
4 in your affidavit suggests we need to go outside
5 of the '830 patent to look at Claim 14?

6 A. Just the plain and ordinary meaning.

7 Q. And again, although we are talking
8 about the '830 patent, that similarly applies to
9 the other patent at issue today, correct?

10 A. Which other patent, the '337?

11 Q. Yes.

12 A. Which claim is that?

13 Q. Claim 1, for example.

14 A. Of the '337 patent?

15 Q. Yes.

16 A. I don't believe Claim 1 of the '337
17 patent is in suit.

18 Q. So, Dr. Goossen, is it fair to say
19 that Claim 14 requires a paramagnetic material in
20 order to reduce the reluctance of a magnetic
21 circuit in the vibration module?

22 A. That's -- I mean you are

1 paraphrasing slightly, but that is what is
2 written.

3 Q. That is clearly what Claim 14 says,
4 correct?

5 A. Yes, "The vibration module of Claim
6 1 further including flux paths comprising a
7 paramagnetic material that is shaped and
8 submitted to reduce the reluctance of one or more
9 circuits within the vibration module."

10 Q. Okay. So, do you agree according to
11 Claim 14 that the paramagnetic material has
12 sufficient permeability so as to provide a lower
13 resistance path for the magnetic circuit in the
14 vibration module and thus improve the efficiency
15 of the magnetic field?

16 A. It can -- yeah, it has -- I mean a
17 paramagnetic material has generally very low
18 permeability, but sufficient to cause the flux
19 paths to concentrate in them to some extent.

20 Q. So provide a lower resistance path
21 for the magnetic circuit?

22 A. Yes.

1 Q. And thus improve the efficiency of
2 the magnetic field?

3 A. Well, I mean, he is specifying a
4 paramagnetic material rather than a ferromagnetic
5 material.

6 Q. So -- thank you, Dr. Goossen.

7 If we can kindly turn to Column 14,
8 Lines 13 through 19.

9 A. Of the '830.

10 Q. Of the '830, correct.

11 A. Column 14, Lines 13?

12 Q. Yes -- actually let's go to Line 16
13 instead.

14 A. 16.

15 Q. There is a sentence that begins in
16 Line 16. If you can kindly read that to us.

17 A. "Paramagnetic materials of
18 appropriate permeability and size reduce the
19 reluctance of a magnetic circuit and therefore
20 can allow a magnetic field to more efficiently
21 perform its work -- perform more work."

22 Q. So, we can agree that the

1 paramagnetic material improves the efficiency of
2 the magnetic field?

3 A. Well, I mean, in order to satisfy
4 the claim, it has to be part of the flux path.

5 Q. But to officially perform more work?

6 A. Well, I mean the claim says to
7 reduce the reluctance of the magnetic circuit.

8 Q. Okay. And then the last provision
9 of, I guess appearing on Line 16, "can therefore
10 allow a magnetic field to more efficiently
11 perform more work."

12 A. Well, that is not part of the claim
13 language.

14 Q. Okay. Dr. Goossen, have you heard
15 of ferromagnetic materials?

16 A. Ferromagnetic, yes, of course.

17 Q. Have you heard of diamagnetic
18 materials?

19 A. Well, generally nonmagnetic or not
20 having a magnetic effect at all.

21 Q. Have you heard of paramagnetic
22 materials?

1 A. Yes.

2 Q. So, all of these terms contain the
3 term "magnetic", correct?

4 A. Well, yeah.

5 Q. So, would you agree that these types
6 of materials depend on the degree of these
7 materials are affected by magnetic materials?

8 A. Well, I mean, you know, magnetic
9 effects and electromagnetics are governed by the
10 permeability.

11 And a, if the perm ---you know, I
12 mean, so you can say they are all magnetic in the
13 sense that they all have a permeability.

14 But if the permeability is 1, they
15 don't affect the flux path.

16 MR. ROZYLOWICZ: Okay. All right.

17 I'm going to introduce Exhibit 1032 in the
18 chat. Please bear with me.

19 I am showing this has been delivered
20 in the chat window.

21 (Whereupon, previously marked

22 Exhibit 1032,

1 first referral.)

2 BY MR. ROZYLOWICZ:

3 Q. If you can kindly open up
4 Exhibit 1032, Dr. Goossen, and let me know when
5 you are there.

6 A. Okay. Yes.

7 Q. Okay. Dr. Goossen, I will call your
8 attention to a paragraph that reads "First, a
9 technical point."

10 A. Well, I mean, "All materials are
11 magnetic in the sense that they are affected by
12 magnetic fields in some way."

13 Q. Okay. Can you please read the next
14 two sentences?

15 A. "There are three categories that
16 describe how a material is affected by a magnetic
17 field. There are others but these are the most
18 basic."

19 Q. Okay. And then it lists the
20 materials that we discussed previously.

21 Can you identify the three materials
22 we listed as follows appearing on, I guess the

1 three numbered paragraphs? Let me just read
2 them. If you can just identify the bold section?

3 A. Diamagnetism, paramagnetism and
4 ferromagnetic.

5 Q. Okay. Would you agree that the
6 paramagnetic material is affected somewhat more
7 strongly than diamagnetic materials?

8 A. Yes, I mean, in -- it's -- you know,
9 this is kind of a -- this page here is somewhat a
10 qualitative description. Generally in
11 quantitative electromagnetism, you would define
12 what a magnetic material -- what a material is
13 magnetically by its permeability. And that is
14 not shown here.

15 Q. Okay. All right. Dr. Goossen, I
16 will call your attention to numbered Paragraph 2
17 here.

18 A. Uh-huh.

19 Q. The section that includes the bolded
20 paragraph, Paramagnetism.

21 If you can kindly read the second
22 sentence there, please.

1 A. "They are affected somewhat more
2 strongly than diamagnetic materials."

3 Q. Okay.

4 A. "They become polarized parallel to a
5 magnetic field."

6 Q. So, you would agree that
7 paramagnetic fields are affected more strongly
8 than diamagnetic materials?

9 A. Sure.

10 Q. Okay. Would you agree that
11 different types of magnetic materials can be used
12 for different purposes?

13 A. What kind of purposes?

14 Q. Would you agree that depending on
15 the degree, that different types of materials
16 that could be used for different purposes in
17 general?

18 A. Well, I mean in the context of these
19 patents, the purpose is forming a flux path.

20 Q. Okay. In different materials
21 different types of -- I'm sorry.

22 Let me reword the question.

1 Different types of magnetic
2 materials can have different characteristics,
3 yes, as it relates to forming a flux path, for
4 example?

5 A. Well, I mean, the degree to which
6 the magnetic flux is concentrated in the material
7 is, I mean, basically proportional to their
8 permeability.

9 Q. But you would agree that it could
10 be -- materials can be suited for different
11 suitable -- I'm sorry.

12 Would you agree that different
13 materials can be suitable for different
14 applications?

15 A. Well, if you require a high
16 concentration of flux lines, you would use a
17 ferromagnetic material.

18 Q. Okay. And, so in other words, let
19 me repeat what you said. For magnetic materials
20 a person of ordinary skill in the art would not
21 always look to the ferromagnetic materials
22 depending on a particular purpose?

1 A. I didn't say that. I said that if
2 you want a high concentration of the flux lines,
3 you would use a ferromagnetic material.

4 Q. Let me call your attention -- if you
5 go to Exhibit 1032.

6 A. I'm sorry. Where am I going?

7 Q. I will call your attention to it.
8 Do you see the figure in the lower left portion
9 of this Page 1, do you see the picture above, it
10 says, "liquid oxygen between the poles of a
11 horseshoe magnet"?

12 A. Yes, I see the picture and the
13 description.

14 Q. There is a paragraph that begins to
15 the -- if you look at that image, to the top of
16 that, there is a line. It says, "It should be no
17 surprise."

18 Please let me know when you see
19 that.

20 A. Yes.

21 Q. If you can kindly read that first
22 sentence.

1 A. "It should be no surprise that most
2 applications of magnetic materials call for
3 ferromagnetic materials."

4 Q. Okay. Does that -- so most, does
5 that mean that all applications of magnetic
6 materials call for ferromagnetic materials?

7 A. Well, no. I mean clearly in
8 Claim 14, he is contemplating applications that
9 can be satisfied with paramagnetic materials.

10 Q. Okay. But, this sentence here does
11 not say that all applications of magnetic
12 materials call for ferromagnetic materials,
13 correct?

14 A. Correct.

15 Q. It only says that most applications,
16 correct?

17 A. That is what it says, yes.

18 Q. Does this exhibit explain what most
19 applications of magnetic materials are about?

20 A. Well, I mean, the -- the
21 applications and purposes within the context of
22 the patents in suit have to do with the formation

1 of a magnetic circuit, meaning where the magnetic
2 flux or field lines go.

3 Q. Okay. Do you really think that
4 paramagnetic materials are nonmagnetic?

5 A. I didn't say that.

6 Q. Let's go to your -- Dr. Goossen, if
7 we can go to your declaration, Paragraph 132,
8 please.

9 A. Yes.

10 Q. If I can ask you to first read the
11 second sentence appearing in Paragraph 132,
12 Dr. Goossen.

13 A. "Other documents cited in the
14 petition makes clear that paramagnetic materials
15 are commonly considered to be nonmagnetic."

16 Q. I'm sorry, the second sentence
17 appearing in Paragraph 132.

18 A. Oh, I'm sorry. "For example,
19 Exhibit 1037 lists five major groups of materials
20 according to the magnetic behavior:
21 Diamagnetism, paramagnetism, ferromagnetism,
22 ferrimagnetism and antiferromagnetism."

1 Q. Okay. If you could kindly read the
2 second to the last sentence appearing in
3 Paragraph 132, please.

4 A. This is a quote from the petition.
5 "The remaining three are so weakly magnetic that
6 they are thought of as nonmagnetic."

7 Q. Okay. And the next sentence,
8 please?

9 A. "In other words," as part of the --
10 what the petition stated, "paramagnetic materials
11 are usually thought of as nonmagnetic."

12 Q. So, as I understand it, you seem to
13 agree that a paramagnetic material has some sort
14 of magnetic characteristic.

15 Although I think in your words, it
16 may be "so weakly magnetic." Is that fair?

17 A. It's -- it -- you have to -- you
18 know, you have to characterize it quantitatively
19 in terms of its permeability.

20 And I believe I had a discussion of
21 that in here. Yes. And, if you go to my
22 Paragraph 50, it shows how magnetic field lines

1 are concentrated in materials.

2 And it basically has to do with
3 their permeability which is there and usually
4 listed as μ .

5 So, you know, vacuum has a
6 permeability of 1. And so, you know, in that
7 sense it is, you know, completely nonmagnetic.
8 It doesn't have any magnetic effect, vacuum.

9 Diamagnetic materials, they sort of,
10 they repel lines and so their permeability is
11 less than 1. And so you can think of that, the
12 lines are at -- the magnetic field lines are
13 actually kind of, you know, repelled from the
14 material.

15 Ferromagnetic materials is what is
16 usually used to form circuits, and they have a
17 permeability much, much bigger than 1, like 1,000
18 or something. And so they strongly concentrate
19 the magnetic field lines within them.

20 And diamagnetic is slightly larger
21 than 1, and so it does have the effect of
22 concentrating magnetic field lines, but not

1 nearly as much as what people -- as ferromagnetic
2 materials.

3 Q. Okay. Dr. Goossen, a point of
4 clarification. You indicated that what you
5 thought you saw there was from the petition
6 referencing Exhibit 1037.

7 MR. ROZYLOWICZ: In the chat window,
8 I have included Exhibit 1037. If you can
9 kindly pull that up. And let me know when
10 you have that.

11 (Whereupon, previously marked
12 Exhibit 1037,
13 first referral.)

14 THE WITNESS: Yes.

15 BY MR. ROZYLOWICZ:

16 Q. All right, Dr. Goossen, Exhibit 1037
17 that you reference here is not, in fact, a
18 petition, is it?

19 A. Let me make sure I've got this
20 straight.

21 So, we are referring to my
22 Paragraph 132, right?

1 Q. Correct.

2 A. So, this document was cited in the
3 petition.

4 Q. Correct. But Exhibit 1037 itself is
5 not the petition, correct?

6 A. Right. But I, you know, attributed
7 it to -- you know, that is where I got it from.

8 Q. Okay.

9 A. So, I attributed it to the petition.
10 But I say clearly there it is the documents cited
11 in the petition.

12 Q. Okay. Thank you. I just wanted to
13 make that clarification.

14 Dr. Goossen, if I can call your
15 attention to Paragraph 139 of your petition,
16 please.

17 A. Yes.

18 Q. Dr. Goossen, if I can first ask you
19 to read the first sentence of Paragraph 139.

20 A. "As this figure is drawn, showing
21 strong bending of the magnetic field lines into
22 the casing, it is clearly represented as

1 ferromagnetic, as discussed above."

2 Q. Thank you. And then, Dr. Goossen,
3 if you can kindly read the next sentence.

4 A. "Paramagnetic material would not so
5 strongly bend the lines."

6 Q. Okay. So you are saying that a
7 paramagnetic material would not so strongly bend
8 the, and I will use the word, magnetic field
9 lines, correct?

10 A. Yes.

11 Q. And that is true when it is used in
12 the casing 4 and casing 2, in Wakuda's Figure 1B.

13 A. Yeah. I mean he shows the magnetic
14 field lines, or the flux lines going through an
15 almost 90-degree turn in the casing. So, it must
16 be a ferromagnetic material.

17 Q. But we are seeing in casing 2 in
18 Wakuda's Figure 1B that it is not so strongly
19 bending the magnetic field lines, correct?

20 A. I'm sorry? Casing is 5.

21 Q. I think it is casing 2.

22 A. Oh, well -- oh, yeah, right. I'm

1 sorry, it is indicating 2.

2 Q. Okay.

3 A. Yes. And the casing -- I mean the
4 magnetic field line is shown as making like a
5 right turn. So, it has to be, you know, very
6 ferromagnetic.

7 Q. Okay. So, is it fair to say that
8 the paramagnetic material in casing 2 would in
9 fact bend the magnetic field lines to some
10 degree?

11 A. That is not a para -- that is a
12 ferromagnetic material in 5 based upon the
13 bending of the lines.

14 Q. But we are saying in casing 2, it
15 would bend the magnetic field line?

16 A. I'm sorry, you are right. It is 2,
17 right. I'm sorry, what was the question?

18 Q. So, it, in fact, bends the magnetic
19 field lines to some degree?

20 A. As shown, it is 90-degree
21 practically. So, it has to have a very high
22 permeability. It has to be ferromagnetic to do

1 that.

2 Q. Okay. Dr. Goossen, if I can call
3 your attention to Paragraph 137 of your
4 affidavit.

5 A. Yes.

6 Q. If you could kindly read that
7 sentence appearing -- read that first sentence?

8 A. "While Wakuda differs in having a
9 permanent magnet instead of electromagnetic of
10 these McLyman figures and having air gaps. The
11 same basic effect of flux lines concentrating the
12 magnetic material is shown in Wakuda Figure 1B."

13 Q. Okay. And if you can -- do you see
14 the highlighted paragraph, the highlighted
15 language in -- annotated below your Exhibit 2009
16 in Paragraph 137?

17 A. You mean the figure in
18 Paragraph 137?

19 Q. Correct. If you can kindly read how
20 2 is annotated.

21 A. Well, that annotation was done by
22 Hannaford. That is not what occurs in the

1 patent.

2 Q. Understood. But can you still read
3 it for us, please?

4 A. Oh, so, I mean, it was annotated
5 casing made of paramagnetic material, but as
6 it -- it wouldn't do that. The lines would fly
7 out of the unit.

8 Q. If you can kindly turn to
9 Paragraph 144, please.

10 A. Yes.

11 Q. If you can kindly read the first
12 sentence.

13 A. "The CGS susceptibility of solid
14 aluminum is 16.5 times 10^{-6} , making the
15 permeability approximately 1.000022."

16 Q. Okay. Please proceed.

17 A. I'm sorry?

18 Q. If you can continue to read the rest
19 of the sentence?

20 A. Okay. "And making it one of the
21 quote, unquote, nonmagnetic materials with
22 permeabilities on the same order as one according

1 to McLyman."

2 Q. If you can read the next sentence
3 though, please.

4 A. "Importantly the magnetization due
5 to paramagnetism in aluminum will only alter the
6 aluminum field by around .002 percent of that
7 field that it would have been a vacuum."

8 Q. Okay.

9 A. "A POSITA would recognize that such
10 a weak effect would not alter the magnetic flux
11 lines from McLyman Figure 1 to 10 to be
12 concentrated as McLyman Figure 1 through 11 --
13 1-11," sorry.

14 "And it would not produce the
15 magnetic flux paths confined to the magnetic
16 material as shown in Wakuda Figure 1B."

17 Q. Okay. And you argue that aluminum
18 is one of the nonmagnetic materials, correct?

19 A. Well, I mean, I am saying if the
20 proposal was to replace casing 2 with aluminum,
21 it would -- it would not confine the flux lines
22 as drawn in the figure.

1 Q. But you argue that -- again, let's
2 break this down.

3 You argue that aluminum is one of
4 the nonmagnetic materials with a permeability on
5 the same order as 1.L according to McLyman?

6 A. Well, according to that definition,
7 technically if the material has a permeability
8 greater than 1, it, you know, it can still be
9 defined as paramagnetic.

10 Q. And you cited to Page 27 of McLyman,
11 correct?

12 A. Yes.

13 Q. Do you happen to have -- I'm happy
14 to put it in the chat.

15 But, do you happen to have McLyman
16 handy?

17 A. I do not.

18 MR. ROZYLOWICZ: Give me one second.

19 Please let me know when you've got that
20 available.

21 (Whereupon, previously marked
22 Exhibit 1012,

1 first referral.)

2 THE WITNESS: Okay.

3 BY MR. ROZYLOWICZ:

4 Q. Your attention to -- let me make
5 sure I can find this. Turn your attention to
6 Page 27, please.

7 A. Yes.

8 Q. Do you see the bolded -- there is a
9 centered bold header called Magnetic Core?

10 A. Yes.

11 Q. If you can kindly read the second
12 sentence out loud, please.

13 A. "A vacuum has a permeability of 1.0
14 and nonmagnetic material such as air, paper and
15 copper have permeabilities of the same order."

16 Q. Okay. So, McLyman identified air,
17 paper and copper as nonmagnetic materials,
18 correct?

19 A. Well, that is how he is defining
20 them here.

21 But, you know, as I have said,
22 quantitatively you have to describe that

1 something is paramagnetic based on it having a
2 permeability greater than 1.

3 Q. Okay. Does McLyman identify
4 aluminum in this portion as an example of
5 nonmagnetic material?

6 A. He just says air, paper and copper.

7 Q. Okay. So McLyman does not identify
8 aluminum as an example of nonmagnetic material?

9 A. Well, he -- I mean, he gives some
10 examples there. But -- but, I mean what he is
11 saying here is that what he considers nonmagnetic
12 materials have a permeability on the order of 1,
13 which aluminum certainly does.

14 Q. Turning back to Paragraph 144 in
15 your declaration. You identify aluminum's
16 permeability as being 1.0022, correct?

17 A. Yes.

18 Q. And you cited a website site in
19 Footnote 22 that argued in the table that the
20 website also confirms this information?

21 A. I believe I looked it up. I hope I
22 got the reference right.

1 Q. Okay.

2 A. I mean you can look up the
3 permeability of aluminum in lots of places.

4 Q. Right.

5 MR. ROZYLOWICZ: I'm going to go
6 ahead and pull up Exhibit 1054. Bear with
7 me.

8 (Whereupon, previously marked
9 Exhibit 1054,
10 first referral.)

11 THE WITNESS: 1054? What is that?

12 BY MR. ROZYLOWICZ:

13 Q. Okay. Let me know when you've got
14 that, please.

15 A. Okay.

16 Q. I think this is -- appears in your
17 Footnote 122. Do you see the --

18 A. Yeah, this doesn't look like the
19 page I looked up. But -- does it list aluminum?
20 So, I don't see --

21 Q. If you would go to Page 4 of
22 Exhibit 1054.

1 A. Oh, okay. Oh yeah, okay. Yes,
2 there is aluminum.

3 Q. So there you see that the relative
4 permeability of the vacuum is 1 and it lists that
5 as exactly.

6 A. Yeah.

7 Q. And then you see in the second line,
8 it lists aluminum has a permeability of 1.000022,
9 correct?

10 A. Yes.

11 Q. And this is the number for aluminum
12 that you identified in your declaration, correct?

13 A. Yes.

14 Q. And you see that air has a
15 permeability of 1.000037, correct?

16 A. Yes. So, it is two orders of
17 magnitude smaller.

18 Q. Than aluminum, correct?

19 A. Yeah.

20 Q. And the same page, you see that
21 copper has a permeability of .999994?

22 A. Yes, so it is diamagnetic.

1 Q. Right. And you agree that the
2 copper is a number smaller than aluminum with
3 more permeability?

4 A. Well, the relevant thing is it is
5 less than 1.

6 Q. Okay. And, in fact, this is --
7 copper as you pointed out is smaller than a
8 vacuum, which has a permeability of exactly 1,
9 correct?

10 A. Right. And so copper is
11 diamagnetic. It has a repelling effect on field
12 lines.

13 Q. Okay.

14 A. Very slight, but there.

15 Q. Okay.

16 MR. ROZYLOWICZ: All right. It
17 is -- thank you. I have gone longer than
18 intended on this module.

19 I see it is 12:44. I propose we
20 take a lunch break. And then, you know, I
21 don't know how much time you need. I can be
22 flexible there.

1 I think otherwise I probably
2 propose, Dr. Goossen, or Kris, I propose half
3 an hour unless you would like longer for
4 lunch.

5 THE WITNESS: That is fine with me.

6 MR. DAVIS: Sure.

7 MR. ROZYLOWICZ: Okay.

8 (Recess taken -- 12:45 p.m.)

9 (After recess -- 1:36 p.m.)

10 MR. ROZYLOWICZ: Dr. Goossen, I will
11 next call your attention to Wakuda,
12 Exhibit 1003. I'm happy to share if you
13 don't have that available, but I wanted to
14 touch base.

15 THE WITNESS: Yeah, I don't have
16 that.

17 MR. ROZYLOWICZ: Bear with me. That
18 was transmitted through the chat. So if you
19 could pull that up and let me know when
20 you've got that in front of you, that would
21 be great.

22 (Whereupon, previously marked

1 Exhibit 1003,
2 first referral.)

3 THE WITNESS: Okay.

4 BY MR. ROZYLOWICZ:

5 Q. In particular, I call your attention
6 to Figure 3, please.

7 A. Yes.

8 Q. Okay. So, do you see the drive
9 means 13 on the right-hand side of Figure 13?

10 A. Yes.

11 Q. Okay. Do you see the two output
12 lines referenced TA1 and TA2 from the drive means
13 13?

14 A. Yes.

15 Q. Now, do you understand that TA1 and
16 TA2 are two terminals off of coil 5 in the
17 vibration generation system?

18 A. Yes, it is sort of odd that it goes
19 to the other side then. But, anyway, yes.

20 Q. Okay. Just to be clear, TA1 and TA2
21 are identified in Figure 2 of Wakuda as well.
22 You can -- please check Figure 2 if you don't

1 recall.

2 A. Okay, yes, sure.

3 Q. If you see, looking at Figure 2, do
4 you see how there is a TA1 on, I guess the upper
5 right quadrant. TA1 on the lower left quadrant
6 of the figure there?

7 A. Yes.

8 Q. Now, do you agree that the drive
9 means 13 provides electric power to coil 5 for
10 these terminals TA1 and TA2?

11 A. Well, it is a conduit of current to
12 the coils.

13 Q. Which delivered, would you mean that
14 that provides electric power to the coil 5?

15 A. Well, I -- you know, we are -- you
16 know, as I say in my report, it doesn't show the
17 required power supply of the claim.

18 Q. But would you at least agree that it
19 provides power?

20 A. I prefer, I mean -- you know, just
21 to keep things clear, I will say it acts as a
22 conduit for power.

1 Q. Okay. I mean, for the vibration
2 generation system to work in Wakuda, the coil
3 needs current, correct?

4 A. Yes.

5 Q. Okay. Can I call your attention to
6 Wakuda Column 6, Line 26, to begin?

7 A. Column 6, line what?

8 Q. I'm sorry. Column 6, Line 26.

9 A. 26, okay.

10 Q. Okay. Can you read that for us,
11 please, that first sentence that begins on
12 Line 26?

13 A. "The drive means 13 is provided with
14 two output parts, one of which is connected to
15 one of the terminals TA1 of the coil 5 and the
16 other of which is connected to the other of the
17 terminals TA2 of coil 5."

18 Q. Can I then ask you to read the
19 sentence beginning in the next paragraph?

20 A. "The signal generation means 12
21 generates the drive signal S1 on the basis of a
22 command from the vibration control means 14 to

1 output the same to the drive means 13."

2 Q. Okay.

3 A. The drive current having a
4 predetermined waveform is given to the terminal
5 TA1 and the terminal TA2 of the coil 5 for the
6 drive means 13."

7 Q. Okay. Okay. I understand you have
8 a very particular requirement for the power
9 supply. But looking at the language here in
10 particular Column 6, Lines 32, would you agree
11 that the drive current provides power to the
12 coil?

13 A. Can I interject here? That -- I
14 mean, when you say I have a particular
15 requirement, I am following particularly the
16 claim construction that was supplied to me.

17 So, it is not me that has a
18 particular requirement. It is the court.

19 Q. Okay. That is fair. Would you
20 agree in 1005, that the portion of Column 6,
21 Lines 32 through 35, the drive current delivers
22 power to the coil?

1 A. Again, I will prefer to use the
2 term, you know, acts as a conduit for power.

3 Q. Okay. So, in your words acts as a
4 kind of power, but then it is qualified to say
5 that it delivers a predetermined waveform?

6 Would you agree with that --

7 A. Well, it is the drive current has a
8 particular waveform.

9 Q. Dr. Goossen, what does it mean to
10 say that it has a predetermined waveform?

11 A. Well, it has been determined.

12 Q. Okay. You said it has been
13 determined. But, what is, in fact,
14 predetermined?

15 A. The waveform of the drive current.

16 Q. Okay. What determines the
17 waveform --

18 What predetermines the waveform of
19 the current?

20 A. Well, he shows that in the figures
21 for the waveform, where he shows how a particular
22 S1 waveform will result in a particular

1 oscillation of the -- I forget if they use the
2 terms "LRA" here but of the mass.

3 Q. Okay. And you would agree it is not
4 any waveform; it is a particular waveform?

5 A. Yes.

6 Q. So, is it fair to say that the
7 driving means in 13 of Wakuda functions similar
8 to the actuator drive circuit 16 in Gregorio?

9 A. Well, I mean Wakuda doesn't describe
10 how he generates the waveform S1.

11 Q. But, we know that in Wakuda that
12 driving means 13 provides current to the coil,
13 correct?

14 A. It is the conduit for current to the
15 coil, but he doesn't explain how. There is no
16 circuit diagram.

17 Q. And in Gregorio, the actuator drive
18 circuit provides current to the LRA. Do you
19 recall that from earlier today?

20 A. Well, I mean again, Gregorio doesn't
21 show a circuit, so neither one is clear on how it
22 works.

1 Q. But, both the driving means in
2 Wakuda and the actuator drive circuit of Gregorio
3 supply current to the coil, correct?

4 A. They are a conduit for current.

5 Q. So, yes?

6 A. Well, again, I will use the word
7 "conduit" to make sure I am distinguishing from
8 the claim requirements of the power supply so as
9 not to confuse terminology.

10 Q. But to supply current, you need an
11 electric voltage, correct?

12 A. I am -- so, is that a question? I'm
13 sorry.

14 Q. Yes. My question is: To supply a
15 current, do you need an electric voltage that is
16 also applied?

17 A. Well, I mean, that is not
18 necessarily true. You can supply current without
19 voltage.

20 Q. And, okay. But we know at least in
21 Gregorio, it provides current and voltage, as we
22 discussed earlier today, correct?

1 A. It -- I mean, I -- you know -- can
2 we refer back to Gregorio? I mean --

3 Q. Sure.

4 A. The -- which number was that? Okay.
5 What was the question?

6 Q. So, let's go back to Gregorio. Do
7 you still have Gregorio available from earlier
8 today?

9 A. Yes, I'm looking right at it.

10 Q. Okay. So look at Column 2, Lines 36
11 through 39.

12 A. Yes.

13 Q. We see here that it provides
14 required electric current and voltage.

15 A. Yes.

16 Q. Okay. If I provide current and
17 voltage, by definition I provide power, correct?

18 A. Well, it is acting as the conduit
19 for that current and voltage. And that it is,
20 you know -- presumably which, I actually, it was
21 never established is connected to the LRA.

22 Q. If a system provides --

1 In general, if a system provides
2 electrical current and voltage, does it provide
3 power?

4 A. In general, if a circuit is a
5 conduit for voltage and current, it is a conduit
6 for power.

7 Q. What is the difference between being
8 a conduit for current and voltage versus current
9 and voltage?

10 A. In the patents in suit, the -- the
11 H-bridge would be the conduit for the voltage and
12 the current. There is a separate power supply.

13 So, the power supply originally
14 supplies the power. I mean, if you go to -- as
15 we go back to '830, and we just look at the claim
16 language.

17 So, you know, in the claim language
18 there is a power supply and there is a control
19 component. And, the control component -- well,
20 let's see.

21 '767 is the sort of clearest. There
22 is the H-bridge switch that is connected directly

1 to the LRA. And so it is functioning as a
2 conduit.

3 So, within the definition of the
4 claim terms and the patents, that is how I am
5 distinguishing the terms supply and conduit.

6 Q. Let's take a look at Figure 3 of
7 Wakuda again, if we can, please.

8 A. Yes.

9 Q. So, do you see the signal generation
10 means 12?

11 A. Yes.

12 Q. What -- do you see the arrow to the
13 right that goes to the drive means?

14 A. Yes.

15 Q. Do you see the annotated arrow S1?

16 A. Yes.

17 Q. What is S1 in this figure?

18 A. Well, he shows it in the next
19 figure. It is this sort of plus/minus signal
20 that has a constant amplitude and that results in
21 a waveform based upon its duty cycle.

22 Q. So, Wakuda describes it as a drive

1 signal, correct?

2 A. Yes.

3 Q. Do you see that the drive signal S1
4 is provided to the drive means 13?

5 A. Yes.

6 Q. So, would you agree that Wakuda
7 describes in drive signal S1 as having a certain
8 pattern or waveform?

9 A. Well, he shows an example in
10 Figure 4, yes.

11 Q. Okay. So it has -- but it does have
12 a certain pattern, correct?

13 A. So -- well, I mean, looking at
14 Figure 4, I mean it looks like it has a sort of
15 square wave pattern.

16 Q. Okay. If I can call your attention
17 to Wakuda, Column 6, Lines 36 through 37.

18 A. Yes.

19 Q. Can you read that sentence that
20 begins, "The signal generation means 12."

21 If you can read that sentence.

22 A. "The signal generation means 12

1 stores the drive signals S1, having a plurality
2 of patterns, and a drive signal S1, having a
3 certain pattern, as selected on the basis of a
4 command from the vibration control means 14 to be
5 given to the drive means 13."

6 Q. So, you would agree that a drive
7 signal S1 has a certain pattern?

8 A. Yes. It is shown in Figure 4.

9 Q. Okay. And it is selected on the
10 basis of a command from the vibrational control
11 means 14?

12 A. Yes. The vibration control means
13 has the menus -- the menu of desired responses.

14 Q. Okay. If I can ask you to advance
15 to Line 63.

16 A. In the same column there?

17 Q. The same column, please.

18 A. Yes.

19 Q. Can you read the sentence that
20 begins, "Figure 4 shows"?

21 A. Yes. "Figure 4 shows a waveform of
22 a drive signal S1."

1 Q. Okay. Thank you.

2 If I can then ask you to turn to
3 Paragraph 149 of your declaration.

4 A. Yes.

5 Q. There is a sentence that begins -- I
6 think it is one, two, three, four, five, six,
7 seven lines down. And it is the sentence that
8 begins, "A POSITA reading Wakuda."

9 If you can read that first,
10 Dr. Goossen, please.

11 A. Yes. "A POSITA reading Wakuda would
12 readily understand Wakuda's teaching to use a
13 single drive signal to control both the frequency
14 and amplitude of the vibration of the vibration
15 generating means, by controlling whether the
16 drive signal is in-phase (accumulation signal) or
17 out-of-phase (dampening signal) with the
18 vibrational waveform.

19 "This is illustrated, for example,
20 in Wakuda's Figures 4 and 5."

21 Q. Okay. So, in this paragraph of your
22 declaration, you recognize that the drive signal

1 in Wakuda is to control both the frequency and
2 amplitude of the vibrational -- of the vibration
3 generation means, correct?

4 A. Yes. A single signal S1 is what he
5 is showing there.

6 Q. Do you agree that the amplitude of
7 the vibration is controlled by the increasing or
8 decreasing of the amount of electrical current
9 supplied to the coil in Wakuda?

10 A. No.

11 Q. I'm sorry. Why is the amplitude of
12 the vibration not controlled by increasing or
13 decreasing the amount of electrical current
14 supplied to the coil in Wakuda?

15 A. Well, you can see it there. The
16 amount of current supplied is a constant in one
17 of two directions. And he controls the amplitude
18 by the duty cycle of that constant current
19 signal.

20 Q. Would you agree that the frequency
21 of the vibration is controlled by the changing
22 direction of the current to the coil?

1 A. Yes. I mean, inasmuch as -- the
2 drive signal as you can see changes its duty
3 cycle. So, it is not the frequency of the drive
4 signal itself, but it is the duty cycle that
5 determines the amplitude and frequency of the
6 vibrational waveform.

7 Q. Dr. Goossen, can you kindly turn to
8 Paragraph 151 of your declaration, please.

9 A. Yes.

10 Q. Can you please read the sentence
11 four lines down that begins with, "This is
12 consistent with"?

13 A. "This is consistent with and
14 supports my opinion that Wakuda teaches a
15 signal -- a single drive signal S1 to drive means
16 13 to control both direction and current/power
17 and not a second signal P to the power supply as
18 taught and required by the '337 patent."

19 Q. So, you would agree that drive
20 signal again controls both direction and
21 current/power, correct?

22 A. Yeah. The -- that is a little bit

1 clumsy language there. The drive signal S1 is
2 constant current. And it uses that to control
3 both direction and the, I would say, you know,
4 amplitude of the vibration.

5 Q. But as written here, the S1 controls
6 the current and power of the drive means,
7 correct?

8 A. No. I mean, the drive signal
9 determines the amplitude of the vibration based
10 upon its duty cycle as shown in Wakuda's
11 Figure 4.

12 Q. Dr. Goossen, what you said here, you
13 said that Wakuda teaches a single drive signal to
14 drive means to control both directions and
15 current/power, correct?

16 A. Yes. The drive means receives --
17 see, he is a little --

18 Wakuda -- and I think it is because
19 of the translation. He refers to the drive means
20 in some places as the coils themselves.

21 If I can find it here.

22 Q. Dr. Wakuda -- sorry.

1 Dr. Goossen, before we turn to that.

2 In Paragraph 151, though, you indicate again what
3 we see here in Figure 3, which is a signal
4 generation means controls a drive means.

5 Correct?

6 A. Well, I mean, it is a clumsy
7 sentence. It is meant to say that the drive
8 signal controls the direction and the amplitude
9 of the vibration signal --

10 Q. Okay.

11 A. -- as shown in Figure 4.

12 Q. Dr. Goossen, does anything -- is
13 anything else connected to the drive means as
14 shown in Figure 3?

15 A. Well, he doesn't really show what
16 the drive means is in terms of a circuit.

17 Q. Is there any other connection shown
18 to the drive means 13 shown in Figure 3?

19 A. I mean, the drive means is shown as
20 receiving S1.

21 Q. Okay. Is anything else connected to
22 the drive means in Figure 3?

1 A. No. But, I mean, it is a very
2 schematic diagram. So, it is sort of impossible
3 to determine -- he doesn't describe what is going
4 on in these boxes, circuit wise.

5 Q. So, in Paragraph 151, you argue that
6 drive signal S1 is used to control both current
7 and current power, correct?

8 A. What I mean is that the single
9 signal S1 controls by itself the vibrational
10 response, which is what he is showing in
11 Figure 4.

12 Q. Dr. Goossen, that is not what I'm
13 asking.

14 I'm asking in Paragraph 51, you
15 noted that Wakuda S1 is used to control both
16 direction and current power, correct?

17 A. Well, I mean, I guess what I meant
18 in there was the current in the coil itself.

19 Q. Again, Dr. Goossen, in your -- not
20 what you are saying today, May 8, 2025.

21 But in your Paragraph 151, you noted
22 that the S1 in Wakuda is used to control both

1 direction and current/power, correct?

2 A. Well, what I am saying there is --

3 Q. Dr. Goossen, I'm not asking you to
4 interpret what you wrote there.

5 But as written, you said that -- you
6 indicated that the drive signal S1 is used to
7 drive means 13 to control both the direction and
8 current power, current/power, correct?

9 A. That is what it says, yes.

10 Q. Okay. And current/power comes from
11 a power supply, correct?

12 A. Well, there is a power supply
13 somewhere. Drive signal S1 is controlling the
14 amplitude of the vibration waveform by its duty
15 cycle. It doesn't change the amount of -- it
16 itself doesn't change current level.

17 Q. But, current power -- current/power
18 necessarily comes from power supply, correct?

19 A. Yes. What I am saying there is that
20 a single signal controls everything.

21 Q. Mainly, it would come from a power
22 supply?

1 A. S1 is the drive signal, and there
2 must be a power supply to it.

3 Q. And current and power are the
4 characteristics of a power supply, correct?

5 A. Well, I mean power is a
6 characteristic of a power supply.

7 So, drive signal S1 must have a
8 power supply. And what is perfectly clear is
9 that that power supply is a constant power
10 supply, because drive signal S1 is a constant
11 current. It just goes plus and minus.

12 MR. ROZYLOWICZ: Okay, thank you,
13 Dr. Goossen. I think with that, we've
14 concluded our questioning.

15 And, Kris, I think -- I don't know
16 if you want a break or confer.

17 But, if you want to do your
18 redirect, we can --

19 MR. DAVIS: No, that is okay.
20 Thanks for that, though. No redirect from
21 Resonant.

22 MR. ROZYLOWICZ: I think with that,

1 Lori, I believe we are done.

2 (Whereupon, signature not having been waived,
3 the deposition suspended at 2:03 p.m.)

4 * * *

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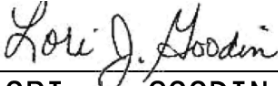
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1 Keith W. Goossen, Ph.D., c/o

2 RUSS AUGUST & KABAT

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6 Case: Apple Inc. v. Resonant Systems, Inc.

7 Date of deposition: May 8, 2025

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