

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTERN DIGITAL TECHNOLOGIES, INC.,
Petitioner,

v.

LONGITUDE LICENSING LTD.,
Patent Owner.

Case IPR2023-01230

U.S. Patent No. 9,207,701

DEPONENT: HARVEY STIEGLER, PH.D.

TAKEN: APRIL 11, 2024

REPORTER: DANNIELLE COPELAND
REGISTERED DIPLOMATE REPORTER
CERTIFIED REALTIME REPORTER
CALIFORNIA CSR 14444
TENNESSEE LICENSE 807
WASHINGTON CSR 22000824

STENOGRAPHICALLY REPORTED REMOTELY VIA ZOOM
VIDEOCONFERENCE

JOB NUMBER 97259

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1 THE VIDEOTAPED DEPOSITION OF HARVEY STIEGLER,
2 PH.D., TAKEN PURSUANT TO NOTICE HERETOFORE FILED, VIA
3 ZOOM VIDEOCONFERENCE, ON APRIL 11, 2024, AT
4 APPROXIMATELY 9:03 A.M., UPON ORAL EXAMINATION, AND TO
5 BE USED IN ACCORDANCE WITH THE CALIFORNIA CODE OF CIVIL
6 PROCEDURE.

7
8 *** **

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ALSO PRESENT:
SAMANTHA KRASNER, VIDEOGRAPHER

1 THE VIDEOGRAPHER: We are now on the
2 record. This is the beginning of Media Number 1 in the
3 deposition of Dr. Harvey J. Stiegler in the matter of
4 Western Digital Technologies versus Longitude
5 Licensing, LTD, Case Number IPR 202301230.

6 This deposition is being held via
7 videoconference, taken on behalf of the plaintiff, on
8 April 11, 2024, at 9:03 a.m.

9 The court reporter is Dannielle Copeland.
10 I am Samantha Krasner, the videographer, on behalf of
11 First Legal Depositions, located in Los Angeles,
12 California.

13 This deposition is being videotaped at all
14 times unless specified to go off the video record.

15 Would all present please identify
16 themselves, beginning with the noticing attorney.

17 ATTORNEY MILKEY: This is James Milkey on
18 behalf of patent owner with the law firm of Russ,
19 August & Kabat.

20 ATTORNEY SHI: This is Hong Shi from
21 Haynes & Boone on behalf of Western Digital.

22 THE VIDEOGRAPHER: Will the court reporter
23 please -- will the court reporter please swear in the
24 witness.

25 ///

1 HARVEY STIEGLER, PH.D., CALLED AS A WITNESS
2 HEREIN, HAVING BEEN FIRST DULY SWORN ON OATH, WAS
3 EXAMINED AND TESTIFIED AS FOLLOWS:
4

5 EXAMINATION
6

7 BY ATTORNEY MILKEY:

8 Q. Good morning, Dr. Stiegler.
9 Have you been deposed before?

10 A. Yes, I have.

11 Q. Approximately how many times?

12 A. One other time.

13 Q. Okay. What -- what was that proceeding
14 that you were deposed in previously?

15 A. It was -- gosh, I don't -- I don't remember
16 the full title of the case. But it was one we referred
17 to as the '043 patent, and it was a small company that
18 I can't remember the name of versus CSMC.

19 Q. Okay. And did you serve as an expert in
20 that case?

21 A. I did.

22 Q. And what opinions did you provide in that
23 case?

24 A. Excuse me?

25 Q. What -- what type of opinions did you

1 provide in that case?

2 A. Can you clarify what -- what you mean
3 there?

4 Q. Yeah.

5 Did you offer opinions on patent validity, for
6 example?

7 A. Oh, yes. Yeah. So it was the -- the
8 validity of the -- the '043 patent. I don't recall the
9 full number.

10 Q. Okay. And did you testify that that patent
11 was invalid?

12 A. Yes.

13 Q. Okay. So as we go through the deposition
14 today, you know, any time you need a break, please just
15 ask for a break, and we can take a break. I'll try to
16 take breaks approximately every hour, but I may lose
17 track of time in some instances. So if you
18 understand --

19 A. Take a drink of water.

20 Q. Yeah. Absolutely.

21 So you understand that you can ask for a break at
22 any time as long as there's not a question pending. Is
23 that fair?

24 A. Sure.

25 Q. Okay. And, you know, as with your previous

1 deposition, if you could please wait for me to finish
2 my question before answering, you can also, you know,
3 give your attorney time to object.

4 Is that fair?

5 **A. That's fair.**

6 Q. Okay. And then if you don't understand
7 some aspect of a question I'm asking, please ask for
8 clarification.

9 If you don't ask for clarification, I'll have to
10 assume that you understand the question.

11 Is that fair?

12 **A. That is fair.**

13 Q. Okay. How did you prepare for today's
14 deposition?

15 **A. I reviewed the declaration and a number of**
16 **the references.**

17 Q. Okay. Other than your declaration and the
18 references -- I assume you're -- you're referring to
19 the prior art references by that?

20 **A. That is correct.**

21 Q. Okay. Other than your declaration and a
22 number of prior art references, did you review any
23 other materials in preparation for today's deposition?

24 **A. No, I don't believe so. I don't recall**
25 **any.**

1 Q. Okay. Have you reviewed the patent owner's
2 preliminary response in this proceeding?

3 A. Briefly.

4 Q. And did you review the institution decision
5 in this proceeding?

6 A. Briefly.

7 Q. Have any of the opinions in your --
8 submitted in your declaration changed since reviewing
9 the patent owner preliminary response and the
10 institution decision?

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

12 Q. And do you plan to make any new arguments
13 in response to the arguments raised in the patent owner
14 preliminary response and institution decision?

15 ATTORNEY SHI: Objection, form.

16 THE WITNESS: No, I don't have any plans to
17 do that.

18 BY ATTORNEY MILKEY:

19 Q. Do you have a copy of your declaration with
20 you?

21 A. Yes, I do. I have it in front of me.

22 Q. Okay.

23 ATTORNEY MILKEY: So just for the -- the
24 court reporter's benefit, all of the materials that
25 we're likely to reference today are already part of

1 the -- the IPR record, so we don't need to actually
2 mark these as exhibits. I will upload them to the chat
3 for the reporter's benefit, but we don't need to
4 actually mark them as separate exhibits.

5 So I will just upload the declaration into
6 the chat.

7 BY ATTORNEY MILKEY:

8 Q. Okay. Before we get into your declaration,
9 approximately how long did you spend preparing for
10 today's deposition?

11 A. I would estimate about eight to ten hours.

12 Q. Okay. What days did you prepare for
13 today's deposition on?

14 A. Most of that time was yesterday.

15 Q. Okay. So if you could please turn to
16 paragraph 6 of your declaration. And this is on page
17 15.

18 A. Okay.

19 Q. Okay. I see here that you have over 25
20 years of industry experience in the semiconductor
21 industry.

22 Is that correct?

23 A. That's correct.

24 Q. Okay. So it's your opinion that you meet
25 the level of ordinary skill in the art that you've

1 proposed in this case; is that fair?

2 A. That's fair.

3 Q. Is it fair to say that you have greater
4 than ordinary skill in the art?

5 A. Yeah, I'm not exactly sure how you would
6 rate that, but I think that might be fair to say.

7 Q. Okay. Certainly you have more experience
8 than a person of ordinary skill in the art would have
9 had, correct?

10 A. More than -- more than the minimum
11 required, yes.

12 Q. Okay. Could you please turn to page 29 of
13 your declaration?

14 A. Okay.

15 Q. And do you see in paragraph 45 you quote
16 the claim language of Independent Claim 1 of the '701
17 patent?

18 A. Right.

19 Q. Okay. And do you see, going onto page 30,
20 there's a limitation that recites, "Coupling a selected
21 one of the first and second input nodes," and then it
22 goes on and has additional claim language?

23 A. Yes, I see that.

24 Q. Okay. In that same -- in that same sort of
25 block paragraph, there's a clause that says, "Wherein

1 selection of the first input node corresponds to a
2 first number of booster stages."

3 Do you see that?

4 A. Yes.

5 Q. Okay. And then within that wherein clause,
6 it also says, "selection of the second input node
7 corresponds to a selection of a second number of
8 booster stages."

9 Do you see that?

10 A. Yes.

11 Q. Okay. In your view, what does it mean when
12 it -- what does the claim mean when it says that
13 selection of the first input node corresponds to a
14 first number of booster stages?

15 A. Well, simple reading would be the first
16 number of -- the first input node corresponds to -- the
17 first -- okay.

18 So it says first input node corresponds to a first
19 number of booster stages, and the second number --
20 second input node corresponds to a second number of
21 booster stages, the second number being less than the
22 first one.

23 So I read that to mean that the first input node
24 utilizes more stages than the second input node.

25 Q. Okay. And so in your declaration you've --

1 you've proposed a few theories of invalidity for
2 Claim 1 of the '701 patent, correct?

3 **A. Could you clarify that a little bit,**
4 **please?**

5 Q. Yeah. So actually, if we can just point
6 to -- go to a specific example. If could you go to
7 page 61 of your declaration.

8 **A. Okay.**

9 Q. Okay. And you see on page 61 of your
10 declaration, there's an Example A of combination of
11 Zhang and Javanifard.

12 Do you see that?

13 **A. I see them.**

14 Q. Okay. And then going onto page 62 you have
15 an Example B of combination of Zhang and Javanifard.

16 Do you see that?

17 **A. Yes, I see that.**

18 Q. Okay. So it's your opinion that these
19 combinations of Zhang and Javanifard render obvious the
20 claims -- the challenged claims of the '701 patent,
21 right?

22 **A. Could you restate that, please?**

23 Q. Yeah.

24 It's your opinion that these Examples A and B of
25 the combination of Zhang and Javanifard render obvious

1 the challenged claims of the '701 patent, right?

2 A. Well, these -- these examples are given
3 with reference to a particular claim element. I don't
4 think that particular example in this statement
5 references all the claims.

6 Q. Okay. So I would just like to ask you
7 about Claim 1 for now.

8 A. Okay.

9 Q. So is it your opinion that Example A --
10 (TECHNICAL INTERRUPTION.)

11 (A DISCUSSION WAS HELD OFF THE RECORD.)

12 BY ATTORNEY MILKEY:

13 Q. So, Dr. Stiegler, it's your opinion that
14 Example A of the combination of Zhang and Javanifard
15 renders obvious Claim 1 of the '701 patent, correct?

16 A. Well, I think we have presented other
17 information with regard to other elements of the claim.

18 Q. Okay. For your Claim 1 invalidity theory,
19 you're proposing some combination of Zhang with
20 Javanifard, correct?

21 A. That's right.

22 Q. Okay. What does that combination look
23 like?

24 A. As far as circuit combination, I believe
25 what you're saying is correct.

1 Q. So is it your opinion that the combination
2 of Zhang and Javanifard for your Claim 1 theory of
3 invalidity looks like Examples A and B on pages 61 and
4 62 of your declaration?

5 A. Yes. Though I think it has to be
6 interpreted in light of the other information that we
7 presented in the other claim elements.

8 Q. Okay. So I'm trying to understand what
9 your actual combination looks like. So let's just
10 focus on these examples one at a time.

11 So for Example A, what other modifications do you
12 propose in your declaration would be necessary to
13 arrive at Claim 1 of the '701 patent?

14 A. Well, what do you mean by "modifications"?
15 We explain in -- for example, in the tables, how
16 the switches need to be configured.

17 Q. Okay.

18 A. But together, this would be sufficient.

19 Q. Okay. So -- and are you referring to the
20 table, for example, on page 65 of your declaration?

21 A. Yes. Yeah. Right there. Yes.

22 Q. Okay. So if you were to use Example A of
23 the combination of Zhang with Javanifard and you
24 were -- you configured that Example A to use the
25 selection logic of Table 1 shown on page 65 of your

1 declaration, is -- is that what your theory is for how
2 Zhang would be combined with Javanifard to render
3 obvious Claim 1 of the '701 patent?

4 A. Well, I don't think you need to restrict it
5 to Example A. Example B, for example, is similar,
6 but -- in that it provides more pump stages.

7 Q. Okay. So using either Example A or
8 Example B in combination with the selection logic shown
9 in Table 1 on page 65 of your declaration, are -- are
10 those the -- the combinations that you're proposing for
11 your Claim 1 invalidity theory?

12 A. Yes, I think that's correct.

13 Q. Okay. Other than Examples A and B in
14 combination with the selection logic in Table 1, is
15 there anything else that you're proposing would be
16 involved in your invalidity combinations for Claim 1?

17 A. I think everything necessary is laid out in
18 the -- in that section of the declaration.

19 Q. Okay. So you -- you mentioned Table 1
20 as -- as being the selection logic for your Example A
21 and B combinations.

22 How does the Table 1 selection logic work?

23 A. So -- so the selection logic allows certain
24 of the pump stages to be configured either in series to
25 provide a higher voltage or in parallel to provide a

1 higher current, and the table explains which
2 combinations of switches lead -- lead to that
3 configuration.

4 So for -- for example, Table 1 on page 65, in the
5 first line with both switches off and then the pump is
6 off. In line 2, switch 130 off, switch 131 on due to
7 parallel-coupled charge pumps. In line 3, switch 130
8 on, switch 131 off due to series-coupled charge pumps.
9 And line 4, both switches on is -- is a configuration
10 not used.

11 Q. Okay. And in your proposed combination of
12 Zhang with Javanifard, how would the system determine
13 the configuration of switches 130 and 131?

14 A. Can you clarify what part of the claim
15 you're asking that with reference to?

16 Q. I'm not asking -- just to be clear, I'm not
17 asking with respect to any part of the claim.

18 I'm asking about -- so you're proposing that a
19 person of ordinary skill in the art would have combined
20 Zhang with Javanifard in some manner.

21 What I'm asking about is how that combination that
22 you believe a person of ordinary skill in the art would
23 have made, how that combination would operate in
24 practice.

25 So with -- with that background, what I'm asking

1 is: In the proposed combination of Zhang with
2 Javanifard that -- that you propose in your
3 declaration, how would the system, that combined
4 system, determine how switches 130 and 131 should be
5 configured at any moment in time?

6 A. Well, they're -- I think this is maybe
7 going outside of the immediate material.

8 To a give a general answer, which I -- I mean,
9 it's -- it's -- there could be many ways, and I don't
10 know that there needs to be a specific way here.

11 If I would give an example, it wouldn't
12 necessarily be complete or restrictive. If you want an
13 example, I could give one, but I don't know that
14 that's -- it's answered in this context.

15 Q. Okay. So in your report -- sorry.

16 In your declaration, how do you ex- -- where do
17 you explain how switches 130 and 131 would be
18 configured at any moment in time?

19 A. Well, for example, paragraph 112. "For the
20 benefits of providing a charge pump that can both
21 accommodate different output levels for a given charge
22 pump power supply input level, and accommodate a given
23 output level for different charge pump power supply
24 input levels."

25 Q. Paragraph 112 doesn't mention the switches

1 of Table 1, does it?

2 A. Well, no, it doesn't.

3 Q. Okay. Where in your declaration do you
4 explain how the switches described in Table 1 would be
5 configured at any moment in time?

6 A. Can you -- can you explain what -- what
7 claim element you're trying to reference here?

8 Q. As I said before, Dr. Stiegler, I'm not
9 referencing a specific claim element.

10 I'm asking where in your declaration you explain
11 how in this combination that you allege would have been
12 obvious, how the switches 130 and 131 would have been
13 configured at any given moment in time.

14 A. Well, I mean, I think Table 1 is
15 self-explanatory.

16 Q. Okay. So in your annotated Table 1, you
17 have red highlighting on the first row in that table;
18 is that right?

19 A. Say again? That was a little -- I
20 didn't -- didn't -- it wasn't loud enough.

21 Q. Yeah.

22 So on -- on page 65 of your declaration --

23 A. Yes, sir.

24 Q. -- you have red highlighting on the first
25 row of Table 1.

1 Do you see that?

2 A. Yes.

3 Q. And then you have green highlighting on the
4 third row of Table 1.

5 Do you see that?

6 A. Uh-huh.

7 Q. Okay. And so since you say that Table 1 is
8 self-explanatory, I assume that you're referring to
9 using the first row of Table 1 at certain periods of
10 time and the third row of Table 1 at other periods of
11 time.

12 Is that fair?

13 A. You said the first and third?

14 Q. Yes.

15 A. Well, the first -- the first row, as I --
16 as I said earlier, corresponds to the charge pumps
17 being off. So that would only be used if you didn't
18 need the pumps.

19 Q. Okay. So is it your opinion that in your
20 proposed combination of Zhang with Javanifard, that the
21 first row of Table 1 would not be used?

22 A. No. I didn't say that.

23 There might -- there might be -- it depends on the
24 end application, and we don't cover that here. But the
25 first row would only be used if you wanted to turn the

1 pump off.

2 Q. Okay.

3 A. The second and third rows are the -- I
4 think are the row -- rows that refer to
5 parallel-coupled charge pumps and series-coupled charge
6 pumps, and those would be selected when you needed --
7 when you had that requirement.

8 Q. Okay. In your declaration, do you provide
9 any instance in which in your proposed combination
10 Table -- Row 1 of Table 1 would have been used?

11 A. State that again, please?

12 Q. Yeah. So you said that Table 1 -- or
13 strike that.

14 You said that Row 1 of Table 1 would only be used
15 when you want to turn the charge pumps off.

16 Do you provide any opinion in your declaration of
17 any instances in which a person of ordinary skill in
18 the art would have wanted to use the configuration
19 described in Row 1 of Table 1?

20 A. I don't recall discussing that.

21 Q. Okay. And then going to Row 2 of Table 1,
22 do you provide any opinions in your declaration of when
23 a person of ordinary skill in the art would have wanted
24 to use the configuration shown in Row 2 of Table 1?

25 A. Well, the cases where you may want pumps in

1 series and pumps in parallel are discussed in paragraph
2 120. And I need to read this carefully.

3 We may -- I think I need to correct something that
4 I said earlier, because Row 1, I may have given the
5 impression that the entire charge pump is off, and
6 that's not correct.

7 Row 1, when the switches are both off, charge pump
8 120 is off, but 110 would still be in operation.

9 Q. Okay. Thank you for that clarification.

10 So with -- with that understanding, where in your
11 declaration do you explain when that first row of
12 Table 1 would be used?

13 A. Well, I think that that's also covered in
14 paragraph 120.

15 Q. Okay.

16 A. Serially connected to provide a higher
17 boost voltage.

18 Q. Okay. And then for Row 3 of Table 1, where
19 in your declaration do you describe where that
20 configuration of switches would be used?

21 A. Well, I mean, this -- on the bottom of page
22 64, the last three or four lines, Row 3 of Table 1,
23 because Row 3 of Table 1 provides for a higher number
24 of serially connected booster stages to provide a
25 higher boost -- voltage boost by serially connecting

1 pumps 110 and 120.

2 Q. Okay.

3 A. I mean, I think that that says that you
4 would use that when you need a higher voltage boost.

5 Q. Okay. Going back up to page 63 of your
6 declaration, do you see that this has a heading with
7 claim language starting, "Wherein selection of the
8 first input nodes corresponds to a first number of
9 booster stages."

10 Do you see that?

11 A. Oh, sorry. The wrong page.

12 Yes.

13 Q. Okay. In your opinion, how is this
14 limitation met; specifically, how is selection of the
15 first input node corresponding to a first number of
16 booster stages?

17 A. Say the question again, please?

18 Q. Yeah.

19 In your proposed combination of Zhang with
20 Javanifard, how does selection of the first input node
21 correspond to a first number of booster stages?

22 A. So I think that's -- that's discussed in
23 paragraph 119, when I say that selection of the first
24 input node -- well, back up one moment.

25 It would have been obvious, the combination,

1 selection of the first input node with a lower input
2 power supply voltage level corresponds to the first
3 number that is a higher number of booster stages for
4 generating the same output voltage.

5 So I think we state it there.

6 Q. Okay. So in your opinion, does selection
7 of the first input node determine how many booster
8 stages are used?

9 A. Given -- given a defined output voltage
10 requirement, yes.

11 THE REPORTER: I'm sorry. Will you repeat
12 that answer?

13 THE WITNESS: I said given a defined output
14 voltage requirement, yes.

15 BY ATTORNEY MILKEY:

16 Q. So in your opinion -- well, let me ask you
17 this.

18 Where in your declaration do you -- do you explain
19 how the number of booster stages would be impacted by
20 anything other than the selection of the input node?

21 A. I'm sorry. You cut out there near the end.
22 Say that -- say that again, please?

23 Q. Yeah.

24 Where in your declaration, if anywhere, do you
25 provide any opinion that the number of booster stages

1 would be affected by anything other than the selection
2 of the first input node in your proposed combination?

3 A. Anything other than the selection of what?

4 Q. Of the first input node -- or sorry. Let
5 me re-ask the question. I apologize.

6 Where in your declaration, if anywhere, do you
7 provide any opinion that the number of booster stages
8 would be affected by anything other than which input
9 node was selected in your proposed combination?

10 A. Well, I'll have to take some time to -- to
11 locate it, but I know we addressed the question of more
12 than one output node and more than one output voltage.

13 Q. Okay.

14 A. Now, I'll -- I'll need to look for that if
15 you need the specific location.

16 Q. Okay. Yeah. If you could point to me
17 where in your declaration you explain how the -- the
18 switching of Table 1 would operate corresponding to
19 different desired output voltages, I would appreciate
20 that.

21 A. Well, as I -- okay.

22 I think I have your answer, but if you would just
23 state the question again so that I'm sure I answer the
24 right question.

25 Q. Yeah.

1 Where in your declaration do you explain how the
2 switching of Table 1 would operate corresponding to
3 different desired output voltages?

4 **A. Okay. So I think that if you look at**
5 **paragraph 80, we discuss Figure 2 on the previous page**
6 **where there are two inputs and two outputs of different**
7 **voltages. And then in paragraph 120 we discuss the**
8 **advantages of being able to achieve either of those by**
9 **the switch settings.**

10 ATTORNEY SHI: Would this be a good time to
11 take a break?

12 ATTORNEY MILKEY: Yeah. We can take a
13 break.

14 THE VIDEOGRAPHER: Okay. The time is 9:55
15 a.m. We're going off the record.

16 (RECESS TAKEN.)

17 THE VIDEOGRAPHER: The time is 10:05 a.m.
18 We are back on the record.

19 BY ATTORNEY MILKEY:

20 Q. Welcome back, Dr. Stiegler.
21 Did you discuss anything with counsel during the
22 break?

23 **A. No, we didn't.**

24 Q. Okay. So before the break we were talking
25 about different desired output voltages, and so I'll --

1 I'll ask a -- a new question on this issue.

2 Where in your declaration do you explain how in
3 your proposed combination the switching of Table 1
4 would operate corresponding to different desired output
5 voltages?

6 **A. Well, I think that's the same answer as**
7 **earlier: paragraph 120.**

8 Q. Okay. Other than paragraph 120, are you
9 aware of anywhere in your declaration you explain how
10 in your proposed combination of Zhang with Javanifard
11 the switching of Table 1 would operate corresponding to
12 different desired output voltages?

13 **A. I don't know that I can say definitely no**
14 **unless I take time to go back and read every line.**

15 Q. Yeah, if you could --

16 **A. Nothing comes to mind at the moment.**

17 Q. Okay. If you could review your paragraphs
18 87 to 142 on this question, that would be helpful.

19 And specifically, again, the question is: Other
20 than paragraph 120, are you aware of anywhere in your
21 declaration that you explain how in your proposed
22 combination of Zhang with Javanifard the switching of
23 Table 1 would operate corresponding to different
24 desired output voltages?

25 **A. So what was your preface comment there? It**

1 was -- there is a little bit of trouble hearing
2 sometimes.

3 Q. Yeah. So I'm asking you to review
4 paragraphs 87 to 142 of your declaration.

5 And the question is: Other than paragraph 120,
6 are you aware of anywhere in your declaration that you
7 explain how, in your proposed combination of Zhang with
8 Javanifard, the switching of Table 1 would operate
9 corresponding to different desired output voltages?

10 A. So you asked me to review through what
11 number?

12 Q. From 87 to 142.

13 A. 142.

14 Well, okay, so there -- there are a number of
15 areas in which we discuss the need for different
16 voltages produced by different pump configurations.

17 Q. So --

18 A. But in par- -- to give a few specific
19 examples, paragraph 122 discusses Row 3 and Row 1 of
20 Table 1. And then paragraph 134 discusses power
21 supplies in Table 1.

22 And there's another one I saw, but -- and I'm not
23 finding it at the moment, but -- I won't say that's an
24 exhaustive list, but I found two or three.

25 Q. Okay. So sitting here today you've pointed

1 to paragraphs 120, 122, and 134 as explaining how in
2 your proposed combination the switching of Table 1
3 would operate corresponding to different desired output
4 voltages; is that fair?

5 **A. That's fair, with the provision that that**
6 **may not be an exhaustive list.**

7 Q. And sitting here today, you just reviewed
8 paragraphs 87 to 142 of your declaration, correct?

9 **A. Yeah, very briefly, I've reviewed it. Yes.**

10 Q. Okay. If you could go to page 73 of your
11 declaration.

12 **A. Okay.**

13 Q. And do you see that this is the start of
14 your analysis regarding how Claim 2 would have been
15 obvious over Zhang and Javanifard?

16 **A. Right.**

17 Q. Okay. And then going on to the next page,
18 you have an annotated version of Zhang's Figure 8.

19 Do you see that?

20 **A. Yes.**

21 Q. Okay. Why did you include Zhang's Figure 8
22 in your declaration on page 74?

23 **A. Well, I mean, there's at least one reason**
24 **it isn't -- this shows it is possible to achieve the**
25 **same output voltage with two different input voltages.**

1 Q. Okay. Is it your opinion that in the
2 proposed combination of Zhang and Javanifard, the
3 output voltage waveform would look like what Figure 8's
4 output voltage waveforms look like?

5 A. I'm not sure what you -- how closely you
6 would mean "looks like." There are many design
7 variables that it would -- could affect the exact
8 shape, but, in general, that's one possibility.

9 Q. Is Figure 8 of Zhang an example of using
10 different power supplies to provide a given output
11 level?

12 A. Well, that's -- that's as described in
13 paragraph 139.

14 Q. So in paragraph 139 you're describing Zhang
15 using --

16 A. Yes. It says first input node of, for
17 example, 1.8 volts, and -- or second input node, for
18 example, 8 volts.

19 Q. Okay. Thank you. Okay.
20 If you could turn to page 111 of your declaration.

21 A. Okay.

22 Q. And do you see here there is an Example C,
23 which is Embodiment 1 and 2 of Javanifard combined?

24 A. I'm going to look to the PDF that you
25 provided because the printout I have is a bit dark

1 **here.**

2 Q. Okay. Yeah. Whatever is easiest for you.
3 Absolutely.

4 A. **Page 111. Actually, that doesn't help**
5 **much. Okay. Probably the printout is better. Okay.**

6 Q. Are you referring to the darkness of the
7 grayed-out area of Figure 2?

8 A. **Yes. Maybe that's not what you're going to**
9 **ask, though. Okay.**

10 Q. Yeah. So my understanding -- and let me
11 know if this is incorrect -- is that your proposed
12 combination of Figure 2 with Figure 1 essentially
13 ignores the -- the grayed-out area of Figure 2, so
14 maybe it's not too relevant what's in there.

15 Is that -- is that fair?

16 A. **Yeah. For this particular part of the**
17 **discussion, that may be correct.**

18 Q. Okay. If we look at Example C on page 111,
19 it looks to me -- and based on reading your declaration
20 as well -- that the combinations effectively -- that
21 you use the -- the voltage selection aspects of
22 Figure 2, so the selection between VCC and VPP in
23 Figure 2, and you combine that and use that as an input
24 to the Figure 1 booster circuitry.

25 Is that generally accurate?

1 A. Was that a question?

2 Q. Yeah.

3 Is that -- is that an accurate representation of
4 what's depicted in Example C on --

5 A. Yes, I think so.

6 Q. Okay. Thank you.

7 How did you decide to combine this particular
8 aspect of Figure 2 of Javanifard with Figure 1 of
9 Javanifard?

10 A. Well, this -- this illustrates the ability
11 to select between two different input nodes and then
12 connect to the configurable booster circuitry.

13 Q. Okay. Understood that figure -- the
14 aspects of Figure 2 that you're relying on include
15 selection between input nodes.

16 My question is why you chose to focus on that
17 aspect of Figure 2 in particular as opposed to the
18 other aspects of Figure 2 in making your combination.

19 A. Well, going back to the claim element
20 that's under discussion here, 1.1, it states,
21 "Selecting one of a first input node supplied with a
22 first power supply voltage and a second input node
23 supplied with the second power supply voltage that is
24 higher than the first power supply voltage."

25 That's the claim element under discussion, and

1 that is what I believe this illustrates.

2 Q. Okay. So you focused on the voltage
3 selection between VCC and VPP because that's the aspect
4 of Figure 2 that relates to the claim element under
5 discussion?

6 A. Right.

7 Q. And sticking with the Example C combination
8 on page 111, did you describe in your declaration what
9 benefits this combination would have had relative to
10 just Figure 2 of Javanifard standing alone?

11 A. Well, at least, for example, at the bottom
12 of page 110, starting on like the fourth or fifth line
13 up, it would have been obvious to a person of ordinary
14 skill in the art to implement well-known circuits,
15 voltage detection, voltage -- and so forth, according
16 to design needs.

17 Further, would have been obvious that the various
18 voltages for VCC, 3.3 volts, or VPP, 5 volts, or other
19 voltages would be used based on design needs. And --
20 and -- so for one example.

21 Q. Okay. Do you have any opinion that the
22 various voltages for VCC and VPP could not be used
23 based on design needs with Javanifard's Figure 2
24 embodiment standing alone?

25 A. I'm not sure I understand your question.

1 **Could you resay or rephrase that?**

2 Q. Yeah. So I'll ask it slightly differently,
3 but it's effectively the same question.

4 Do you have any opinion that -- or I'll strike
5 that.

6 You agree that Javanifard's Figure 2 embodiment
7 can use various voltages for VCC and VPP based on
8 design needs, right?

9 A. Yes.

10 Q. Okay. Okay.

11 And then going back up to page 61 of your
12 declaration. And this is going back to the Example A
13 of the combination of Zhang with Javanifard.

14 A. Okay.

15 Q. And how did you arrive at -- at this
16 combination of Zhang and Javanifard?

17 How did you decide to focus on the voltage
18 selec- -- the voltage selection elements of Zhang and
19 combine them with the booster circuitry elements of
20 Javanifard?

21 A. Well, again, looking at the claim element
22 under discussion, I think this -- which says coupling a
23 selected one of the first and second input nodes to
24 booster circuitry of -- so coupling one of the first or
25 second input nodes to booster circuitry, comprising of

1 plurality and booster stages throughout an output
2 voltage, I think that clearly illustrates a selection
3 of input voltages and being coupled to booster stages.
4 So I think it's a clear example of the claim element.

5 Q. Okay. Did you use the claim language as a
6 roadmap to determine what aspects of the various
7 embodiments that you combined together?

8 A. Well, I mean, in this case yes, because --
9 yeah. Of course.

10 Q. Okay. How long did you spend in preparing
11 your declaration that you submitted in this case?

12 A. I'm sorry. Say that again, please?

13 Q. Yeah.

14 How long did you spend preparing your declaration
15 that you submitted in this -- in this matter?

16 A. How long was required to prepare it?

17 Q. Yes.

18 A. I can't give you an exact number. But as I
19 recall, it was several weeks.

20 Q. Okay. Did you write your declaration
21 yourself?

22 A. No. It was a joint effort with counsel.

23 Q. Okay. Did you write any portions of your
24 declaration yourself?

25 A. Some portions --

1 ATTORNEY SHI: Objection, privilege.

2 I will instruct Dr. Stiegler to answer to
3 the extent that he does not reveal any attorney-client
4 privileged information.

5 THE WITNESS: Yes, I'm sure that I did.

6 BY ATTORNEY MILKEY:

7 Q. Okay. So if we look at the table of
8 contents of your declaration, you see we have the
9 first -- we have some introductory sections -- or we
10 have Sections I through VIII, which are the
11 introduction section through the grounds section. And
12 then starting on Section VIII(B) there's a -- Ground 1
13 begins, which says, "Claims 1 through 18 are rendered
14 obvious under Section 103 over Zhang in view of
15 Javanifard."

16 Do you see that?

17 A. Yes.

18 Q. Okay. Starting with that Section VIII(B),
19 did you write any of those paragraphs in the following
20 sections yourself?

21 ATTORNEY SHI: Objection, privileged.

22 Dr. Stiegler, you can answer the question
23 so long as it doesn't reveal any attorney-client
24 privileged information or communication.

25 THE WITNESS: I wrote -- this was some time

1 ago, of course, so my exact memory is not clear.

2 I wrote some portions of some paragraphs.

3 BY ATTORNEY MILKEY:

4 Q. So you wrote some portions of some
5 paragraphs after page 49 of your declaration?

6 A. To the best of my recollection, yes.

7 Q. Okay. Did you copy and paste any portions
8 of the petition into your declaration?

9 ATTORNEY SHI: Objection. Same privilege
10 objection and instruction.

11 THE WITNESS: Copy and paste any portions
12 of the petition. I don't think so. I don't know that
13 I could say definitively, but I don't recall doing
14 that.

15 BY ATTORNEY MILKEY:

16 Q. When did you first become aware of the
17 Javanifard reference?

18 ATTORNEY SHI: Objection, privileged.

19 To the extent that it doesn't reveal any
20 attorney-client privileged information, Dr. Stiegler,
21 you can answer.

22 THE WITNESS: Again, a long time ago. And
23 I can't state precisely, but sometime around the time
24 that I was engaged in this matter.

25 BY ATTORNEY MILKEY:

1 Q. Okay. Do you recall if you found the
2 Javanifard reference on your own?

3 ATTORNEY SHI: Objection, privileged.
4 Same instruction.

5 THE WITNESS: No, I didn't.

6 BY ATTORNEY MILKEY:

7 Q. Okay. When did you first become aware of
8 the Zhang reference?

9 A. I would -- same answer.

10 Q. And did you find the Zhang reference on
11 your own?

12 A. No.

13 Q. Okay.

14 ATTORNEY MILKEY: If we could go off the
15 record.

16 THE VIDEOGRAPHER: Okay. The time is 10:41
17 a.m. We are going off the record.

18 (RECESS TAKEN.)

19 THE VIDEOGRAPHER: The time is 10:55 a.m.
20 We are back on the record.

21 ATTORNEY MILKEY: Okay. I have no further
22 questions at this time.

23 ATTORNEY SHI: Can we take a break? We
24 will review the notes and -- maybe a 15-minute break.
25 And when we come back, I will let you know if I have

1 any questions.

2 ATTORNEY MILKEY: Okay. Thank you.

3 THE VIDEOGRAPHER: The time is 10:56 a.m.

4 We are off the record.

5 (RECESS TAKEN.)

6 THE VIDEOGRAPHER: The time is 11:16 a.m.

7 We are back on the record.

8

9 EXAMINATION

10

11 BY ATTORNEY SHI:

12 Q. So, Dr. Stiegler, you said that you used
13 the claim language as a roadmap to determine what
14 aspects of the embodiments that you combined together.

15 What do you mean by using the claim language as a
16 roadmap?

17 A. Well -- excuse me.

18 Well, of course the first thing I did was to read
19 the '701 patent, including the claims, in order to
20 understand its technical content and what it was about.

21 Q. So did you use the claim language as the
22 reasons to combine the prior art?

23 ATTORNEY MILKEY: Objection to form.

24 THE WITNESS: We've provided -- the
25 declaration provides a number of reasons that a person

1 of ordinary skill in the art -- excuse me -- that a
2 person of ordinary skill in the art -- technical
3 reasons why they would want to combine the prior art.

4 ATTORNEY SHI: Thank you. No more
5 questions. Pass the witness.

6

7

EXAMINATION

8

9 BY ATTORNEY MILKEY:

10 Q. Dr. Stiegler, did you discuss your
11 deposition testimony with your attorney during any
12 breaks today?

13 ATTORNEY SHI: Objection, privileged.

14 THE WITNESS: Yes.

15 BY ATTORNEY MILKEY:

16 Q. Did you discuss the substance of the
17 answers you just provided on your testimony in response
18 to your attorney's questions just now during the break?

19 ATTORNEY SHI: Objection, privileged.

20 Dr. Stiegler, I instruct you not to answer
21 the question.

22 BY ATTORNEY MILKEY:

23 Q. Are you going to follow your attorney's
24 instruction, Dr. Stiegler?

25 A. Yes, of course.

1 Q. Did your attorney tell you how to answer
2 the questions she just asked you?

3 ATTORNEY SHI: Objection, privileged.

4 Dr. Stiegler, I instruct you not to answer
5 the question to the extent that it will reveal any
6 attorney-client privileged information.

7 BY ATTORNEY MILKEY:

8 Q. Are you going to follow your attorney's
9 instruction?

10 A. Yes, of course.

11 Q. Did your attorney, when you prepared your
12 declaration, provide you with the prior art
13 combinations that you relied on in your declaration?

14 ATTORNEY SHI: Objection, privileged.

15 Dr. Stiegler, I instruct you to answer the
16 question to the extent that no attorney-client
17 privileged information is revealed.

18 THE WITNESS: I want -- I want to be sure I
19 get this -- I understand exactly what you're asking.

20 Could you state that again, please?

21 BY ATTORNEY MILKEY:

22 Q. Yeah. I'll ask -- I'll ask it slightly --
23 what's probably in a slightly more clear way.

24 Did your attorney tell you how the prior art
25 references should be combined in order to arrive at the

1 asserted -- at the -- strike that.

2 Did your attorney tell you how the prior art
3 references should be combined in order to arrive at the
4 challenged claims of the '701 patent?

5 ATTORNEY SHI: Objection, privileged.

6 I instruct the witness not to answer the
7 question to the extent that it will reveal any
8 attorney-client privileged information.

9 **THE WITNESS: Okay. I will just say that**
10 **it was a collaborative effort.**

11 BY ATTORNEY MILKEY:

12 Q. Are you able to answer the question in a
13 yes/no manner?

14 ATTORNEY SHI: Objection. Asked and
15 answered.

16 ATTORNEY MILKEY: It's a different
17 question, Counsel.

18 ATTORNEY SHI: Same objection.

19 **THE WITNESS: Yeah, I don't understand what**
20 **your -- what specifically you're asking. Please say**
21 **again.**

22 BY ATTORNEY MILKEY:

23 Q. Dr. Stiegler, can you let me know if you
24 are able to answer the following question in a yes/no
25 manner? If you're not, just say, "I cannot answer the

1 question in a yes/no manner."

2 Did your attorney tell you how to combine the
3 prior art references in order to arrive at the
4 challenged claims of the '701 patent?

5 ATTORNEY SHI: Objection, privileged.

6 I instruct the witness not to answer to the
7 extent that it will reveal any privileged information.

8 You don't need to answer this question.

9 **THE WITNESS: Okay.**

10 BY ATTORNEY MILKEY:

11 Q. So are you refusing to answer the question?

12 **A. I will accept my attorney's advice.**

13 Q. And did your attorney provide you with the
14 motivations to combine the prior art references that
15 you included in your declaration?

16 ATTORNEY SHI: Objection, privileged.

17 Instructing the witness not to answer.

18 BY ATTORNEY MILKEY:

19 Q. And will you follow your attorney's
20 instruction, Dr. Stiegler?

21 **A. Yes, of course.**

22 Q. How long did you speak with your attorney
23 during the break in this deposition?

24 ATTORNEY SHI: Objection, vague.

25 Could you explain which break it is?

1 ATTORNEY MILKEY: Yeah.

2 BY ATTORNEY MILKEY:

3 Q. The most recent break during this
4 deposition, between my questioning and your attorney's
5 questioning, how long did you spend discussing various
6 matters with your attorney?

7 ATTORNEY SHI: Objection, privileged.

8 I instruct the witness not to answer.

9 THE WITNESS: Okay.

10 ATTORNEY MILKEY: So, Counsel, just for the
11 record, you're -- you're claiming that the amount of
12 time you spent discussing the testimony with
13 Dr. Stiegler is privileged?

14 ATTORNEY SHI: Correct.

15 ATTORNEY MILKEY: Okay.

16 BY ATTORNEY MILKEY:

17 Q. Dr. Stiegler, were any of the opinions of
18 invalidity that you presented in your declaration
19 opinions that you came up with originally rather than
20 opinions that your attorneys came up with originally?

21 ATTORNEY SHI: Objection, privileged.

22 Again, Dr. Stiegler, you can answer to the
23 extent that it doesn't reveal any privileged
24 information.

25 THE WITNESS: Again, I'll say that it was a

1 collaborative effort, and it was a number of months
2 ago. And how the discussion went between us --

3 ATTORNEY SHI: Objection.

4 Again, Dr. Stiegler, I just want to repeat
5 that -- not to reveal any communication, privileged
6 communication.

7 THE WITNESS: Yeah. I was simply going to
8 say that I -- I don't recall all the details of the
9 discussion.

10 BY ATTORNEY MILKEY:

11 Q. Okay. And in not recalling all the details
12 of the discussion, do you recall whether any of the
13 opinions of invalidity presented in your declarations
14 were opinions that you came up with originally rather
15 than opinions that your attorneys provided to you?

16 ATTORNEY SHI: Objection, privileged and
17 asked and answered.

18 THE WITNESS: Yeah, I -- I'm supposed to
19 answer?

20 I believe so, but, again, it was -- it was
21 a number of months ago, and the exact details, I don't
22 recall.

23 ATTORNEY MILKEY: Okay. I have no further
24 questions.

25 ATTORNEY SHI: We can go off record.

1 THE VIDEOGRAPHER: Okay. Sorry. My camera
2 is still loading.

3 Are we concluding the deposition?

4 ATTORNEY MILKEY: Yeah.

5 THE VIDEOGRAPHER: Okay. This concludes
6 the deposition of Dr. Harvey Stiegler on April 11th,
7 2024. Off the video record at 11:25 a.m.

8 (CONCLUDED AT 11:25 A.M.)

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2
3 REPORTER'S CERTIFICATE

4 I, DANNIELLE COPELAND, RDR, CRR, DO HEREBY CERTIFY
5 THAT THE FOREGOING DEPOSITION OF HARVEY STIEGLER, PH.D.
6 WAS TAKEN BEFORE ME AT THE TIME AND PLACE AND FOR THE
7 PURPOSE IN THE CAPTION STATED; THAT THE WITNESS WAS
8 FIRST DULY SWORN TO TELL THE TRUTH, THE WHOLE TRUTH,
9 AND NOTHING BUT THE TRUTH; THAT THE DEPOSITION WAS
10 TAKEN BEFORE ME STENOGRAPHICALLY AND AFTERWARDS
11 TRANSCRIBED UNDER MY DIRECTION; THAT THE FOREGOING IS A
12 FULL, TRUE, AND CORRECT TRANSCRIPT OF THE SAID
13 DEPOSITION SO GIVEN; THAT THERE WAS A REQUEST THAT THE
14 WITNESS READ AND SIGN THE TRANSCRIPT; THAT THE
15 APPEARANCES WERE AS STATED IN THE CAPTION.

16 I FURTHER CERTIFY THAT I AM NEITHER OF COUNSEL NOR
17 OF KIN TO ANY OF THE PARTIES TO THIS ACTION, AND AM IN
18 NO WAY INTERESTED IN THE OUTCOME OF SAID ACTION.

19 WITNESS MY SIGNATURE ON APRIL 17, 2024.

20 *Dannielle Copeland*

21 DANNIELLE COPELAND, RDR, CRR
22 CALIFORNIA CSR 14444
23 TENNESSEE LICENSE 807
24 WASHINGTON CSR 22000824
25

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