

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

Case No. 4:23-cv-752

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CHIEN-MIN SUNG,
Plaintiff,

- against -

SAMSUNG ELECTRONICS CO. LTD., SAMSUNG
ELECTRONICS AMERICA, INC., SAMSUNG
SEMICONDUCTOR, INC., and SAMSUNG AUSTIN
SEMICONDUCTOR LLC,
Defendants.

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May 28, 2024

11:17 a.m.

VOLUME II

Continued remote
video-teleconference deposition via Webex
of STANLEY SHANFIELD, before Jineen
Pavesi, a Registered Professional
Reporter, Registered Merit Reporter,
Certified Realtime Reporter and Notary
Public of the State of New York.

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

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S T I P U L A T I O N S

IT IS HEREBY STIPULATED AND AGREED
by and between the Attorneys for the
respective parties hereto that filing and
sealing be and the same are hereby waived.

IT IS FURTHER STIPULATED AND AGREED
that all objections except as to the form
of the question, shall be reserved to the
time of the trial.

IT IS FURTHER STIPULATED AND AGREED
that the within examination may be signed
and sworn to before any notary public with
the same force and effect as though signed
and sworn to before this Court.

1
2 (Initial court reporter was replaced
3 with a realtime reporter and deposition
4 continued with the realtime reporter.)

5 (Shanfield Exhibit 2, '862
6 patent, was marked for identification, as
7 of this date.)

8 (Shanfield Exhibit 3, '802
9 Patent, was marked for identification, as
10 of this date.)

11 S T A N L E Y S H A N F I E L D,
12 having been previously duly sworn remotely
13 upon agreement of all counsel, as
14 hereinafter certified, was examined and
15 testified as follows:

16 EXAMINATION (Continued)

17 MR. DEVLIN:

18 Q. You note in your declaration
19 that you don't personally know Dr. Sung,
20 the plaintiff in this case, right?

21 A. That's correct, yes.

22 Q. Do you know him by reputation?

23 A. No.

24 Q. Ever heard of him, to your
25 recollection?

1 SHANFIELD

2 A. I may have, I'm not sure.

3 Q. You can't recall one way or the
4 other?

5 A. Right.

6 Q. Let's talk about your
7 background.

8 You can refer to the
9 qualifications section of your declaration
10 if you'd like starting at page 2, are you
11 there?

12 A. Yes.

13 Q. I am going to ask some general
14 questions.

15 So you've been designated as an
16 expert in this case, fair?

17 A. Yes, correct.

18 Q. For providing expert testimony
19 in this declaration, is that right?

20 A. Yes.

21 Q. How would you describe your
22 area of expertise generally?

23 A. Well, in this case it's in CMP
24 polishing, the processes for polishing,
25 the technology, the equipment, design, the

1 SHANFIELD

2 mechanics and so on.

3 Q. Would you describe yourself as
4 an expert in CMP equipment design?

5 A. Would you clarify that; what do
6 you mean, if you can give me some more
7 detail, I might be able to answer it more
8 accurately.

9 Q. What's confusing about that
10 question, the CMP equipment?

11 A. CMP equipment design means am I
12 familiar with the design or does it mean I
13 can go out and build -- do the CAD work
14 for CMP piece of equipment.

15 There's different versions of
16 what you might call an expert.

17 Q. So I wrote those words down
18 that you used, CMP equipment design.

19 A. Where did I use them?

20 Q. In your answer two questions
21 ago here today.

22 So let me just ask you; if I
23 were to just say to you are you an expert
24 in CMP equipment design, is that a
25 question you can answer?

1 SHANFIELD

2 A. I would answer it -- it is a
3 question I can answer, yes.

4 Q. Please answer it.

5 A. I am very familiar with the
6 design of CMP equipment, both back at the
7 time of the disputed priority dates of the
8 two patents and now, I've seen many
9 systems, I've installed or supervised the
10 installation of systems, I've purchased
11 systems and I've personally run systems,
12 so I have familiarity at that level.

13 Q. Have you ever actually designed
14 CMP equipment personally?

15 A. I designed apparatus that
16 worked with CMP equipment.

17 Q. Have you designed the CMP
18 equipment itself?

19 A. No.

20 Q. You said you supervised the
21 installation of CMP equipment, but I
22 couldn't tell if you had personally
23 installed CMP equipment.

24 Did you ever do that?

25 A. I recall having some hands-on

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2 involvement in parts of the installation
3 at Raytheon.

4 Q. Would you call yourself an
5 expert in CMP pad dressers themselves?

6 A. Once again, I guess I would
7 need some clarification.

8 I can tell you that I have
9 familiarity with CMP dressers from
10 multiple experiences of either watching
11 the operation or actually performing the
12 operation of CMP.

13 Q. Have you ever designed a CMP
14 pad dresser?

15 A. No.

16 Q. Have you ever been involved in
17 the manufacture of CMP pad dressers?

18 A. Yes.

19 Q. In what ways?

20 A. In Raytheon Research Division,
21 we looked at how we were going to use the
22 CMP system to process MEMS, M-E-M-S,
23 devices, and they needed a certain kind of
24 planarization process and that
25 planarization process required constant

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2 conditioning, more often conditioning than
3 at least in my opinion we had expected.

4 And I recall attempting, this
5 was in conjunction with some other
6 research staff, another kind of
7 conditioner than the one we had to try to
8 fabricate something that would provide
9 conditioning that would last longer.

10 Q. You mean creation of the actual
11 diamond disc itself?

12 A. I don't remember clearly enough
13 exactly what we did; I remember it
14 involved epoxy and diamond particles, but
15 beyond that I don't remember.

16 Q. Any other instances you recall
17 of you being involved in the actual
18 manufacture of CMP pad dresser?

19 A. Not that I recall, no.

20 Q. Back to the one at Raytheon you
21 just mentioned, was that a successful
22 effort in the sense that you ended up
23 using the pad dressers that you created in
24 the actual business?

25 A. I think we did, yes.

1 SHANFIELD

2 Q. Since you joined Draper
3 Laboratory, have you done any research and
4 development on CMP pad dressers
5 specifically?

6 A. CMP pad dressers have been part
7 of the research and development we did on
8 our CMP system.

9 Q. And so did you actually do R&D
10 on a variety of different pad dressers
11 themselves, that's what I'm trying to get
12 at?

13 A. We had multiple dressers and
14 what I had provided as instruction to
15 staff was to see which one of them worked
16 best.

17 Q. Got it.

18 Those multiple dressers were
19 ones that you guys collectively had
20 acquired from someone else, is that right?

21 A. That's correct, yes.

22 Q. Thank you, okay.

23 You weren't involved in the
24 actual design of any of those particular
25 CMP pad dressers that you used for that

1 SHANFIELD

2 project, right?

3 A. I might have provided
4 instruction for how they were used, but
5 not the design of the dressers themselves.

6 Q. Thank you.

7 You have a number of U.S.
8 patents to your name -- let me rephrase
9 that.

10 You have a number of patents to
11 your name?

12 A. That's correct, yes.

13 Q. Are any of those patents
14 focused on inventions related to CMP pad
15 dressers?

16 A. The process of multi-chip
17 module manufacturing uses CMP and CMP
18 dressers as part of what is included in
19 one of my patents, so there's certainly
20 mention of it.

21 Q. Any others?

22 A. That's all that I can recall.

23 Q. And in that one that you
24 recall, is it fair to say that the
25 invention is not focused on a new design

1 SHANFIELD

2 or manufacturing process of the pad
3 dresser itself, fair?

4 A. Dressing is a very important
5 part of how CMP performs, and in
6 particular application in making
7 multi-chip modules, that was an unusual
8 application, so there was attention to how
9 the pad was dressed and what tool we used
10 to dress it, what the results were under
11 scanning electron microscope inspection.

12 So it was certainly an
13 important part.

14 (Technical discussion off the
15 record.)

16 Q. You know what claims of a
17 patent are, just generally?

18 A. I'm familiar with what claims
19 are, yes.

20 Q. Thanks.

21 In the patent that we've been
22 talking about, your patent, do claims of
23 that patent cover a new type of CMP pad
24 dresser?

25 A. I'd have to look and see if

1 SHANFIELD

2 that part was included or not, I don't
3 remember.

4 Q. You understand one of the tasks
5 you performed is to provide definition of
6 a person of ordinary skill in the art for
7 this matter, do you recall that?

8 A. Yes, I do recall that.

9 Q. All right.

10 And you alluded to this
11 earlier, you recall that there may be a
12 range of dates that might be relevant when
13 it comes to the invention date or priority
14 date of the patent claims at issue here,
15 does that ring a bell?

16 MS. KRINGSTEIN: Objection,
17 mischaracterizes the testimony.

18 A. Could you repeat your question.

19 Q. Yes, I'm not trying to put
20 words in your mouth, let me just start it
21 over.

22 Why don't you look at your
23 declaration at paragraph 19.

24 (Witness complying.)

25 Q. Go ahead and read that

1 SHANFIELD

2 paragraph to yourself and let me know when
3 you're done.

4 (Witness perusing document.)

5 A. All right.

6 Q. Do you see how there is a range
7 of dates that may be relevant to the
8 priority date for each of the patents in
9 suit?

10 MS. KRINGSTEIN: Objection,
11 mischaracterizes the document.

12 A. What I wrote was I understand
13 plaintiff contends that the priority dates
14 on the '862 and '802 patents might be as
15 early as May 23rd, 2011, but no later than
16 March 13, 2013, and at least as early as
17 May 16, 2005, but no later than October 3,
18 2014, respectively for '862 and '802.

19 Q. Let me tell you what I'm
20 getting at so we can maybe get there
21 quicker.

22 Does your definition of the
23 qualifications of a person of ordinary
24 skill in the art change depending on which
25 date is the priority date of each patent?

1 SHANFIELD

2 A. No.

3 Q. Thank you.

4 Let's talk about the legal
5 standards; you are not an attorney, right?

6 A. Right.

7 Q. No formal legal training, fair?

8 A. That's fair.

9 Q. Are you a patent agent?

10 A. No.

11 Q. You received the legal
12 principles that you applied in this case
13 from the defendants' counsel in this case,
14 is that right?

15 A. Yes, that is true.

16 Q. Have you ever worked on a
17 patent matter involving issues of
18 indefiniteness before?

19 A. Yes.

20 Q. Did you learn of any other
21 legal standards in that case that were
22 different than or in addition to the legal
23 standards that you wrote in your
24 declaration in this case?

25 A. They might have been worded

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differently and there may have been other emphasis that was different, but as far as the fundamental legal principles, they were the same.

Q. And were these the legal principles -- when I say these, I mean the ones in your declaration here in this case -- are they the legal standards that you applied in your analysis in this declaration?

A. Yes, they are.

Q. Are you familiar with something called the MPEP?

A. No.

Q. It also goes by the name Manual Patent Examining Procedures.

A. That's what I thought it was, but, yes, I have heard that.

Q. You've heard it but have you ever read any parts of the MPEP?

A. Yes.

Q. Any parts related to indefiniteness?

A. I don't remember, but I think I

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did.

Q. Did you do so for this case?

A. No.

Q. Did you do any comparison between the standards here in your expert declaration and the indefiniteness sections of the MPEP?

A. No.

Q. Can you look at paragraph 26. It says, "I understand that a term of degree is not inherently indefinite, but for the word of degree to be not indefinite, the patent must provide some standard for measuring that degree with enough certainty to one skilled in the art when read in the context of the invention."

Did I read that right?

A. Yes, you did.

Q. Is this a legal standard that you applied in your analysis?

A. Yes, it was.

Q. Do you see where it says "patent must provide some standard for

1 SHANFIELD

2 measuring that degree," do you see that?

3 A. Yes.

4 Q. What do you mean by standard
5 there?

6 A. What it says is the patent must
7 provide some standard for measuring that
8 degree with enough certainty to one
9 skilled in the art when read in the
10 context of the invention.

11 Q. Thanks.

12 What do you mean by standard?

13 A. So in that entire clause that I
14 read, it means, for example, if a person
15 who is skilled in the art was aware that
16 the industry or the technology area had
17 some presumed understanding that everybody
18 abided by, then that would be -- that
19 would fit this question or this
20 description of standard.

21 Q. Give me an example of what a
22 standard would be.

23 A. In semiconductor fabrication,
24 where you're patterning logic circuitry
25 and the word "about" is used to describe a

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dimension and the dimension is a dimension that's close to the limits of or around the limits of lithography process at the time of the invention, there was generally agreed upon understanding of what "about" meant to people of skill in the art in that area.

Q. So it would mean the degree of precision of the lithography process, am I understanding you right?

A. No, I didn't say that.

Q. What would it mean then?

A. I said if it's used in the clang and it's applied to a dimension, then in the context of the patent, that "about" would have an understood meaning by people skilled in the art.

Q. When you say understood meaning, do you mean a quantitative understanding or something different?

A. Well, you're asking a general question and I'm giving a specific example.

Q. Good point, let me clarify the

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question.

In your example, is the common understanding that you're referring to quantitative?

A. It might be.

Q. What other ways might it be?

A. I can't give you an example offhand, I can't think of one.

I know that it can be.

Q. Thanks.

In other words, it doesn't have to be quantitative, fair?

A. No, not true.

In the example I gave it would be quantitative in that it would go for a quantitative measurement of any sort.

So if you apply the word "about" to quantitative measurement, then obviously the "about" has some quantitative meaning in that industry.

Q. Getting to I think what I was asking originally about this word standard, if the patent claim language that we're talking about -- let me ask

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this way.

If a patent claim recites a number with the word "about" in front of it, is it your view that in order for that claim to not be indefinite there has to be an understood quantitative meaning for what "about" means in that context?

MS. KRINGSTEIN: Objection, form, incomplete hypothetical.

A. You're not giving me enough information.

The standard I apply in paragraph 26, the patent must provide some standard for measuring that degree with enough certainty to one skilled in the art.

So the patent may be providing it in some other way than it's known as an industry standard, for example.

Q. Let's go to the next paragraph, 27.

It reads, "I understand that although a claim term's susceptibility to more than one meaning does not necessarily

1 SHANFIELD

2 render it indefinite, a claim term is
3 indefinite if the claim language might
4 mean several different things and no
5 informed and confident choice is available
6 among the contending definitions."

7 Did I read that right?

8 A. Yes.

9 Q. My first question is, did you
10 apply this standard in your analysis in
11 this declaration?

12 A. Yes, I did.

13 Q. My second question is, the word
14 "several" there, what do you mean by
15 several?

16 A. Exactly what it says; a claim
17 term is indefinite if the claim language
18 might mean several different things,
19 multiple things.

20 Q. Multiple meaning two or more
21 or --

22 A. Several.

23 Q. What does several mean?

24 A. Are you asking me a legal
25 question?

1 SHANFIELD

2 Q. I'm asking you of what's your
3 opinion of the word several in this
4 context since you wrote it.

5 A. It means more than one
6 different thing.

7 Q. Okay.

8 So just to be clear, it
9 includes the scenario when the claim
10 language might mean two different things
11 and no informed and confident choice is
12 available between the contending
13 definitions?

14 MS. KRINGSTEIN: Objection,
15 form.

16 A. Let me read it again.

17 It says, "A claim term is
18 indefinite if the claim language might
19 mean several different things and no
20 informed and confident choice is
21 available."

22 Q. And one of the instances, just
23 to confirm, is when the claim language
24 might mean just two different things, it
25 doesn't need to be three or more?

1 SHANFIELD

2 MS. KRINGSTEIN: Objection,
3 form.

4 A. Could you repeat that question.

5 Q. Sure.

6 I'm just confirming that I
7 think you testified a minute ago that this
8 standard for indefiniteness applies when
9 the claim language might mean just two
10 different things as opposed to three or
11 more.

12 A. No, what I said is a claim term
13 is indefinite if the claim language might
14 mean several different things.

15 Q. I thought you testified a
16 minute ago that several means two or more.

17 A. I did not.

18 Q. So does it mean two or more in
19 the context of this paragraph or does it
20 mean - -

21 A. Several means exactly what it
22 says - -

23 Q. I'm asking for what it means
24 numerically.

25 A. More than one.

1 SHANFIELD

2 Q. So two or more?

3 A. That's your words.

4 Q. More than one, that's your
5 words; is that different than two or more,
6 in your mind?

7 A. It's the word several that is
8 the word I used and that's what I meant.

9 Q. You meant more than one -- I
10 have a different question for you right
11 now -- in your mind does more than one
12 mean something different than two or more?

13 A. The sentence says a claim term
14 is indefinite if the claim language might
15 mean several different things, so several,
16 there's a multiplicity of things it might
17 mean.

18 Q. Two or more or more than two?

19 A. Several.

20 Q. Okay.

21 Can you give me a number of
22 what several means other than more than
23 one or is that your answer, more than one?

24 A. That's my answer.

25 Q. Okay, thank you.

1 SHANFIELD

2 We can agree that two is more
3 than one, can we agree on that?

4 A. Several is the word I used,
5 you're putting words in my mouth.

6 Q. I am asking you a question.
7 Can we agree --

8 A. No.

9 Q. -- that two is more than one?

10 A. It's not a relevant question in
11 my opinion.

12 I said several, I meant
13 several.

14 Q. We're going to stick to this.
15 I think your counsel will back
16 me up on this; whether you think it's
17 relevant or not is not the question when
18 you answer a question here, all right?

19 A. Yes, I apologize.

20 Q. No, don't apologize and I don't
21 mean to be taking any tone with you.

22 I just want to get a very clear
23 record and sometimes simple things like
24 this need clarity in my mind before I can
25 move on.

1 SHANFIELD

2 I think we know what we're
3 getting at here, I'll tell you where we're
4 going, because I'm not trying to trick
5 you.

6 There are instances in your
7 declaration where you say a claim term is
8 indefinite because it is susceptible to
9 two different possible interpretations,
10 right?

11 A. Can you point me to where I say
12 that?

13 Q. Do you remember them offhand or
14 do we need to go to one?

15 A. We need to go to one.

16 Q. Okay.

17 I'm just grabbing page 35, page
18 35, do you see a diagram at the top?

19 (Witness perusing document.)

20 A. Yes.

21 Q. The top of that diagram says
22 first interpretation, there is a figure,
23 underneath that it says second
24 interpretation and there is a figure, do
25 you see that?

1 SHANFIELD

2 A. I can point you to paragraph
3 108, I said "this limitation can be
4 interpreted in at least two different
5 ways."

6 Q. Great.
7 And then you actually identify
8 two of them.

9 A. Correct.

10 Q. And not a third.

11 A. There might be a third, but I
12 said this limitation can be interpreted in
13 at least two different ways.

14 Q. I got you and you identified
15 two and not a third, fair?

16 A. That's fair.

17 Q. And on the basis of those two
18 alone, do you remember this, you said the
19 claim is indefinite, does that ring a
20 bell?

21 A. What I said was in paragraph
22 114, "I've not seen any guidance that
23 would have informed a POSITA to apply one
24 interpretation over the other."

25 Q. The other, right?

1 SHANFIELD

2 A. Right.

3 Q. Identifying one other?

4 A. Of the example I gave, yes.

5 Q. Right.

6 So based on those two examples
7 alone, you concluded that the claim is
8 indefinite; there's other reasons in your
9 declaration as well, but the reason that
10 you're talking about right now is based on
11 those two possible interpretations of the
12 claim language that you're pointing to in
13 the declaration, right?

14 A. At least these two, yes.

15 Q. Did anyone ever suggest to you
16 that if there are two competing
17 interpretations of a claim term or phrase,
18 that the court can choose one of those
19 thereby preserving the validity of the
20 claim, did anyone tell you that?

21 A. What I said was there's at
22 least two different ways, so, no, because
23 it doesn't connect with what I put in my
24 report.

25 Q. So someone did tell you that or

SHANFIELD

no?

A. No, they didn't.

Q. Thank you.

Let's go to your -- by the way, how are you doing on stamina?

A. Fine.

Q. All right.

Turn to page 7, level of ordinary skill; go ahead and read paragraph 35 to yourself and let me know when you're done.

(Witness perusing document.)

A. Okay.

Q. You see where it says POSITA there?

A. Yes.

Q. That stands for person of ordinary skill in the art, right?

A. Right.

(Continued on next page.)

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Q. What's the art of the patents
in suit?

A. The art is that of the
technology of CMP.

Q. Thank you.

MR. DEVLIN: Why don't we take
a break actually.

(Lunch recess: 12:00 p.m.)

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

1:00 p.m.

S T A N L E Y S H A N F I E L D,
resumed.

EXAMINATION CONTINUED

BY MR. DEVLIN:

Q. I want to talk a little bit
about the technology background that
starts on page 8 of your declaration.

 There is a diagram on page 9,
do you see that?

A. Yes.

Q. Is that a diagram from the
source that's cited just below?

A. Yes.

Q. And then on the next page, page
10, there is another diagram, do you see
that?

A. Yes.

Q. Was there a source -- where
did that come from, that diagram?

A. I drew it.

Q. You drew it, did I hear you
right?

1 SHANFIELD

2 A. I drew what I wanted drawn by
3 the graphics department of counsel, I
4 originally drew it.

5 Q. Understood, and then somebody
6 put it into this form?

7 A. Yes.

8 Q. Okay.

9 Is it fair to say this is a
10 schematic drawing, is that a word you'd
11 use, schematic?

12 A. I don't know that I would use
13 that word; representative.

14 Q. Okay, thank you.

15 Above it, two sentences above
16 it, there is a sentence beginning with the
17 word "when," do you see that?

18 A. Yes.

19 Q. I'll just read that.

20 "When the tip of a particle
21 cuts a location on the CMP pad surface,
22 the particle can push the pad material to
23 the side, generating raised rims that
24 protrude above the original surface as
25 illustrated below."

1 SHANFIELD

2 Did I read that right?

3 A. Yes.

4 Q. The next sentence you note that
5 "the raised rims form asperities," do I
6 have that right?

7 A. Yes.

8 Q. Can you identify for me the
9 asperity on this figure on page 10, or
10 asperities?

11 A. Asperity is referring to the
12 roughness, so I don't know that I can just
13 point to one place on this figure where
14 there's asperities; there's roughness.

15 Q. Do you mean demonstrated by the
16 red line towards the right-hand side of
17 the figure?

18 A. I don't think that I can point
19 to any part of this figure and say that's
20 definitely an asperity.

21 Asperity is roughness of the
22 surface after it's been conditioned.

23 Q. I guess what I'm trying to
24 understand is, maybe I should have worked
25 backwards differently here, but just

1 SHANFIELD

2 before the figure it says, "The raised
3 rims form asperities as shown below."

4 That's what I'm saying, as
5 shown below, what in this figure shows
6 asperities?

7 A. As I said, asperities is the
8 roughness, so I suppose that wording could
9 have been more precise.

10 Q. I'm not trying to catch you on
11 that, I'm just trying to understand what
12 we're looking at in the figure relative to
13 the language.

14 So let me say something that I
15 thought might have been true and you tell
16 me whether it's right or wrong just based
17 on what I've read.

18 So I thought an asperity might
19 be the region between the very tip of the
20 high point of the red line, do you see
21 that, and what would be the next tip to
22 the right if that line kept going up above
23 the black line, I thought that might be an
24 asperity, that whole indentation.

25 Would that be accurate or no?

1 SHANFIELD

2 A. No.

3 Q. Okay, got it.

4 And by the same token, an
5 asperity is not -- do you see the part of
6 the red line that goes underneath the
7 black line, just that kind of V-shaped red
8 part of the line underneath the black, do
9 you see that?

10 A. Yes.

11 Q. And that area is not an
12 asperity either, is that fair?

13 A. No.

14 Q. I shouldn't ask that question
15 in a negative, let me rephrase it.

16 Is an asperity just the area
17 defined by the red line under the black
18 line?

19 A. As I said, asperities I'm
20 referring to in that sentence means the
21 roughness of the surface.

22 Q. Got you.

23 I'm just trying to confirm, I
24 think you did, but because I phrased the
25 question in the negative the response was

1 SHANFIELD

2 ambiguous, so I just want to make sure I
3 understand you.

4 Is it fair to say that -- let
5 me say it differently.

6 Would you characterize the area
7 of the red line underneath the black line
8 as an asperity, would you characterize
9 that thing that way or no?

10 A. It's not yes or no; asperities
11 refer to the roughness of the polymer
12 after its been conditioned, so it's the
13 roughness.

14 Q. Got it.

15 It's a plural term, that might
16 be throwing me, asperities.

17 Is there anything, after
18 conditioning and you have that roughness,
19 could you point to anything on the pad and
20 say that's an asperity, in the singular?

21 A. I didn't use the word asperity,
22 I said it forms asperities.

23 Q. I'm with you; I'm just trying
24 to understand what you're now saying about
25 roughness and I'm also trying to

1 SHANFIELD

2 understand -- bear with me, I appreciate
3 your tolerance here.

4 We're struggling because I
5 think you said this could have been
6 phrased a little bit better, so I am just
7 trying to understand what your actual
8 opinion on this stuff is, okay.

9 I get that asperities refers to
10 roughness; with me, asperities is a term
11 that's in the plural.

12 A. Yes.

13 Q. What I'm asking you is when
14 you're looking at a CMP pad that has
15 asperities, this roughness, can you point
16 to individual things on it that you would
17 call an asperity or would you never refer
18 to anything like that on the pad as a
19 single asperity, I'm just trying to
20 understand the lingo?

21 A. I think it depends on the
22 context.

23 So if somewhere in the patent
24 that word asperity is used, I can explain
25 what's being described, but it's the

1 SHANFIELD

2 context around the word asperity that's
3 going to matter.

4 So I can't tell you exactly
5 what it refers to without some context.

6 Q. Okay, fair enough.

7 I'm not talking about the
8 patent; I'm talking about in your everyday
9 experience just as a researcher, an
10 engineer, physicist, all that, your work,
11 would you be able to identify something
12 that you would call an asperity on a
13 conditioned CMP pad?

14 A. Even in my everyday work you
15 would need to have a context, so I'd need
16 to understand what is the circumstances,
17 what's the thing I'm looking at, what's
18 its purpose, what's the instrument I'm
19 measuring, doing the measurement with, for
20 example.

21 So roughness is a
22 characteristic of asperity and that's the
23 best I can do for you.

24 Q. The sentence that begins with
25 the word "when," do you see that sentence?

1 SHANFIELD

2 A. Yes.

3 Q. The second clause says "the
4 particle can push the pad material to the
5 side," do you see that?

6 A. Yes.

7 Q. Does it always push the pad
8 material to the side, does it sometimes do
9 it?

10 A. I think in my experience, and
11 I'm drawing on that, there's going to be
12 some push to the side; whether it ends up
13 looking exactly like this, no, but in
14 general that's the look you get.

15 Q. Does the process of
16 conditioning remove material from the CMP
17 pad at all?

18 MS. KRINGSTEIN: Objection,
19 vague.

20 A. I think I need more information
21 about that; for example, the condition of
22 the pad, the pressure being applied, et
23 cetera, there's a lot of detail to answer
24 that question that I'd need to know.

25 Q. So it may or may not under a

1 SHANFIELD

2 set of circumstances?

3 A. The set of circumstances where
4 it may is, for example, in a pad, what you
5 see in a pad that's been polishing silicon
6 wafers for a while, there's silicon mixed
7 in with a seria polishing agent and that
8 material, some of it, can be removed by
9 the polishing pad, so that's what I mean
10 by why the condition matters.

11 Q. Thank you.

12 Do you know of any
13 circumstances where the pad material
14 itself, material the pad is made from,
15 would be removed as part of a conditioning
16 process?

17 A. I haven't -- I don't know that
18 I could answer that without a particular
19 circumstance being described.

20 There's different kinds of
21 pads, there's different kinds of
22 conditioning tools, so I'd need more
23 information.

24 Q. Did you look for any source
25 that would have an actual cross-section of

1 SHANFIELD

2 what the pad would look like prior to and
3 after conditioning?

4 MS. KRINGSTEIN: Objection,
5 form.

6 A. Did I look for, in regards to
7 this case?

8 Q. Yes, when you were putting
9 together this declaration, so I note you
10 found a diagram for something that you
11 wanted to illustrate that's on page 9, you
12 found that in a source document.

13 A. Yes.

14 Q. Did you look for source
15 documents that would show what you were
16 intending to show with your diagram on
17 page 10 or did you just not look and
18 instead just create your own figure?

19 A. I'm very familiar with what it
20 looks like; whether I actually, you
21 know -- well, so I did see cross-sections
22 and SEMs of surfaces before and after
23 conditioning and have seen them for a long
24 time.

25 Q. You have a section on the

1 SHANFIELD

2 patents in the prosecution histories, do
3 you recall that being in your declaration?

4 A. Yes.

5 Q. If you can turn to paragraph
6 58, that's talking about the prosecution
7 history of the '802 patent, right, you can
8 see it on the page before.

9 (Witness perusing document.)

10 A. Yes.

11 Q. In paragraph 58 you note an
12 instance where the examiner rejected
13 pending claims as being indefinite, right?

14 A. I quoted the language of the
15 examiner.

16 An examiner had stated that
17 "the claims are indefinite," claims 11
18 through 15 in this Office Action of
19 October 30th, that "the claims are
20 indefinite because it's unclear how the
21 highest 1 percent is determined."

22 He also said "The scope of the
23 claim is unascertainable because it does
24 not make sense that the protrusion
25 difference of 80 microns is more than the

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difference in protrusion distance between the highest protruding tip and the second highest protruding tip of the monolayer of superabrasive particles is less than or equal to about 50 microns."

Q. As you write at the top part of this paragraph, what the examiner was doing was rejecting the claims in part because they were indefinite, right?

A. They were rejected in part under, yes, U.S.C. 112 as being indefinite.

Q. Thank you.

Then there was further prosecution and eventually the claims that are in the issued patents were allowed, right?

(Witness perusing document.)

A. The applicant, as I wrote in paragraph 61, amended claim 11 and all the pending claims that depended on claim 11, which were 12 through 15.

So, no, it had to be changed.

Q. Yes, I agree.

1 SHANFIELD

2 Further prosecution, so more
3 stuff happened, amendments and/or
4 arguments, and eventually the examiner
5 allowed what became the claims in the
6 issued patents, that obviously happened
7 because the patents issued is all I'm
8 saying, right?

9 A. Could you repeat that.

10 Q. Eventually the patent examiner
11 allowed claims in those claims that
12 appeared in the issued patents?

13 A. Which claims?

14 Q. The claims that are in the
15 issued patents.

16 A. You're asking me a general
17 question.

18 Are we talking about claims 11
19 through 15?

20 Q. No, look at my hand, I'm
21 pointing at the issued patents, those
22 claims that are in those issued patents
23 were allowed.

24 A. Yes.

25 Q. By a patent examiner.

1 SHANFIELD

2 A. Yes.

3 Q. Patent examiners look at
4 indefiniteness as one of the issues they
5 consider before they allow claims, right?

6 A. Yes.

7 Q. Thank you.

8 So here your view would be that
9 the examiner erred in allowing these
10 claims, fair?

11 MS. KRINGSTEIN: Objection,
12 form.

13 A. I think you're making a general
14 statement and I think I need more
15 information to be able to say yes or no,
16 because I'd like to talk about what
17 specific claim we're discussing and at
18 what point in the prosecution are you
19 saying this occurred.

20 Q. At the end, when the examiner
21 allowed the claims that appear in the
22 issued patents, at least some of those
23 claims, you say, are invalid as
24 indefinite, right?

25 A. That's correct.

1 SHANFIELD

2 Q. And so if the examiner had
3 agreed with you that those claims included
4 claim terms or phrases that were
5 indefinite, the examiner would not have
6 allowed those claims?

7 A. Yes.

8 MS. KRINGSTEIN: Objection,
9 calls for speculation.

10 A. I don't know what the examiner
11 necessarily would have done, but possibly.

12 Q. The examiner, if the examiner
13 thinks the claims are indefinite, the
14 examiner issues an indefiniteness
15 rejection just like here in paragraph 58,
16 right?

17 MS. KRINGSTEIN: Objection,
18 calls for speculation.

19 A. I don't know what the examiner
20 would do, I can't predict this
21 hypothetical situation from what would
22 actually happen.

23 Q. But you understand that
24 indefiniteness is one of the issues that
25 the examiner looks at when evaluating

1 SHANFIELD

2 whether to allow claims, right?

3 A. Are you asking a general
4 question?

5 Q. Yes, I am.

6 A. That is one of the issues they
7 consider.

8 What you were asking me before
9 was what the specific examiner did and I
10 can't speculate on that.

11 Q. Other than that you agree the
12 examiner allowed the claims?

13 A. Yes.

14 Q. Do you have any view of whether
15 you have more or less knowledge than the
16 patent examiner about the legal standards
17 for indefiniteness?

18 MS. KRINGSTEIN: Objection,
19 form.

20 A. Your question is so general I
21 don't know how to answer it, can you maybe
22 reword it.

23 Q. I will try again - -

24 A. Or get more specific.

25 Q. Would you assert ever that you

1 SHANFIELD

2 know more about the legal standards for
3 indefiniteness than the examiner that
4 allowed the claims in the two patents at
5 issue in this case?

6 MS. KRINGSTEIN: Objection,
7 form.

8 A. I haven't really considered
9 that question.

10 Q. Considering it now, would you
11 be able to answer it; would you assert
12 right now that you know more about the law
13 of indefiniteness than the examiner that
14 allowed the patents in suit?

15 A. Your question is phrased in a
16 way that I can't answer, because know more
17 about what, what specific, you know, under
18 what circumstance, is it specific to
19 something to do with this patent?

20 Your general question isn't
21 something I can answer because it's too
22 vague.

23 Q. If the law were different than
24 what was laid out in your legal standard
25 section and you became aware of that, is

1 SHANFIELD

2 it possible that your opinion could
3 change, is it at all possible?

4 MS. KRINGSTEIN: Objection,
5 form.

6 A. You've got to give me more
7 information; once again, these general
8 questions are very hard to answer.

9 Under what circumstances, you
10 know, having to do with this case
11 specifically, is it specifically me at
12 this moment.

13 You know, there is a lot of
14 ambiguity in the question you're asking me
15 that makes it impossible to answer.

16 Q. Sure, let me phrase it
17 differently.

18 Is there any information that
19 would cause you to reconsider your opinion
20 here or would you maintain your opinion in
21 the face of any new information that came
22 along no matter what?

23 MS. KRINGSTEIN: Objection,
24 form.

25 A. The best I can tell you is,

1 SHANFIELD

2 given the information I had available to
3 me and the guidance I received from
4 counsel, this represents my opinion.

5 What I'd hypothetically do in
6 another situation would be speculation,
7 I'd have to understand it in fine detail
8 to try to decide that.

9 Q. Because no reasonable person
10 would say they would stand on their
11 opinion no matter what, right?

12 MS. KRINGSTEIN: Objection,
13 form.

14 A. That's a general statement, I
15 don't know what to say.

16 As regard to what?

17 Q. Do you think it is conceivable
18 that anyone will say I will stand on my
19 opinion no matter what new information I
20 learn, do you think that's reasonable?

21 A. As regards what?

22 Q. Subject matter of the opinions
23 you gave in this case.

24 A. Like I said, in the subject
25 matter of the case, I'd be speculating to

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understand -- to know whether I would,
you know, do anything differently.

But given the facts I had
available to me and my experience and my
knowledge of what a POSITA understood,
this is my opinion.

Q. So no matter what new
information you might get, you would stand
on these same opinions in this case, am I
understanding you?

MS. KRINGSTEIN: Objection,
mischaracterizes his testimony.

A. You're not representing what I
said correctly.

I said it would require me to
speculate as to what I would do with new
information.

Q. I see, because you might change
your opinion and you might not, depending
on the new information, do I have that
right?

A. I haven't given it
consideration as to what I might or might
not do, that's speculation, so I can't

1 SHANFIELD

2 answer one way or another.

3 Q. That's my point, because it can
4 go either way?

5 A. Is that a question?

6 Q. Yes.

7 A. What is the question?

8 Q. Let me play a little logic game
9 real quick, okay?

10 If you knew that you would
11 never change your opinion, sitting here
12 right now, if you knew that to be the case
13 no matter what, then you can answer the
14 question; but it's because you don't know
15 that, you might change your opinion with
16 new information that causes it to be
17 speculation about whether you would?

18 MS. KRINGSTEIN: Objection,
19 form.

20 Q. Make sense?

21 A. I believe your statement is not
22 representing what I said.

23 What I said was in the face of
24 new information, I'd be speculating about
25 whether I would change my opinion or not.

1 SHANFIELD

2 Q. You don't know whether you
3 would or not?

4 A. Right.

5 Q. Thank you.

6 I want to talk at a high level
7 about your opinion of the claim terms and
8 it's probably easiest if we go to your
9 table of contents at the start.

10 Do you see where it says "claim
11 terms"?

12 A. Yes.

13 Q. And those four sections
14 underneath that relate to the four
15 different sets of claim terms that you
16 talk about for -- let me start that over.

17 Why do you have four sections
18 here?

19 A. I listed the four claim terms
20 or groups of claim terms that I am
21 providing an opinion about.

22 Q. Thank you, you said that much
23 more eloquently than I tried to.

24 So each of these subsections A,
25 B, C, and D is your opinion about one of

1 SHANFIELD

2 those respective groups of claim terms,
3 right?

4 A. I've grouped it in a way that
5 makes it easy to understand my opinion.

6 Q. Right, thank you.

7 All I'm saying is there are
8 four different groups and so four
9 different subsections here?

10 A. My outline on table of contents
11 has A, B, C, D, yes, that's correct.

12 Q. This is what I am trying to get
13 at, let me tell you what I'm trying to get
14 at and then I will ask a question.

15 What I understand of the layout
16 of this report is that you have this
17 section on "about" -- this is not a
18 question, you don't have to memorize all
19 this, I'm just telling you where I'm going
20 -- the section "about," the word "about"
21 appears in front of different numerical
22 elements in a number of the claims, you
23 talk about that.

24 And then you talk about these
25 other claim terms which you group in B, C,

1 SHANFIELD

2 and D, and here's my point.

3 In some of those the word
4 "about" appears, but your opinion for each
5 of those is sort of separate and distinct
6 from the issue of the word "about," does
7 that make sense?

8 MS. KRINGSTEIN: Object to
9 form.

10 A. I'll give you an example of
11 what I did.

12 On the bottom of page 24, how I
13 handled it, I said "but if the second
14 highest protruding tip means protruding
15 tip with a next highest protrusion
16 distance," I'll skip the paren, "then the
17 CMP pad conditioner in this example does
18 not satisfy the limitation," and I then
19 wrote "even ignoring the indefinite term
20 'about' that I discussed above," so in the
21 cases where "about" is being used, I
22 typically added acknowledgement of the
23 point that I'm ignoring the indefiniteness
24 of the word "about" in my discussion.

25 Q. Great, and that's exactly what

1 SHANFIELD

2 I'm getting at and I think we're all on
3 the same page.

4 So the point is -- turn back
5 to page 22 and 23, you see a chart with
6 all the terms in this group, do you see
7 that?

8 A. Yes.

9 Q. And you have an opinion earlier
10 on "about," the term "about," and how that
11 would make each of these phrases
12 indefinite just due to the word "about" in
13 there; so far so good?

14 A. Well, keep going.

15 Q. Yes.

16 And then also, even if one were
17 to ignore that word, you still think that
18 each of these terms and phrases is
19 indefinite for the reasons you go on to
20 describe on pages 23 and 24 and so on in
21 this subsection of the report, your
22 declaration.

23 A. You're making a general
24 statement; maybe you can point to one
25 example.

1 SHANFIELD

2 I pointed to one and there I am
3 making the statement that I'm ignoring
4 "about" in order to comment on the other
5 part of the claim.

6 Q. Okay, so let me ask you, I
7 don't want to mischaracterize what's going
8 on here.

9 Do we have to go through each
10 of these -- let me do it this way.

11 Go ahead and read each of the
12 terms and phrases in the chart on pages 22
13 to 23 to yourself and let me know, if you
14 were to remove the word "about" from each
15 of those phrases, whether you would still
16 assert that that phrase is indefinite.

17 MS. KRINGSTEIN: Objection,
18 form.

19 A. So now you're creating a
20 hypothetical that would require me to
21 really spend a lot of time considering --

22 Q. Sorry --

23 A. -- the point.

24 Q. Page 24, you just said it,
25 ignoring the word "about," you think the

1 SHANFIELD

2 phrase is indefinite, correct?

3 A. Well, it was more specific than
4 that.

5 The pad conditioner and example
6 I was giving does not satisfy the
7 limitation and that's the case even
8 ignoring the indefinite term "about" that
9 I discussed above.

10 So I guess to answer your
11 question do we need to go through each of
12 them, my answer is probably.

13 Q. All right, let's do it.

14 Go ahead and look at the first
15 item in the chart on the '862 patent on
16 page 22.

17 (Witness perusing document.)

18 A. Okay.

19 Q. Is it your opinion that the
20 phrase is indefinite even ignoring the
21 word "about"?

22 MS. KRINGSTEIN: Objection,
23 form.

24 A. I thought we were going to go
25 through where I made the specific --

1 SHANFIELD

2 Q. Sir, I am just trying --

3 A. -- opinion on this specific
4 line.

5 Q. Let me tell you what I'm trying
6 to do --

7 A. And I can do that.

8 Q. I am trying to save time.

9 I just want to understand what
10 your opinions are at a high level, what
11 the bases are.

12 I understand that the term
13 "about" is one of the bases, we'll go
14 through it, we'll talk about it, we'll
15 also talk about each of these
16 individually.

17 My point is that for each of
18 these opinions that you have in subsection
19 B and in subsection C and in subsection D,
20 your opinion regarding indefiniteness
21 doesn't rely on the word "about," it's
22 about the other language of the claim
23 element.

24 A. Well, I can take the first
25 statement that you identified that you

1 SHANFIELD

2 wanted to talk about, "The difference in
3 protrusion distance between the highest
4 protruding tip and the second highest
5 protruding tip is less than or equal to
6 about 10 microns," in paragraph 83 I wrote
7 -- now I provided an example --

8 Q. This is going to keep us here
9 past 4 o'clock if you keep reading from
10 the report.

11 A. I am not just reading from the
12 report, I'm explaining.

13 Q. First I want a yes or no.
14 If you remove the word "about,"
15 do you still think that claim is
16 indefinite, yes or no?

17 MS. KRINGSTEIN: Objection to
18 form.

19 A. I haven't offered an opinion on
20 some hypothetical change to the claim
21 language, so I guess I want to explain how
22 I handled the fact that "about" remained
23 in this sentence, in the
24 second-to-the-last sentence explain, even
25 ignoring the indefinite term "about" that

1 SHANFIELD

2 I discussed above, is the way I handled
3 it, by ignoring it.

4 Q. Great.

5 A. Then I can identify that there
6 is indefiniteness.

7 And what I didn't do was say,
8 now, here's a new claim with new language
9 in it, I hadn't offered an opinion on
10 that.

11 Q. Let me use your language.

12 If you ignore the word "about"
13 in each of these phrases in the chart,
14 pages 22 and 23, then you would still, in
15 your opinion, find each of those phrases
16 indefinite in the same way that you
17 describe on page 24?

18 A. What I can tell you is, for
19 example, what I said here; in one case
20 where I ignore the indefinite term
21 "about," in this example I'm providing,
22 the pad conditioner of the example will
23 satisfy the claim.

24 And in another case, again I
25 ignore the indefinite term "about," it

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does not satisfy the limitation.

So it's pretty clear-cut what I'm saying; in this example it shows -- it is representative of the kinds of examples you run into with a real pad conditioner, there's a case where I'm ignoring the "about" and it does satisfy the claim, and a case, another interpretation it doesn't.

So I haven't tried to change the language of the claim.

Q. You ignore "about"?

A. Yes.

Q. Okay, great.

If you ignore "about" in the same way for the other phrases that you discuss in this subsection, you would still say that they're indefinite for similar reasons?

A. I'd have to go through each one of them to make sure.

Q. Well, you say in paragraph 84 "Similar ambiguity exists for the other difference in protrusion distance terms,"

1 SHANFIELD

2 right?

3 A. Yes.

4 Q. The similar ambiguity you're
5 referring to is that it's subject to
6 different interpretations, in your view,
7 ignoring the word "about" in each
8 instance, right?

9 A. I think to be sure of my answer
10 I would like to go through each of them
11 and see that that's the case.

12 Q. Fire away.
13 How much time do you think you
14 need?

15 A. Probably, I don't know, 20
16 minutes.

17 Which terms would you like me
18 to consider?

19 Q. Each of the terms that you've
20 identified in the chart on pages 22 to 23.

21 A. Okay.

22 (Witness perusing document.)

23 A. Okay, go ahead and ask a
24 question.

25 By the way, I wanted to bring

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your attention to the footnote on the bottom of page 22, it says, "For the reasons explained above with respect to the term 'about,' I conclude that the purported quantification in each of these terms, less than or equal to about 10 microns, which all include the term 'about,' are indefinite."

I'm also including, "For the 'difference in protrusion distance' terms addressed in this table, I focus on the first portion of these terms," and talk about how they're also indefinite.

Q. Independent of the word "about" right?

A. Well, ignoring the word "about," yes.

Q. Meaning it's an independent bases, "about" is a bases for indefiniteness and the portion of the phrase you're looking at that you identify here in this footnote 4 is a basis for indefiniteness, ignoring the word "about," right?

1 SHANFIELD

2 A. What's your question?

3 Q. Really on your side of this, I
4 am trying to help you out, I am trying to
5 say there are two different bases.

6 For example, if the court were
7 to rule that "about" is not indefinite,
8 it's fine, you would still say these claim
9 terms are indefinite for the reasons you
10 lay out which relate to the first portion
11 of the language of each of the respective
12 phrases?

13 A. Well, I'd be, again,
14 speculating to say that.

15 What I can say is when I ignore
16 the term "about," I'm identifying where
17 there's indefiniteness and that comes from
18 the difference in protrusion distance
19 statements.

20 Q. In each of these phrases?

21 A. Right.

22 Q. Thank you, all right, great.

23 Page 27, you see all of the
24 phrases in a chart on page 27 that relate
25 -- that you call the cutting depth terms,

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right?

A. Yes.

Q. You have an opinion as to why each of those is indefinite, which you also express ignoring the word "about," fair?

(Witness perusing document.)

A. My reading of my report didn't put in parenthesis "ignoring the term 'about'," so I guess I didn't offer or I didn't analyze it that way.

Q. Let's dig into this a little bit more then -- you know what, I was trying to do something quickly and it's not going to work, let's just go back and do it one-by-one.

We'll deal with the "about" stuff later, I want to start with what is subsection B starting on page 22.

In this subsection you refer to two different possible interpretations of the phrases; one you refer to as the absolute highest method and the other interpretation you refer to as the next

1 SHANFIELD

2 relative highest method, right?

3 A. Yes.

4 Q. You describe this with
5 reference to a figure at the top of page
6 24, correct?

7 A. I use that as an example, yes.

8 Q. Great, thank you.

9 And this figure and the little
10 chart to the left of it, did you make that
11 up for purposes of providing an example
12 for this analysis?

13 A. I don't remember.

14 Q. There's no source cited, right?

15 A. Right.

16 Q. Does that refresh your memory
17 at all of the fact whether you created
18 this?

19 A. No, it was a while ago, I don't
20 remember who made this up.

21 Q. Okay.

22 The claim language you're
23 talking about involves something that is,
24 quote, "the highest protruding tip,"
25 unquote, and then a, quote, "second

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highest protruding tip," unquote, right?

A. Where are you referring to in my report.

Q. Paragraph 24.

A. Paragraph 24?

Q. Page 24, paragraph 83, halfway down that big paragraph.

A. You're talking about the sentence, "A POSITA is left to guess whether the second highest protruding tip is the one that has the same protrusion distance as the highest protruding tip"?

Q. Right, do you see that?

A. Yes.

Q. And "the second highest protruding tip," that's in quotes, right?

A. Yes.

Q. That's part of the claim language, right?

A. Yes.

Q. The same with, quote, "the highest protruding tip," unquote, right?

A. You're asking me if that's part of the claim language?

1 SHANFIELD

2 Q. Yes.

3 A. Yes.

4 Q. Okay, great.

5 If we look above at this
6 diagram, see if I understand this right,
7 the diagram, what this is intended to show
8 is that tip A and tip B are the same
9 height, right?

10 A. Yes.

11 Q. And so the question, the
12 interpretation is, do I take the two
13 highest tips, full stop, or instead do I
14 take the tips with the highest measured
15 value and compare that with the next
16 highest measured value, those are the two
17 different interpretations that you're
18 talking about, correct?

19 MS. KRINGSTEIN: Objection to
20 form.

21 A. I don't think I would
22 characterize it that way.

23 Q. Well, in one interpretation,
24 the absolute highest method, A and B are
25 the highest protruding tip and the second

1 SHANFIELD

2 highest protruding tip, right?

3 A. Yes, in that interpretation.

4 Q. Great.

5 And in the other
6 interpretation, tip C is the next relative
7 highest -- sorry -- let me restart that
8 question.

9 MR. DEVLIN: Give me a new
10 paragraph, court reporter.

11 Q. In the second interpretation,
12 tip C is the second highest protruding
13 tip, right?

14 A. Yes; let me word it a little
15 differently though, because I feel like my
16 language in my report is clearer.

17 A POSITA could map the particle
18 with the highest protruding tip to diamond
19 particle A, because A has the highest
20 protruding tip distance, but a POSITA is
21 left to guess whether the second highest
22 protruding tip is the one that has the
23 same protrusion distance as the highest
24 protruding tip, that's diamond particle B,
25 or one that has the next highest

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protrusion distance, that's diamond
particle C.

So I think that's clearer.

Q. So there are two different ways
that you just described that a POSITA
could map the claim language, right?

A. Yes.

Q. And one of those is based on an
interpretation of the claim language that
you refer to as the absolute highest
method, right?

A. That's correct.

Q. And the other is based on an
interpretation that you refer to as the
next relative highest method, right?

A. Yes.

Q. Now, if the judge just said,
you know what, what applies here is the
absolute highest method, then the POSITA
would no longer be confronted with that
question, right?

MS. KRINGSTEIN: Objection.

Q. If the judge said we're
interpreting this language according to

1 SHANFIELD

2 the absolute highest method, that's what
3 everyone is doing, then the ambiguity goes
4 away?

5 MS. KRINGSTEIN: Objection,
6 form, calls for a legal conclusion.

7 A. I can't speak for what it would
8 mean if the judge ruled that way, I'm not
9 an attorney.

10 I can tell you what a POSITA
11 would do and I've already explained that,
12 they wouldn't be able to decide --

13 Q. You understand that the judge,
14 when he gives his claim construction
15 ruling, he's giving that from the
16 perspective of a POSITA, right?

17 A. Once again, I don't know that
18 -- I don't necessarily know that, I just
19 know how a POSITA would view the patent as
20 it's written and all the information
21 around it.

22 They would not be able to
23 decide which way to do the evaluation of
24 whether this claim is being met or not,
25 they wouldn't know if a conditioner either

1 SHANFIELD

2 infringed or didn't infringe because of
3 that.

4 Q. And your conclusion, based on
5 your understanding of the law, is that
6 renders the claim indefinite, right?

7 A. I've had the law explained to
8 me and it fits what was explained to me.

9 Q. Got it.

10 So you don't know one way or
11 the other whether the judge could just
12 come down and say, no, we're going to go
13 with interpretation A, I'm resolving this
14 issue, it's not indefinite; you don't know
15 whether that can happen or not?

16 A. I don't know what the effect of
17 that decision would be.

18 It's asking for me to be an
19 attorney, which I'm not.

20 Q. Thank you.

21 Did anyone ever tell you that
22 one of the tenets of claim construction is
23 that the court should construe the claim
24 where possible to preserve validity, is
25 that something you've ever heard?

1 SHANFIELD

2 MS. KRINGSTEIN: Objection,
3 form.

4 A. I have not heard that, no.

5 Q. Thank you.

6 Let's look back at this figure
7 you've placed here at the top of page 24,
8 do you see that?

9 A. Yes.

10 Q. This is a schematic, fair?

11 A. I don't know what you mean by
12 schematic; it's representative.

13 Q. Thank you, representative.

14 It's not an actual photographic
15 image?

16 A. Of diamond particles?

17 Q. Of any real device, it's not a
18 photographic image.

19 A. That's correct.

20 Q. In reality, the reality
21 reality, so step away from this diagram
22 for a second, in reality, no two diamond
23 tips on a single disc will be the exact,
24 physically exact, same height, right?

25 A. No, I disagree.

SHANFIELD

Q. You think atom-for-atom there will be diamond particles on a disc that have the exact same height to the atom?

A. Uh-huh.

Q. How often, regularly?

A. It depends, there's techniques for getting atomic level precision that are used all the time in the semiconductor industry and it's atomic level, so, yes, they can be exactly the same height.

Q. Not can be; you're saying they are?

A. Yes, I am aware of that.

Q. You've seen cross-sectional images where two things are exactly the same height?

A. Yes.

Q. How did you measure that?

A. I don't remember, I just remember the point being made.

Q. What was the resolution of the printer that printed the pages that you were looking at?

A. That's not what made me decide

1 SHANFIELD

2 this was exactly the same height.

3 What was on the paper --

4 Q. What was the resolution of the
5 measuring instrument that measured the
6 height?

7 A. Atomic level.

8 Q. How close to atomic level?

9 A. Very close.

10 Q. Very close?

11 A. It's exact.

12 Q. Exact exact?

13 A. Well, within atomic level, yes.

14 Q. Not within exact exact, nothing
15 is exact exact, right?

16 MS. KRINGSTEIN: Objection,
17 form.

18 A. I don't know what you mean by
19 that statement.

20 Q. No measuring instrument is a
21 hundred percent absolutely perfect, right?

22 A. You asked me if at atomic level
23 two diamonds could have exactly the same
24 height and I said yes and that's measured
25 by counting the atom, which you can do and

1 SHANFIELD

2 could do at the time of this patent, so I
3 don't know what you mean by exactly exact.

4 Q. When you say counting atoms,
5 you're counting atoms in one diamond tip
6 and counting the atoms in another diamond
7 tip, that's what you're telling me?

8 A. You can, yes.

9 Q. And you're going to have
10 instances where they have the exact same
11 number of atoms?

12 A. Uh-huh.

13 Q. How many atoms are in a diamond
14 tip?

15 MS. KRINGSTEIN: Objection to
16 form.

17 A. What diamond tip are you
18 talking about?

19 Q. Something that looks like A
20 here, a piece of diamond embedded in a
21 substrate, how many atoms are in one of
22 these things typically?

23 A. I'm familiar with diamond
24 particles, small ones, called
25 nanoparticles, where you can count the

1 SHANFIELD

2 number of atoms in them.

3 So I don't know what the number
4 is, I'd have to look that up, but you can
5 count them.

6 Q. And you've used those on
7 diamond discs?

8 A. I don't recall exactly what I
9 used them for, to tell you the truth; I
10 just remember the point about the atomic
11 characterization.

12 Q. Have you ever measured the
13 number of atoms on a given tip in an
14 actual CMP pad dresser?

15 A. From my experience I know it
16 can be done.

17 Q. Have you done it?

18 A. I've done measurements like
19 that, not on -- yeah, I've done
20 measurements like that, but not on a CMP
21 dresser, but on diamonds.

22 Q. So my question is very precise.
23 Have you measured the number of
24 atoms in a diamond on a CMP pad dresser?

25 A. Personally measured; what do

1 SHANFIELD

2 you mean by that, can you give me more
3 information?

4 Q. No.

5 Personally measured.

6 A. So does that mean placing it on
7 the scanning electron microscope tray and
8 making sure that it's coated properly so
9 that you can resolve the atomic
10 dimensions, does that mean that I'm
11 cleaning the system to get the hard vacuum
12 you need to get the resolution, are you
13 talking about in a high energy electron
14 beam scanning electron microscope or is
15 this so that you don't need to coat them
16 and you do it at low voltage to avoid
17 charging or do you mean -- you know,
18 there is a hundred details there that I
19 need.

20 Q. Great.

21 Have you ever done it?

22 A. Yeah.

23 Q. You've measured the number of
24 diamonds on a diamond tip in a CMP pad
25 dresser?

1 SHANFIELD

2 A. The number of diamonds?

3 Q. Sorry, the number of atoms on a
4 single tip of a CMP pad dresser.

5 A. No, I already said I hadn't
6 done that on a CMP dresser --

7 Q. Thank you.

8 A. -- I've looked at diamonds in
9 a scanning electron microscope at atomic
10 level.

11 Q. Understood, I appreciate that.
12 This case is about CMP pad
13 dressers, right?

14 A. Diamonds are the same thing, it
15 doesn't matter what they're attached to.

16 Q. Does it matter how large they
17 are?

18 A. No.

19 Q. It doesn't?

20 A. No.

21 Q. You can count trillions and
22 trillions and trillions of atoms?

23 A. I don't know what you mean by
24 that question, trillions of atoms of what?

25 Q. Of a diamond, of carbon.

1 SHANFIELD

2 A. I've seen what was in effect a
3 diamond nano tube that --

4 Q. I get it; I'm asking you about
5 CMP pad conditioners.

6 A. No, I told you I haven't, I
7 hadn't put a conditioner in a scanning
8 electron microscope.

9 Q. Thank you.

10 And so have you ever seen an
11 instance where the diamond tips of a CMP
12 pad conditioner, two tips, had the exact
13 same number of atoms?

14 A. Because I haven't looked at a
15 CMP pad conditioner, no.

16 But I have seen in the diamond
17 tip that was used for a field emission
18 cathode, electrode, diamond extensions
19 that are exactly the same size at an
20 atomic level.

21 Q. Great, thank you.

22 You would agree that the tip
23 labeled A and the tip labeled B on this
24 page in your declaration, they're actually
25 not the same exact height on this page,

1 SHANFIELD

2 the page in front of you, right?

3 MS. KRINGSTEIN: Object to
4 form.

5 A. Are you talking about the
6 physical page?

7 Q. Yes.

8 A. At the atomic level?

9 Q. Correct.

10 A. I don't know; on the paper, I
11 would have to measure it on the paper to
12 answer the question.

13 Q. You would agree it's
14 exceedingly unlikely they're the exact
15 same size?

16 A. If there was 10,000 of these
17 images, I'd disagree, and that's what
18 you're talking about in a pad conditioner,
19 thousands of diamonds.

20 Q. Go back to page 23, please, and
21 do you see the chart at the top?

22 (Witness perusing document.)

23 A. Yes.

24 Q. I want to focus on the top line
25 of the chart on page 23.

1 SHANFIELD

2 The language in that claim
3 element says, "The difference in
4 protrusion distance between the highest 1
5 percent of the protruding tips," do you
6 see that?

7 A. Yes.

8 Q. In what circumstance would it
9 be ambiguous for a POSITA to count the
10 highest 1 percent of the protruding tips?

11 A. I guess I need you to go into
12 detail about what you mean by count.

13 Q. Well, the claim element --

14 A. How is the POSITA doing it?

15 Q. Are you saying that the POSITA
16 would not be able to identify the highest
17 1 percent of the protruding tips?

18 A. I'm saying that the way the
19 patent represents the highest 1 percent of
20 protruding tips is indefinite.

21 Q. How does it represent?

22 A. How does what represent?

23 Q. How does the patent represent
24 the highest 1 percent of protruding tips;
25 you just referenced those words, how the

1 SHANFIELD

2 patent represents it, what do you mean?

3 A. I've explained that, that's in
4 fact part of my report.

5 Q. Where?

6 A. My example makes it easiest to
7 understand; in paragraph 82 I've got one I
8 think we discussed.

9 So in the case of these A, B,
10 and C diamond particles that are
11 referenced on page 24, I explain how you
12 can't decide which is the second highest
13 and for that reason this point 1 in the
14 table that you pointed to you also can't
15 decide.

16 A POSITA wouldn't be able to
17 determine what the highest 1 percent was
18 for the same reason.

19 Q. What reason?

20 A. There are two interpretations
21 and there's no guidance from the patent or
22 any of the information surrounding it that
23 would tell a POSITA how to determine it.

24 Q. In your analysis on paragraph
25 38 you're analyzing the phrase "second

1 SHANFIELD

2 highest protruding tip," right?

3 A. That's one of the points I'm
4 analyzing, yes.

5 Q. That phrase doesn't appear in
6 the language in the top box on page 23,
7 right?

8 A. Yes, but arithmetically if you
9 can't determine the second highest, then
10 you can't determine the highest 1 percent
11 either.

12 I reduced it to three particles
13 to make it easy to understand, but the
14 same problem applies with a thousand
15 particles and 1 percent of that, the ten
16 particles, you would have the same
17 problem, how do you identify what the
18 highest ten particles are if it is 1
19 percent of a thousand particles.

20 Q. Ten particles, that's what you
21 would need to find out of a thousand
22 particles?

23 A. How would a POSITA decide what
24 the highest ten particles are.

25 Q. Wouldn't he look at all the

SHANFIELD

particles and pick the highest ten?

A. Like I explain in this example, tell me which is the highest particle in this example with three diamonds.

Q. Well, notwithstanding the fact that I'm asking the questions, I will answer your question to move it along.

A. Okay, good point.

Q. So the issue is, it's not asking for the highest, it's asking for the highest 1 percent, and so I can look at the array of the particles and I would pick, it's a thousand and 1 percent is going to be ten, right?

A. Yes.

Q. I would pick the highest ten, does that seem fair?

A. No.

Q. Isn't that what the claim language says, the highest 1 percent of the protruding tips?

A. You can't decide on that from the language, the patent is easy in a claim and the POSITA would be unable to

1 SHANFIELD

2 decide what the highest ten meant.

3 Q. Okay, fair enough, thank you.

4 Do you know what equipment is
5 typically used to measure the height of
6 tips on a CMP pad conditioner?

7 A. Yes.

8 Q. What is that?

9 A. There is a variety of ways of
10 doing it; you want me to give you
11 examples?

12 Q. Yes, thank you.

13 A. There's optical interferometer
14 measurement, scanning electron microscope
15 measurement, there's lots of ways.

16 Q. Do some of those have different
17 resolutions than others?

18 A. Yes.

19 What do you mean by resolution,
20 is that accuracy or absolute accuracy or
21 relative accuracy, there's even detail
22 there I'm glossing over to answer your
23 question.

24 Q. Right, but the point is however
25 you define resolution, there's differences

1 SHANFIELD

2 among the different techniques?

3 A. Uh-huh.

4 MR. DEVLIN: Did you get that,
5 Ms. Court Reporter?

6 THE COURT REPORTER: I got
7 uh-huh.

8 A. Yes.

9 Q. Let's go to the cutting depth
10 terms, it starts on page 27.

11 MS. KRINGSTEIN: We have been
12 going over an hour --

13 MR. DEVLIN: Oh, yes, let's
14 take a break, absolutely.

15 (Recess taken.)

16 COURT REPORTER: Before we begin
17 again, just confirming that everyone is
18 ordering a rough transcript?

19 MS. KRINGSTEIN: Yes.

20 MR. DEVLIN: Yes.

21 BY MR. DEVLIN:

22 Q. Moving to the cutting depth
23 terms and if you turn to page 31, I see
24 you're already there, as I understand it,
25 the issue here, again, just ignoring the

1 SHANFIELD

2 word "about" for a moment, even ignoring
3 that, the issue that you're flagging is
4 that in your opinion the language is
5 subject to the two different
6 interpretations that are illustrated in
7 this diagram on page 31, is that right?

8 A. That's the two interpretations
9 that I discuss in the report, yes.

10 Q. Got it.

11 And this diagram, this is you
12 call it a representative diagram that you
13 created or supervised the creation of for
14 purposes of illustration in this report?

15 A. Yes.

16 Q. Just so I understand it, the
17 black line is the surface of the pad prior
18 to conditioning, right, that horizontal
19 black line?

20 A. The level of the surface of the
21 pad prior to conditioning.

22 Q. Got it, thanks.

23 And what is the red line is the
24 result of the conditioning?

25 A. Correct.

1 SHANFIELD

2 Q. All right, got it.

3 And what happens is as the
4 diamond tips contact the pad, they
5 penetrate, that's one thing they do, right
6 so far?

7 A. They may, yes.

8 Q. Thanks.

9 And then they also, these
10 raised rims, which is the left-hand side
11 of the red line, those result from the
12 cutting, right?

13 A. Well, yes, it's cutting and
14 displacement, yes.

15 Q. If you look over on the prior
16 page for you, page 30, three lines up
17 there is a parenthetical that says "the
18 raised rims that result from cutting," do
19 you see that?

20 (Witness perusing document.)

21 A. Yes.

22 Q. All right, thank you.

23 And I think I just heard you a
24 second ago saying what's really happening
25 is there is cutting going on and

1 SHANFIELD

2 displacement of material that creates this
3 raised rim, is that fair?

4 A. It isn't the only thing that's
5 going on, but, yes, those phenomena are
6 going on.

7 Q. Is there anything else going on
8 that results in the red profile post
9 conditioning?

10 A. Yes.

11 Q. Tell me what else is
12 contributing to that profile post
13 conditioning.

14 A. The material fractures, so
15 that's neither cutting nor displacement,
16 there's -- the material is yielding.

17 Q. What do you mean by yielding,
18 you mean squishing down?

19 A. Yielding, I guess that's a
20 mechanical engineering term, but there is
21 a fracture, a break, in the material that
22 is occurring because of the stress,
23 localized stress, from the point down at
24 the bottom there that the diamond tip is
25 reaching the material, there's stress

SHANFIELD

concentrated at that point and material will yield, which means it fails, it lets go and breaks apart.

Q. Anything else going on in the conditioning process that results in this profile illustrated by the red line?

A. There's temperature change that occurs, there's mechanical breaks going on.

Q. Anything else?

A. I'd have to think about it, I suspect there is other; like if there was any debris in the conditioning, which there normally is from the seria or from the ground silicon wafers, that may have effects that I would have to think about.

Q. Anything else?

A. Like I said, I would have to think about it.

Q. That's what you can think of now?

A. Yes, for now.

Q. Got you, thank you.

Let me ask you a question about

1 SHANFIELD

2 the shape of this profile that is drawn
3 here in this red line.

4 A. Yes.

5 Q. Okay.

6 Is that intended to be
7 representative of something typical or is
8 it just exemplary?

9 (Witness perusing document.)

10 A. There's going to be some
11 differences in the exact look, so I guess
12 I don't know what you mean by typical.

13 This is the kind of look that
14 I'm focusing on as there's going to be
15 some class of cuts that look like this
16 with symmetric or what look like kind of
17 symmetric displacement above and below in
18 the surface.

19 Other ones might look a little
20 lower above the surface and deeper in the
21 red line below and vice versa.

22 So I guess -- I don't know if
23 you want to describe that as typical, but
24 I'd rather just describe the shape, and
25 that's what they would be.

1 SHANFIELD

2 Q. So it can vary?

3 A. Yes.

4 Q. Thank you, okay.

5 Now, this is a diagram that's
6 taken and viewed in cross-section, right?

7 A. Yes.

8 Q. Tell me if this is true; these
9 asperities, these grooves, they extend for
10 some length on the surface of the patent,
11 we're looking at one part of that length
12 in cross-section, is that right?

13 A. Well, first of all, I wouldn't
14 describe it as asperities necessarily;
15 just the groove.

16 But, second, they might and
17 they might not; they might be
18 discontinuous or continuous.

19 Q. Got it.

20 If they're discontinuous and
21 you were to look at it from above, what
22 shape would it be?

23 MS. KRINGSTEIN: Objection,
24 form.

25 Q. I am trying to understand your

1 SHANFIELD

2 language of continuous and discontinuous.

3 Some of these -- can we call it
4 a groove just for lack of a better term,
5 this wedge shape that is -- is groove
6 okay, I am just trying to agree on a label
7 for it that's not controversial so we can
8 talk about it.

9 A. That's fine.

10 Q. Okay.

11 So in some instances this
12 groove will travel along the surface of
13 the pad for some length, right?

14 A. It might, yes.

15 Q. And in other instances is it
16 not a groove at all, is it just like a
17 circular indentation with a circular
18 raised rim around it or some other
19 shape --

20 A. Some other -- other shapes are
21 possible, yes.

22 Q. Got it, okay.

23 And for any such groove or
24 indentation like that -- actually, let's
25 take a groove, one that does continue for

1 SHANFIELD

2 some length of time.

3 A. All right.

4 Q. Might this profile change as
5 you go along the groove, this
6 cross-sectional profile?

7 A. Change in what sense?

8 Q. Like if you took another
9 cross-section a little bit further along
10 the groove, it would look different than
11 the profile that you took at the first
12 instance?

13 A. It might not have the exact
14 same shape.

15 Q. The claim language talks about
16 "asperities are cut into the CMP pad
17 having a maximum cutting depth of about 60
18 microns," that's exemplary claim language
19 that you have on the prior page, page 30,
20 paragraph 98, do you see that?

21 A. Yes.

22 Q. I just want to understand this
23 diagram now and the two interpretations of
24 cutting depth that you put on here.

25 One is the difference in height

1 SHANFIELD

2 from the top of the raised rim to the base
3 of the valley, is that right?

4 A. In this diagram, yes.

5 Q. And the other example is from
6 the surface of the pad prior to
7 conditioning to the base of that valley,
8 right?

9 A. Yes, in this diagram, yes.

10 Q. Okay, let me ask you this.
11 After you condition a pad, is
12 the whole thing rough or is some parts of
13 it rough and other areas remain smooth as
14 they did prior to conditioning?

15 MS. KRINGSTEIN: Objection,
16 form.

17 A. So I think that depends on a
18 number of factors, it depends.

19 Q. Okay, thanks.

20 I'm pausing to try to phrase a
21 competent question here for you.

22 During the conditioning
23 process, the diamond tips press into the
24 surface of the patent, right?

25 A. Yes.

1 SHANFIELD

2 Q. And if you were to think about
3 it from the opposite direction, that the
4 pad is pressing up into the tips, same
5 thing but different relative view points,
6 make sense?

7 MS. KRINGSTEIN: Objection to
8 form.

9 A. Keep going, because I'm not
10 sure I understand it, but let me hear the
11 rest of it.

12 Q. I guess what I'm trying to say
13 is that -- let me put it this way.

14 The pressure that is applied
15 between the pad dresser and the pad
16 impacts the cutting depth regardless of
17 how you measure cutting depth, is that
18 fair?

19 A. Repeat the question.

20 Q. Sure.

21 The pressure that's applied
22 between the dresser and the pad impacts
23 the cutting depth?

24 A. Has an effect on the cutting
25 depth no matter how you measure it, it

1 SHANFIELD

2 may, yes.

3 Q. Okay, thank you.

4 And that's because of the
5 mechanical forces between the pad and the
6 dresser on the one hand and the
7 composition of the pad on the other hand,
8 right?

9 MS. KRINGSTEIN: Objection to
10 form.

11 A. That's a vague statement; I
12 don't understand what you mean, maybe you
13 can get more specific.

14 Q. Let me use an example.

15 If I were to place something on
16 a mattress, like a bowling ball, a heavier
17 bowling ball will tend to sink further
18 into the same mattress than a lighter
19 bowling ball would, fair?

20 A. As bowling balls go, yeah.

21 Q. Great.

22 By the same token, the same
23 bowling ball will sink into different
24 mattresses of different firmnesses to
25 different heights, right?

1 SHANFIELD

2 A. Yes, though I'm unclear how
3 this relates to what we're talking about.

4 Q. Thank you, I'm trying to get
5 back to that.

6 So you tell me, what happens
7 when the dresser is pressed onto the pad
8 and conditioning takes place, how would
9 you describe the interaction between the
10 diamond tips and the pad itself?

11 MS. KRINGSTEIN: Objection,
12 form.

13 A. There's a lot to be described;
14 if you want to ask maybe a more specific
15 question.

16 Q. Give me a quick summary of
17 what's happening.

18 A. There is padding, there is
19 displacement, there is strain, which means
20 movement of the material, so that's some
21 of what's going on.

22 Q. Remember when I asked you
23 before, and I think you said that no one
24 had told you that -- let me phrase that
25 differently.

1 SHANFIELD

2 You hadn't heard of a concept
3 whereby a court will construe a claim in
4 order to preserve its validity?

5 MS. KRINGSTEIN: Objection to
6 form.

7 A. I'd like to go back to what I
8 actually said, because that wasn't quite
9 it.

10 Q. Okay.

11 Let me just ask you; in
12 rendering your opinion with respect to
13 cutting depth, did you take into account
14 any concept that the court would preserve
15 the validity of the claim by resolving
16 what you view as ambiguity?

17 MS. KRINGSTEIN: Objection,
18 form.

19 A. Can you repeat that question.

20 Q. Yes, let me phrase it this way.
21 We talked about your legal
22 standard section earlier, do you remember?

23 A. Yes.

24 Q. Is that a comprehensive writing
25 of the legal standards that you apply to

1 SHANFIELD

2 the case?

3 A. I was also given guidance
4 verbally in discussing the case as to --
5 and some legal guidance there, so that
6 wasn't necessarily written down.

7 Q. Did you use that guidance and
8 apply it in rendering your opinions?

9 A. Yes.

10 Q. What guidance was that?

11 A. I don't recall, but I know I
12 would have questions about whether or what
13 the legal question I was attempting to
14 understand, you know, what was it, how is
15 it applied, that sort of thing.

16 Q. How the standard that you had
17 in front of you applied?

18 A. Yes.

19 Q. Fine-tuning these standards
20 that you outline in your declaration?

21 A. No, not fine-tuning.

22 Q. All right.

23 Whatever you said before about
24 this issue of the judge deciding things to
25 preserve validity, you stand by that

1 SHANFIELD

2 testimony that you gave earlier today, not
3 what I just tried to rephrase back at you,
4 but what you said earlier?

5 A. I guess I'd like to hear it
6 again.

7 I would like to understand what
8 I said previously, because the fact that I
9 was given guidance in verbal form reminds
10 me that there was a lot of detail, I might
11 not remember exactly what I was told, but
12 where it was appropriate I discussed it
13 with counsel.

14 And definitely we discussed the
15 question of what rulings were going to be
16 made or could be made on claim
17 construction.

18 So I think I probably should
19 just retract the statement I made earlier,
20 or I will retract the statement I made
21 earlier, and say that I was given guidance
22 where I thought it was relevant to my
23 analysis and we definitely discussed the
24 question of how claim construction, the
25 process, is done and what the judge might

1 SHANFIELD

2 or might not do.

3 As to the exact detail, I just
4 don't recall.

5 Q. Do you remember anyone telling
6 you that one of the tenets of claim
7 construction is to resolve an ambiguity to
8 preserve validity of the claims when the
9 court can?

10 MS. KRINGSTEIN: Objection to
11 form.

12 A. Can you say that again.

13 Q. Did anyone ever tell you that
14 one of the tenets of claim construction is
15 that where the court can resolve an
16 ambiguity to preserve validity, it will do
17 so?

18 A. I was made aware that was
19 possible, so that part I remember.

20 The question of preserving
21 validity I don't remember.

22 Q. You don't remember whether
23 someone told you that a court can do that,
24 is that what you're saying?

25 A. No.

1 SHANFIELD

2 Q. You don't remember whether
3 anyone told you a court should do it to
4 preserve validity, is that what you're
5 saying?

6 A. I don't recall whether I was
7 told that.

8 Q. Okay.

9 Is it fair to say you did your
10 best to make this report or declaration
11 accurate?

12 A. Yes.

13 Q. Is it fair to say that if there
14 was a meaningful detail of the legal
15 standards that influenced your decisions,
16 you would have identified it in your legal
17 standards section?

18 A. You're asking me to speculate
19 again, so I don't know that I can do that
20 as you're talking about a situation that
21 didn't occur.

22 Q. What do you mean, what didn't
23 occur?

24 A. Well, ask your question again.

25 Q. You applied legal standards,

1 SHANFIELD

2 right?

3 A. Yes.

4 Q. The ones that were meaningful
5 to your analysis, did you identify them in
6 the legal standards section of your
7 report?

8 A. Some of them, yes.

9 Q. But not all?

10 A. As I said, I was given guidance
11 by counsel when I had questions, some of
12 which I remember; like I said, how claim
13 construction is decided by the judge, what
14 the process looks like.

15 I just don't remember all the
16 details of the kind you're describing.

17 Q. Let's talk about the "tip
18 variation" terms that's on page 33 it
19 starts.

20 (Witness complying.)

21 A. Okay.

22 Q. This is within where you say
23 there's at least two interpretations of
24 the language, right?

25 A. At least, yes.

1 SHANFIELD

2 Q. You identify two of them
3 specifically, if you look on page 34 and
4 35.

5 A. Yes.

6 Q. And one of the interpretations
7 is the top diagram on page 35, right?

8 A. Yes.

9 Q. Let's just make sure we got
10 this right.

11 The dashed line is this
12 so-called designated profile, right?

13 A. That's how it's labeled, yes.

14 Q. And it's labeled in this figure
15 you mean?

16 A. Yes.

17 Q. But the patent talks about a
18 designated profile, correct?

19 A. Yes.

20 Q. And this label and this dashed
21 line is intended to represent that?

22 A. An example, yes.

23 Q. Thank you.

24 And that's true in the lower,
25 the second interpretation, the same thing,

1 SHANFIELD

2 same dash line, right?

3 A. That's correct.

4 Q. And then in each of these
5 there's labeled a highest protruding tip
6 and a lowest protruding tip, correct?

7 A. Yes.

8 Q. And then in the first
9 interpretation you measure the variation
10 from the highest tip, the top of the
11 highest tip, to the top of the lowest tip,
12 right?

13 A. Yes.

14 Q. And that's the variation that's
15 being measured?

16 A. That is an interpretation a
17 POSITA could make based on the
18 specification in the claim language.

19 Q. I understand what you're
20 saying.

21 In the second interpretation,
22 the variation that's measured is not
23 tip-to-tip, but from the tip to the
24 designated profile, right?

25 A. That's another interpretation a

1 SHANFIELD

2 POSITA could make of how to measure this
3 variation that we're talking about.

4 Q. Okay, thank you.

5 Now, some claim language does
6 mention tip-to-tip variation, right?

7 A. Can you bring me to that point?

8 Q. Yes, if you go back to section
9 B, it's talking about variation between
10 certain tips, right?

11 (Witness perusing document.)

12 A. Can you show me where?

13 Q. Sorry, page 22.

14 A. Where does it say tip-to-tip?

15 Q. It says "highest protruding tip
16 and second highest protruding tip," do you
17 see that?

18 A. Yes.

19 Q. So that's comparing tip-to-tip,
20 right?

21 A. No.

22 Q. It's not?

23 A. It's different language.

24 Q. Okay, got it.

25 So you're not saying that means

1 SHANFIELD

2 tip-to-tip?

3 A. I'm not saying anything about
4 it.

5 Q. But you measure from the
6 highest protruding tip to the second
7 highest protruding tip, whatever second
8 highest protruding tip means, you're
9 measuring one tip to another tip?

10 MS. KRINGSTEIN: Objection,
11 form.

12 A. You're losing me; maybe you can
13 be more specific.

14 Are you asking me is that what
15 the claim term says?

16 Q. It says "distance between the
17 highest protruding tip and the second
18 highest protruding tip," do you see that?

19 A. It says "the difference in
20 protrusion distance between the highest
21 protruding tip and the second highest
22 protruding tip."

23 Q. Great.

24 And so if we were to look at
25 your diagram on page 34, do you see

1 SHANFIELD

2 that - -

3 A. You mean page 35?

4 Q. Thank you, page 35.

5 Then there we would measure
6 between what's labeled the highest
7 protruding tip and the tip that's
8 obviously the second highest one there,
9 kind of in the middle, do you see that?

10 A. Yes - -

11 MS. KRINGSTEIN: Objection,
12 form.

13 Q. And what you measure is the
14 variance in height between those two, are
15 you with me?

16 MS. KRINGSTEIN: Objection,
17 form.

18 A. So I want to add the point that
19 in this diagram I'm showing a section of a
20 conditioning tool surface and not the
21 entire conditioning tool.

22 Q. I'm with you - -

23 A. So there could well be a
24 situation that looks different than what I
25 am showing here on the same tool.

1 SHANFIELD

2 Q. I'm with you and let me tell
3 you what I'm not trying to do.

4 I'm not trying to trick you and
5 say you're now testifying about your
6 difference in protrusion distance terms,
7 okay, that's not my point.

8 My point is, the difference in
9 protrusion distance terms measure from the
10 height of one tip to the height of
11 another tip, that's all I'm asking.

12 A. In this section of the tool,
13 but not over the whole tool.

14 Q. Okay.

15 This claim language refers to a
16 designated profile.

17 A. Which claim language?

18 Q. The tip variation terms.

19 A. Can you be more specific.

20 Q. Each of the tip variation terms
21 you identify in the chart at the bottom of
22 page 33 of your declaration, each include
23 the words "designated profile."

24 A. Yes.

25 Q. Thank you.

1 SHANFIELD

2 None of the claim language that
3 you actually quote in the chart spanning
4 pages 22 to 23 includes the words
5 "designated profile," right?

6 A. Are you asking what's in my
7 table, as are the words "designated
8 profile" in the table?

9 Q. Correct.

10 A. No, there is not.

11 Q. Thanks.

12 You have some specification
13 quotes on paragraph 113, page 36?

14 A. Can you repeat your question.

15 Q. Yes.

16 There are some quotes from the
17 specification here?

18 A. Where?

19 Q. Paragraph 113.

20 A. I mean where in the paragraph,
21 what are you talking about?

22 Q. Where there are quotes.
23 (Witness perusing document.)

24 A. And your question is what?

25 Q. Those are quotes from the

1 SHANFIELD

2 specification?

3 A. Yes.

4 Q. Thank you.

5 One of these is "tip
6 variation," do you see that -- sorry,
7 never mind, that's something different.

8 The first quote from the
9 specification begins on the third line of
10 that paragraph 113 with the words "for
11 example," do you see that?

12 A. Yes.

13 Q. And here in this language of
14 the specification it says that
15 "Superabrasive tip alignment can
16 additionally be described in terms of
17 height distribution or in some cases
18 protrusion distance from the support
19 substrate," do you see that?

20 A. Yes.

21 Q. Later down you have what are
22 several embodiments -- sorry.

23 It goes on to say, the
24 paragraph goes on to say that, "The
25 specification further explains," and it

1 SHANFIELD

2 talks more about heights of tips.

3 A. It says "The specification
4 further explains that each of the
5 plurality of superabrasive particles can
6 be defined by a protrusion distance from
7 an exposed surface of a binding material
8 from which they protrude to a
9 predetermined height."

10 Q. It goes on to say "where the
11 predetermined height may vary between tool
12 applications," with me so far?

13 A. Yes.

14 Q. And your language then says
15 "and then describes several embodiments
16 under this view," do you see that?

17 A. Yes.

18 Q. What do you mean by "view"
19 there?

20 A. The view that each of the
21 plurality of superabrasive particles can
22 be defined by a protrusion distance from
23 an exposed surface of binding material
24 from which they protrude to a
25 predetermined height.

1 SHANFIELD

2 Q. Thank you, okay.

3 And then you have "e.g.," for
4 example, in a paren, correct?

5 A. Yes.

6 Q. And you've highlighted, or I
7 should say emphasized, a number of
8 phrases, one is "variation from the
9 predetermined height," do you see that?

10 A. Yes.

11 Q. And that's three times it says
12 that, correct?

13 A. That's correct.

14 Q. That language, "variation from
15 the predetermined height," is that more
16 consistent with, going back to page 35,
17 the first interpretation or the second
18 interpretation that you lay out?

19 A. It's the tip-to-tip
20 interpretation.

21 Q. Why do you say that?

22 A. Variation from a predetermined
23 height means in the view that
24 superabrasive particles can be defined as
25 the distance by, a protrusion distance,

SHANFIELD

from an exposed surface of binding material from which they protrude to a predetermined height, variation from a predetermined height means tip-to-tip variation.

Q. What's the phrase "from the predetermined height" mean there?

A. Plurality of superabrasive materials is defined by a protrusion distance and it tells you about that distance.

Now it's asking about the variation of that distance or it's mentioning the variation in that distance by saying the variation from the predetermined height.

So it's talking about that height that was just described.

Q. Thank you for that.

Let's go back to section A, "about."

A. What page?

Q. Let's go to the start of it, which is on page 17.

1 SHANFIELD

2 (Witness complying.)

3 Q. Starting on page 17 and
4 carrying over to page 18, you list all the
5 instances of where the term "about"
6 appears throughout the asserted claims of
7 the two patents, right?

8 A. That's correct.

9 Q. In each of the instances, the
10 word "about" is modifying a numerical
11 value?

12 A. I take it that's a question.

13 Q. Yes, just asking if you agree
14 with that.

15 A. I do.

16 Q. Thanks.

17 And as I understand the
18 analysis that you lay out, the issue is
19 that one of skill in the art would not
20 understand what the variance is around the
21 numerical value in those instances, do I
22 have that right?

23 MS. KRINGSTEIN: Objection,
24 form.

25 A. I don't know what you mean by

1 SHANFIELD

2 variance.

3 Q. Let's go to page 70.

4 MS. KRINGSTEIN: Paragraph?

5 MR. DEVLIN: Paragraph 70.

6 Glad you guys are here.

7 (Witness complying.)

8 A. Yes.

9 Q. And do you see in the middle of
10 paragraph 70, about six lines down, a
11 sentence begins "there is no established,"
12 do you see that?

13 (Witness perusing document.)

14 A. Yes.

15 Q. And the issue you're raising
16 there is that the word "about" might allow
17 for different understandings of the
18 acceptable variance around the numerical
19 value recited in the claim term, right?

20 MS. KRINGSTEIN: Objection,
21 form.

22 A. What I said was there's no
23 established acceptable manufacturing
24 tolerance that would allow a POSITA to
25 determine whether a difference, and then I

1 SHANFIELD

2 give some examples of 10.1, 10.5, 11
3 microns, or 15 microns is about 10 microns
4 as recited in the claim.

5 Q. Is it your view that a POSITA
6 would have to understand some information
7 that would allow the POSITA to know --
8 let me back up.

9 Can -- is my lingo okay, do
10 you understand my lingo of variance to
11 mean .1, versus .5, versus 1, versus 5, do
12 you understand how those are different
13 variances around the numerical value 10,
14 are you with me?

15 MS. KRINGSTEIN: Objection,
16 form.

17 A. You can define variance however
18 you want, I don't understand it.

19 Q. That's what -- I'm trying to
20 come to a common understanding with you so
21 that we can talk.

22 Does it strike you as okay that
23 we can discuss these numerical issues that
24 you raise here using the term "variance"
25 or is there a better way to describe the

1 SHANFIELD

2 issue?

3 A. I like the language I used,
4 which is there's no established acceptable
5 manufacturing tolerance that would allow a
6 POSITA to determine, et cetera, whether a
7 difference of these numbers that I
8 mentioned is about 10 microns as
9 recited --

10 Q. What do you mean by difference?

11 A. A difference of 10.1 microns;
12 when you read about 10 microns, does that
13 mean 10.1 microns, does it mean 10.5
14 microns is about 10 microns, does it mean
15 15 microns is about 10 microns?

16 Q. The difference in that first
17 example, 10.1, that's .1, the difference
18 is .1?

19 A. You're --

20 MS. KRINGSTEIN: Objection to
21 form.

22 Q. I'm asking you.
23 What's the difference between
24 10 and 10.1?

25 A. Arithmetically?

1 SHANFIELD

2 Q. Yes.

3 A. .1.

4 Q. You used the term "difference"
5 here and these are examples of different
6 differences, right?

7 A. No, that's not right.

8 Q. You used the term "difference,"
9 correct?

10 A. Yes.

11 Q. And you give four examples of
12 differences.

13 A. Yes, but not the difference you
14 define.

15 Q. I'm going to use your term
16 "difference," that's what we're going to
17 work with.

18 In your view, would a POSITA
19 have to understand what the appropriate
20 difference is for each of these numerical
21 values for the claim to not be invalid?

22 MS. KRINGSTEIN: Objection,
23 form.

24 A. The way I'm using the word
25 "difference" is meaning 10.1 microns is a

1 SHANFIELD

2 difference from 10 microns.

3 11 microns is a difference from
4 10 microns --

5 Q. Let me stop you there.

6 The 10.1 difference is a
7 different difference than the 11 -- sorry
8 -- than the 10.5 difference, right?

9 A. It's a different number, yeah.

10 Q. And therefore a different
11 difference?

12 A. No.

13 Q. Same difference?

14 A. It's an example of some
15 differences and I think what difference is
16 in the language you've been using is not
17 what I am saying here.

18 I am pointing to the number
19 itself, not a difference.

20 Q. Let me see if we can actually
21 agree on some language.

22 Sometimes have you seen
23 instances where courts will interpret the
24 word "about" to involve a range?

25 MS. KRINGSTEIN: Objection to

1 SHANFIELD

2 form.

3 A. Can you be more specific?

4 Q. Sure.

5 Have you seen any examples
6 where courts will construe the term
7 "about" or "approximately" to mean
8 something like plus or minus 10 percent or
9 plus or minus 1 percent, have you ever
10 seen that?

11 MS. KRINGSTEIN: Objection,
12 form, legal conclusion.

13 A. When you talk about court, what
14 do you mean by court?

15 Q. In a case, in a prior case.

16 A. In a conclusion of a case or --

17 Q. In an opinion by a judge.

18 A. I'm familiar with a judge
19 agreeing that there's established
20 manufacturing tolerances.

21 Q. Are you familiar with the
22 situation that I just presented to you,
23 where a judge interpreted the term "about"
24 or "approximately" to be a range, like a
25 plus or minus 10 percent or plus or minus

1 SHANFIELD

2 5 percent, that's what I'm asking?

3 MS. KRINGSTEIN: Objection.

4 A. The best I can tell you is I'm
5 familiar with cases where manufacturing
6 tolerances were recognized by the court.

7 Q. Have you ever seen a situation
8 where the result was that the court
9 determined that the word "about" or
10 "approximately" was construed to mean plus
11 or minus 10 percent or plus or minus 5
12 percent or plus or minus 1 percent, I'm
13 just asking if you've seen that before?

14 MS. KRINGSTEIN: Same
15 objections.

16 A. Same answer too.

17 I have seen a case where
18 established manufacturing tolerances were
19 recognized and that the court agreed.

20 Q. Is that the case where the
21 court construed the term "about" to
22 require a certain numerical range like
23 plus or minus 10 percent, plus or minus 5
24 percent or plus or minus 1 percent or the
25 like?

1 SHANFIELD

2 MS. KRINGSTEIN: Same
3 objections.

4 A. They talked about agreeing if
5 there was an established manufacturing
6 tolerance that was relevant to the
7 quantity being discussed.

8 Q. And?

9 A. And that was it.

10 Q. Do you recall what the court
11 concluded with respect to the claim
12 construction of that term in that case?

13 MS. KRINGSTEIN: Objection,
14 form, calls for a legal conclusion.

15 MR. DEVLIN: I am asking if he
16 remembers something in a case that he has
17 cited and is talking about.

18 MS. KRINGSTEIN: Where has he
19 cited a case?

20 Q. Do you remember whether the
21 court construed the term to require a
22 specific range around the numerical value
23 in the claim that was modified with the
24 word "about"?

25 MS. KRINGSTEIN: Same

1 SHANFIELD

2 objections.

3 A. No.

4 Q. Thank you, all right.

5 What case was that?

6 A. Are you talking about something
7 I've talked about in my report?

8 Q. No, just the case you were
9 talking about right here.

10 A. I said no, I don't recall.

11 Q. No, the one where you said
12 you're familiar with the court talking
13 about manufacturing tolerances, that case.

14 A. What case is that?

15 Q. Yes.

16 A. I've seen it more than once, so
17 I don't recall exactly.

18 Q. Do you recall any of them?

19 A. No, not exactly.

20 Q. Do you recall the Purdue case?

21 A. Yep.

22 Q. Does that ring a bell?

23 A. Yes.

24 Q. Is that a case that you were
25 referring to a few minutes ago?

1 SHANFIELD

2 A. I don't recall well enough to
3 really offer an accurate answer.

4 Q. Do you remember that the term
5 "about" was construed as not indefinite,
6 do you remember that?

7 A. What I do remember is that the
8 court agreed that there was established
9 manufacturing tolerances that were
10 recognized by POSITAs in that case.

11 Q. The court did not incorporate
12 those tolerances into the claim
13 construction that it worded, right?

14 A. I don't recall.

15 Q. You didn't advocate that the
16 court do that, right?

17 MS. KRINGSTEIN: Objection,
18 form.

19 A. I don't recall.

20 Q. It wasn't your opinion that the
21 court should include a numerical range
22 that reflected the established
23 manufacturing tolerances, was it?

24 MS. KRINGSTEIN: Objection,
25 form.

1 SHANFIELD

2 A. I don't recall.

3 MR. DEVLIN: I've marked as
4 Exhibit 4 something that on its face is
5 labeled Exhibit 2, but attached to that
6 label is a document that is Expert Report
7 of Stanley Shanfield, Ph.D., and it
8 relates to a case between the Trustees of
9 Purdue University and a company called
10 Wolfspeed.

11 (Shanfield Exhibit 4, Expert
12 Report of Stanley Shanfield, Ph.D., re
13 Trustees of Purdue University and a
14 company called Wolfspeed, was marked for
15 identification, as of this date.)

16 Q. Do you remember that?

17 A. Yes.

18 Q. You submitted this declaration
19 in that case?

20 A. Yes.

21 Q. If you go down to page 12, are
22 you there, you're already there, good.

23 A. Yes.

24 Q. So there's a section on a
25 phrase from the claims that includes the

1 SHANFIELD

2 words "about 3 micrometers," right?

3 A. That's right.

4 Q. And you rendered an opinion on
5 whether that phrase should be held
6 indefinite or not, right?

7 A. What I said in paragraph 41 on
8 page 12 is that I understand that less
9 than about 3 micrometers has previously
10 been construed in a related case as not
11 indefinite, plain and ordinary meaning,
12 and it gives the Texas Action Docket
13 90,220, and 31 -- at 31.

14 I wrote I agree with the
15 court's analysis.

16 Q. Thanks.

17 So your opinion was you agree
18 that the claim term is not indefinite and
19 would be understood by a POSITA under its
20 plain and ordinary meaning?

21 A. Under its plain and ordinary
22 meaning by a POSITA given the fact, like I
23 explain in my report and my declaration,
24 that there's an established manufacturing
25 tolerance, as I explained earlier.

1 SHANFIELD

2 Q. Can you tell me, look through
3 this report in Purdue Pharma, or anywhere
4 else, and see if it mentions what the
5 manufacturing tolerances are.

6 (Witness perusing document.)

7 A. What the opinion was that I
8 provided here was that I agreed with the
9 court's analysis.

10 The court's analysis doesn't --
11 or I didn't list, if it did, and I don't
12 recall, specific range.

13 I said I understand that the
14 phrase "less than about 3 micrometers" has
15 previously been construed in a related
16 case and I agreed with it.

17 Q. Can you go --

18 A. The reason I agreed with it is
19 because of exactly the point I'm making on
20 paragraph 70 in my report, which is that
21 in that case -- sorry, in the case of
22 Purdue, there was established
23 manufacturing tolerances recognized by
24 POSITAs.

25 The tolerances would change

1 SHANFIELD

2 depending on other information, but there
3 were, that's what I'm providing an opinion
4 on.

5 In the case that we're talking
6 about here, there are no established
7 manufacturing tolerances --

8 Q. That you know of?

9 A. I'm providing an opinion here
10 and, yes, that's my opinion.

11 Q. Okay, thanks.

12 Can you turn to the Purdue
13 declaration, paragraph 47.

14 (Witness complying.)

15 Q. The claim element here is width
16 of a JFET region, that width has to be
17 less than about 3 microns, right,
18 micrometer is microns?

19 A. Right.

20 Q. So the key is less than about 3
21 microns, right?

22 A. The claim term?

23 Q. Yes.

24 A. Yes.

25 Q. There is a figure here on

SHANFIELD

paragraph 47 from an article that you cite, do you see that figure?

A. Yes.

Q. And it's measuring some things on JFET regions that have widths that range from 0.5 microns up to 6, right?

A. Yes.

Q. And you note in paragraph 47 that "Based on Figure 2, shown below, it's clear to any POSITA that there is no improvement in the figure of merit for a MOSFET beyond a JFET region width of about 3 micrometers," do you see that?

A. Meaning a very specific calculation applied to MOSFETs that have a JFET region.

Q. There are three lines in the figure, a red one, a black one and a blue one; are any of those the figure of merit?

A. There are many figures of merit for MOSFETs.

Q. Are each of these figures of merit for a MOSFET?

A. Figure of merit is a term of

1 SHANFIELD

2 art, so there's numerous figures of merit.

3 Q. Right.

4 Is what's being measured and
5 shown on the blue line, black line and red
6 line here each examples of figures of
7 merit for a MOSFET?

8 A. I think here it's referring to
9 the figure of merit applicable in the case
10 of a silicon carbide MOSFET and there's
11 multiple figures of merit.

12 So this is one of them or three
13 of them; there's many more.

14 Q. Got it, this is three of them,
15 that's what I was asking you, okay.

16 Now, between 0.5 -- let's take
17 the black line first, are you with me?

18 A. Okay.

19 Q. Between 0.5 and 3 collectively
20 there's more variation than between 3 to
21 6, right?

22 A. Sorry, what were the two
23 numbers?

24 Q. The left side of the black
25 line, to the left of 3, versus the right

1 SHANFIELD

2 side, to the right of 3.

3 A. Yes.

4 Q. Okay, thanks.

5 More variation on the left you
6 mean, right?

7 A. Correct.

8 Q. When you say yes, you mean more
9 variation on the left-hand side of the
10 black curve, correct?

11 A. That's on-resistance; it must
12 be considered with respect to a number of
13 other parameters, like the breakdown
14 voltage, like this ratio of the breakdown
15 voltage to R-on, and there are probably
16 five other parameters I can name if we
17 want to talk about JFETs.

18 Q. I just want to talk about this
19 figure, okay, are you with me?

20 A. I'm with you.

21 Q. All I'm saying is the black
22 line is fairly flat to the right-hand side
23 of 3 relative to the left-hand side, fair?

24 A. So my previous characterization
25 of R-on as a figure of merit is incorrect

1 SHANFIELD

2 in that R-on is a parameter that allows
3 you to decide on a figure of merit along
4 with other parameters, so I withdraw that
5 earlier comment.

6 And now we're talking about
7 on-resistance, which by itself doesn't
8 tell you anything about the merit of the
9 JFET.

10 Q. How about the blue line?

11 A. No.

12 Q. Not a figure of merit?

13 A. No.

14 Q. How about the red line?

15 A. For certain kinds of JFET
16 devices it's sometimes referred to as a
17 figure of merit, it's not
18 industry-recognized, but it's the one that
19 was used in this paper.

20 Q. The red line?

21 A. Like I said, it's not
22 industry-recognized as a figure of merit,
23 so that's an important point, because this
24 particular paper by Cooper, this is figure
25 of merit, but it's not necessarily what

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2 industry established in JFET or MOSFET
3 literature as the only figure of merit
4 that's important.

5 Q. Thank you.

6 It's the one that you point to
7 when you're discussing this figure in the
8 text above?

9 A. It's an example of one, yes.

10 Q. That red line, it's relatively
11 flat to the right of 3 compared to the
12 left of 3, fair?

13 A. Are you trying to say that its
14 value doesn't fluctuate as much?

15 Q. Correct.

16 A. On the right, 3, 4, 5 microns,
17 versus 2, 1 microns; I can't tell.

18 Q. You can't tell whether there's
19 more variance from .5 to 3 in the red
20 curve compared to 3 to 6?

21 A. The value -- I don't know what
22 you mean by variance I guess is really
23 what I'm saying.

24 Q. Did you ever hear of a curve
25 being called flat?

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2 A. Sure.

3 Q. Would you agree that the red
4 curve is flatter on the right side of the
5 3 than the left side?

6 A. I'd agree that there is less
7 change in the value of that breakdown of
8 square divided by the on-resistance from 3
9 to 4 microns than there is from 2 to 3
10 microns.

11 Q. Thank you.
12 There is some change, though,
13 from 3 to 4, right?

14 A. Yes.

15 Q. Thanks, okay.
16 Now, where above 3 is the line
17 for about 3 microns that you need to be
18 less than to meet this claim language?

19 A. It's what -- first of all, I
20 can't answer that question.

21 I can say what my opinion was.

22 Q. Sure.

23 A. Is that it's not indefinite and
24 it's the plain and ordinary meaning.

25 Q. Got you.

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2 And so when someone goes to
3 apply this and the infringing device has a
4 JFET region width of 3.1 microns, does
5 that fall within the claim language?

6 A. I didn't offer an opinion on
7 that.

8 Q. Can you answer it now?

9 A. No.

10 Q. What about 3.01, can you answer
11 that?

12 A. No.

13 Q. What about 4, can you answer
14 that?

15 A. I'd have to think about it.

16 Q. You had time to think about it
17 when you wrote this opinion, right?

18 A. Yes.

19 MR. DEVLIN: Let's take a
20 break.

21 We're close to done, I may have
22 a couple of followups.

23 (Recess taken.)

24 BY MR. DEVLIN:

25 MR. DEVLIN: Nothing further

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2 from me.

3 MS. KRINGSTEIN: Off the
4 record.

5 (Recess taken.)

6 EXAMINATION BY

7 MS. KRINGSTEIN:

8 Q. Dr. Shanfield, thanks for your
9 time today, I am just going to ask you a
10 couple of quick followup questions.

11 A. Sure.

12 (Shanfield Exhibit 1, Dr.
13 Shanfield's Declaration in Sung v. Samsung
14 case, was marked for identification, as of
15 this date.)

16 Q. Can you please pull out your
17 declaration, Exhibit 1, and turn to page
18 5.

19 Do you see paragraph 27 says,
20 "I understand that although a claim term's
21 susceptibility to more than one meaning
22 does not necessarily render it indefinite,
23 the claim term is indefinite if the claim
24 language might mean several different
25 things and no informed and confident

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2 choice is available among the contending
3 definitions."

4 Do you see that?

5 A. Yes.

6 Q. Do you recall being asked about
7 the word "several" in paragraph 27?

8 A. Yes.

9 Q. Just to be crystal clear, you
10 testified today that it's your opinion
11 that a person of ordinary skill in the art
12 would have two reasonable interpretations
13 for the tip variation terms, right?

14 A. That's correct.

15 Q. And it is your opinion that a
16 person of ordinary skill in the art would
17 have two reasonable interpretations for
18 the cutting depth terms, correct?

19 A. That's right.

20 Q. And it's your opinion that a
21 person of ordinary skill in the art would
22 have two reasonable interpretations for
23 the difference in protrusion distance
24 terms, right?

25 A. That's right.

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2 Q. You're not a lawyer, right?

3 A. No.

4 Q. You don't typically review case
5 law?

6 A. No.

7 Q. And you don't typically review
8 court decisions?

9 A. No.

10 Q. Your legal standard section
11 that you testified provides your
12 understanding of the legal principles that
13 you applied in forming your opinions in
14 this case, right?

15 A. Yes, that's correct.

16 Q. And you have that understanding
17 from counsel?

18 A. Yes.

19 MS. KRINGSTEIN: I'll pass the
20 witness.

21 MR. DEVLIN: I have nothing
22 further, but it occurs to me we should do
23 a quick housekeeping.

24 First of all, thanks for your
25 time, and let's do this on the record.

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2 So at the start of the
3 deposition I hand labeled an Exhibit 1,
4 which was Dr. Shanfield's declaration from
5 this case and then I marked as Exhibit 4
6 something that on its face is called
7 Exhibit 2 later in the day.

8 I also marked the patents as
9 Exhibits 2 and 3 for this depo but I don't
10 think I ever used them, I don't think we
11 ever actually opened the patents, and so
12 my proposal to you for clarity is that we
13 simply have an Exhibit 1 and an Exhibit 4
14 officially.

15 But if you want to think about
16 that, it's fine; I'm just noting for the
17 record we need to figure out this issue,
18 it's only two items so we'll be --

19 MS. KRINGSTEIN: I would say if
20 we had the realtime we could confirm
21 whether or not those were the patents, but
22 we don't, so --

23 MR. DEVLIN: The alternative is
24 we just keep all four as exhibits because
25 I think I mentioned them and I mentioned

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that I was marking them, what's the harm.

MS. KRINGSTEIN: We could err
on the side of keeping them and we can
figure out exhibit labels.

MR. DEVLIN: We will get
labeled versions and circulate those to
you.

(Time noted: 4:13 p.m.)

STANLEY SHANFIELD

Subscribed and sworn to before me
this day of , 2024.

C E R T I F I C A T I O N

I, Jineen Pavesi, a Registered Professional Reporter, Registered Merit Reporter, Certified Realtime Reporter and a Notary Public, do hereby certify that the foregoing witness, STANLEY SHANFIELD, was duly sworn on the date indicated, and that the foregoing is a true and accurate transcription of my stenographic notes.

I further certify that I am not employed by nor related to any party to this action.

A handwritten signature in black ink that reads "Jineen Pavesi, RPR, RMR". The signature is written in a cursive, flowing style.

JINEEN PAVESI, RPR, RMR, CRR

E X H I B I T S

Shanfield

EXHIBIT	DESCRIPTION	PAGE
Exhibit 2	'862 patent	15
Exhibit 3	'802 Patent	15
Exhibit 4	Expert Report of Stanley Shanfield, Ph.D., re Trustees of Purdue University and a company called Wolfspeed	141
Exhibit 1	Dr. Shanfield's declaration in Sung v. Samsung case	152

Veritext/New York Reporting, LLC
1-800-727-6396

Name of Case: Sung v. Samsung
Date of Deposition: 5/28/24
Name of Deponent: Stanley Shanfield

[illegible]

(NAME OF WITNESS)

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate.

The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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