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

-----x
SAMSUNG ELECTRONICS CO. LTD., :
SAMSUNG ELECTRONICS AMERICA, INC., :
SAMSUNG SEMICONDUCTOR, INC., AND :
SAMSUNG AUSTIN SEMICONDUCTOR LLC, :
PETITIONER, : IPR2024-00535
v. : (PATENT 9,724,802)
CHIEN-MIN SUNG :
PATENT OWNER. :
-----x

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

DEPOSITION OF MING-YI TSAI
TAICHUNG CITY, TAIWAN
THURSDAY, FEBRUARY 20, 2025
8:31 A.M.

Job No.: 572614
Pages: 1 - 218
Reported by: Mark McClure, CRR

1 Deposition of MING-YI TSAI, held in:

2

3 NATIONAL CHIN-YI UNIVERSITY OF TECHNOLOGY

4 NO. 57, SECTION 2

5 ZHONGSHAN ROAD

6 TAIPING DISTRICT

7 TAICHUNG CITY 411030

8 TAIWAN

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17 PURSUANT TO NOTICE, BEFORE MARK MCCLURE, REGISTERED

18 PROFESSIONAL REPORTER AND CALIFORNIA CERTIFIED SHORTHAND

19 REPORTER NO. 12203.

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11 (APPEARING IN PERSON)

12 JOSEPH TSENG, THE CHECK INTERPRETER

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(ATTACHED TO TRANSCRIPT)

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E X H I B I T S

PREVIOUSLY MARKED

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1 QUESTION WITNESS INSTRUCTED NOT TO ANSWER

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PROCEEDINGS

TAI LEE and JOSEPH TSENG
were sworn to interpret the
Mandarin Chinese language.

MING-YI TSAI,
having been sworn, was examined
and testified as follows:

EXAMINATION

BY MR. HA:

Q. Welcome back, Dr. Tsai, to your final day of
deposition. I see you have a big smile.

MR. CHAN: Before we start, it occurred to me
we never made an appearance for all three days.

I think it's important that we make an
appearance first, even though the witness and the
translators have been sworn in.

MR. HA: This is Yung-Hoon (Sam) Ha, for
petitioner, along here with my backup counsel Laura
Avena.

MR. CHAN: This is Alex Chan, of Devlin Law
Firm, on behalf of plaintiff Chien-Min Sung.

BY MR. HA:

1 Q. Again, welcome back, Dr. Tsai.

2 How much time did you spend preparing for
3 today's deposition overall?

4 A. Well, I believe I still spend a lot of time,
5 but regarding the exact time period, I still cannot give
6 you an exact number.

7 Q. So the amount of time you spent is similar in
8 terms of what you testified yesterday in the '862
9 deposition, is that correct?

10 MR. CHAN: Objection. Form.

11 THE WITNESS: It's really difficult to
12 calculate how much time, but I indeed spent a lot of
13 time.

14 BY MR. HA:

15 Q. Between Monday and today, how much time did
16 you spend preparing for today's deposition?

17 A. Including the time I spent in here, well,
18 anyway, usually, every day, I go to bed sometime around
19 11:00 to 12:00 p.m., and before that, I also need to do
20 quite a lot of research work, including I need to talk
21 with the students over the phone call. So it's really
22 hard to calculate, but I do believe I had spent quite a
23 lot of time.

24 Q. Can you estimate the amount -- the number of
25 hours?

1 A. Start from Monday?

2 Q. Correct, from Monday to today.

3 A. Maybe anywhere from one to 20 hours.

4 THE LEAD INTERPRETER: I'll make a correction:
5 "Anywhere from 10 to 20 hours."

6 BY MR. HA:

7 Q. Did you review any documents between Monday
8 and today to prepare for today's deposition?

9 A. I reviewed my papers, as well as the
10 declaration.

11 Q. And actually, one quick question about hours.
12 You testified you spent anywhere from about 10 to 20
13 hours.

14 About how many hours did you spend preparing
15 with your counsel?

16 A. No.

17 Q. So the entirety of the 10 to 20 hours that you
18 prepared between Monday and today was all on your own?

19 A. If I have some questions, I will call him and
20 ask him.

21 Q. So how many hours do you approximate that it
22 was?

23 A. I have an assistant here who will help me to
24 do the translation, if I need to ask the questions to my
25 counsel, so I believe it would be several hours.

1 THE CHECK INTERPRETER: "I have an assistant
2 who will translate for me, so if I have questions for my
3 counsel, I usually ask the questions through my
4 assistant. I think several hours were spent."

5 BY MR. HA:

6 Q. And you said you reviewed some papers and your
7 declaration.

8 What papers are you talking about?

9 A. Well, those are the papers that I published
10 during that period of time.

11 And regarding the declaration, I reviewed some
12 technical issues in there.

13 Q. Can you tell me specifically which papers that
14 you reviewed?

15 A. Yesterday, I reviewed the articles relating to
16 ODD and BDD, because I know those are very important,
17 and I hoped that I could try to recall my memories.
18 That will be more than 10 hours ago.

19 Q. I'm handing a copy of Exhibit 1004.
20 Is that the paper that you reviewed?

21 A. Yes.

22 Q. Did you review any other papers?

23 A. Yesterday, I was mainly reviewing this one.

24 Q. How about between Monday and today?

25 A. Then I also reviewed the one relating to

1 single diamond. And also novel ADD, novel, advanced,
2 dot, dot, dot.

3 Q. Okay. We'll try to see if we can locate those
4 to confirm what you actually reviewed, but to keep the
5 deposition going, let me continue to ask some questions.

6 Similar to yesterday, I'd like to know if
7 there's any reason why you cannot provide accurate and
8 truthful testimony today.

9 A. No.

10 Q. To the best of your knowledge, you provided
11 accurate and truthful testify yesterday, as well,
12 correct?

13 A. Yes.

14 Q. So, Dr. Tsai, I'm handing you what was
15 submitted as Exhibit 2006 in IPR2024-00533.

16 Is this the paper that you reviewed?

17 A. Yes.

18 Q. And then --

19 A. (In English) No, no, no, not this.

20 Q. No? Okay.

21 A. (In English) Yes, yes. Sorry. Yes.

22 Q. And I'm also handing you a paper that was
23 marked as Exhibit 1037 in IPR2024-00533.

24 Is this a paper that you reviewed?

25 A. The one that was talking about the same tip

1 heights.

2 Q. We'll try to locate that, then.

3 I'm handing you a copy of Exhibit 1001, which
4 is a copy of the '802 patent.

5 You recognize that document, correct?

6 A. Yes.

7 Q. Can you please turn to Claim 1.

8 Do you see the term "designated profile" in
9 Claim 1?

10 A. Yes.

11 Q. What's your understanding of the term
12 "designated profile"?

13 A. Usually, when we do researches, we give two
14 definitions. There are two definitions.

15 The first one is that we will define the
16 designated profile based on the substrate.

17 And the second definition is that we will take
18 the highest protrusion diamond to define the designated
19 profile.

20 Q. So it could actually mean two different
21 things.

22 It could mean the substrate or the highest
23 protrusion tip of the diamond, is that right?

24 A. Right.

25 Q. And it's only the highest protrusion tip, not

1 the second or the third or the fourth, is that right?

2 MR. CHAN: Objection. Form. Misstates
3 testimony.

4 THE WITNESS: Can I answer?

5 When we do researches, we need to have the
6 baseline first, and we will do such a thing when we do
7 the research. So we either define a substrate as the
8 baseline or the highest point as the baseline. However,
9 what other people does, we don't know.

10 BY MR. HA:

11 Q. When you read the '802 patent, Claim 1, the
12 word "designated profile," you were thinking of either
13 the substrate or the highest protruding tip, is that
14 right?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. HA:

18 Q. Can you turn to column 6, lines 21 through 25
19 of the '802 patent, please.

20 So column 6, line 21 says: "As used herein,
21 the term 'profile'... can be used interchangeably and
22 refer to a predetermined contour above a support
23 substrate to which a plurality of superabrasive
24 particles or other cutting elements are intended to
25 align."

1 Do you see that?

2 THE LEAD INTERPRETER: The witness wants me to
3 translate so he can double-check the meaning.

4 THE WITNESS: (In English) I got it. Right.

5 BY MR. HA:

6 Q. Did you apply that understanding of the term
7 "profile" when you read "designated profile"?

8 MR. CHAN: Objection. Form. Beyond the
9 scope.

10 THE WITNESS: When we do measurements, we need
11 to define either a baseline or a base point. Then we
12 can do the calculation. Those two types of baselines
13 are the ones that we frequently use.

14 BY MR. HA:

15 Q. Maybe you misunderstood my question. Let me
16 ask it one more time.

17 Did you apply that understanding of the term
18 "profile," as written in column 6, lines 21 through 25,
19 when you read the term "designated profile" in Claim 1?

20 MR. CHAN: Objection. Form. I know while the
21 translator translated, he said "yes." That's not in
22 response to the question. I think that's in response
23 to --

24 THE LEAD INTERPRETER: To my question.

25 MR. CHAN: I want to make sure the record

1 reflects that.

2 THE WITNESS: No. Those definitions I just
3 talked about are frequently seen during the research or
4 measurements. In other words, you need to do the
5 research and measurement. You need to define it first.

6 Just like if you run 100 meters on the
7 running, then you need to have a starting point.

8 BY MR. HA:

9 Q. Okay. So I think you said "no" to my
10 question, and then you provided some additional
11 clarification, right?

12 A. That is because I believe that term,
13 "designated profile," is a starting point.

14 Q. Understood.

15 Now, in column 6, lines 21 through 24, it
16 refers to a "predetermined contour above a support
17 substrate."

18 Do you see that?

19 A. (In English) Yes.

20 Q. Can a contour be a flat plane?

21 MR. CHAN: Objection. Form.

22 THE WITNESS: Talking about this contour, when
23 we do the diamond disk, we need to define the distance
24 of the diamond particle, how much protrusion from the
25 substrate. For example, if we need to have a diamond

1 particles -- the protrusion is 100 micron, then the
2 design of this protrusion distance is the designated
3 profile. So the design will be along this kind of a
4 contour or designated profile to do the design as a
5 distance.

6 If you want to have a protrusion to be 10
7 micron to design, then, of course, then you design
8 accordingly. This is my personal approach.

9 For instance, if you define you want it run
10 either 50 meters or 100 meters, you need to predetermine
11 the distance first. Likewise, you can -- you need to
12 determine the height of diamonds first.

13 BY MR. HA:

14 Q. Okay. So I want to just make sure I
15 understand this in three dimensions.

16 So in one dimension, we have a point; in two
17 dimensions, we have a line between two points; and then,
18 in three dimensions, we can be talking about entire
19 planes, right?

20 So when we talk about a designated profile,
21 are you talking about a distance between the substrate
22 and the highest protruding tip, or are you talking about
23 sort of this entire plane in three dimensions?

24 MR. CHAN: Objection. Form.

25 THE WITNESS: Talking about predetermined

1 profile, actually, I'm not quite sure about what the
2 profile could be. A profile may be just a point or it
3 can also be a line or a plane. But just looking at this
4 text, "profile," it's really hard to determine. But if
5 you talk about the entirety of the diamond disk, so I'm
6 talking about a profile, talking about the whole plane,
7 or I said "global plane."

8 BY MR. HA:

9 Q. Got it.

10 So in the context of Claim 1 of the '802, the
11 term "designated profile," you're talking about the
12 entire plane of the substrate and the entire plane of
13 where the highest protruding tip is?

14 MR. CHAN: Form. Misstates testimony.

15 THE WITNESS: "Designated profile" is what I
16 said. It defines the starting point. For instance,
17 when you run a hundred meters, you need to define the
18 starting point.

19 And "predetermined," this term is used to
20 define how far you want to run. "Predetermined" means
21 that you need to predetermine whether the protrusion
22 height or the tip height of the tip would be 100 micron
23 from the substrate or 200 micron from the substrate.

24 BY MR. HA:

25 Q. You're talking about the term "predetermined

1 contour" on column 6, lines 21 through 24?

2 A. Yes. When I said "predetermined," I was
3 saying that it predetermined how much height that I
4 would like to design.

5 Q. All right. And you determine that based on
6 the highest protruding tip, is that right?

7 A. Are you talking about predetermined?

8 Q. Yes.

9 You said you -- you said "predetermined" means
10 that you need to determine whether the protrusion height
11 is 100 or 200 micron from the substrate, correct?

12 So I'm asking, when you say "predetermined" in
13 the context of the term "designated profile," are you
14 thinking about from the starting point of the substrate
15 to the predetermined highest protruding tip distance?

16 MR. CHAN: Objection to form. Misstates
17 testimony.

18 THE WITNESS: Let me give you the entire idea
19 of this, then.

20 When we talk about predetermined, that is, for
21 instance, No. 1, we need to assume how high the
22 protrusion will be. For instance, if it's for 100
23 micron, then I predetermine 100 micron. Based on that,
24 I will go ahead to select diamond. And so that means I
25 need to decide how big the diamond should be that I

1 select. Therefore, it can have a protrusion from the
2 substrate up to the distance that I want.

3 I intend to make you to entirely understand
4 this so we can save time.

5 BY MR. HA:

6 Q. Absolutely. That's great.

7 A. So once we determine that, and my
8 understanding is that for a diamond disk, it has tens of
9 thousands of diamond particles on that. It's a global
10 diamond. Therefore, that may not be every one is
11 exactly 100 micron. So you put on the plane and you
12 would have that profile.

13 Q. I see. I think I understand. I just want to
14 make sure I really do.

15 Let's assume you have a perfectly flat
16 substrate, okay?

17 And then I think what you're saying is the
18 designated profile means, I want to place diamonds that
19 are, let's say, 100 micron above that perfectly flat
20 substrate. That's the designated profile. And in order
21 for you to achieve that, you're selecting diamond
22 particles that are about 100 micron, because they are
23 not all the same -- so 99 micron, 101 micron, and
24 whatnot -- and placing them on this perfectly flat
25 substrate to give you a designated profile that's, on

1 average, about 100 micron, right?

2 MR. CHAN: Objection. Form. Misstates
3 testimony.

4 THE WITNESS: If you are talking about
5 predetermined, as well as the designated profile, we
6 need to look at them separately. Predetermined is, of
7 course, predetermining the distance where you determine
8 the distance and then, based on that, you can select the
9 size of diamonds that would be placed on the diamond
10 disk. And based on the predetermined protrusion height,
11 then you put on the diamonds.

12 Then talking about designated profile, you put
13 on all the diamonds. Then you do the global measurement
14 of them. Then each piece, of course, has a height.
15 Then you do the measurement of those globally. Then, as
16 a result of that, that would be designated profile.

17 BY MR. HA:

18 Q. So in that scenario --

19 THE CHECK INTERPRETER: He also said that "you
20 have to make a predetermination based on the protrusion
21 height desired by the customer, and also, when it comes
22 to the definition of the protrusion height, you can do
23 the measurement either from the top, from the tip, or
24 from the substrate upward, or from the tip downward."

25 BY MR. HA:

1 Q. Got it. Okay. I think I'm getting a better
2 understanding. I just want to make sure.

3 So the customer says, okay, I want a
4 predetermined height of, let's say, 100 micron on a
5 perfectly flat substrate. Okay?

6 And so you're saying that the designated
7 profile -- you determine that after you place these
8 diamond particles and then measure the distance from the
9 substrate to the particle top, and then the next
10 particle from the substrate to the particle top, and
11 then you determine the designated profile based on these
12 measurements?

13 MR. CHAN: Objection. Form. Misstates
14 testimony.

15 THE WITNESS: So you're saying there is a
16 perfect substrate. It's very flat and it's very rigid,
17 and the tolerance is almost close to zero. This kind of
18 a substrate.

19 Then you also predetermine the height of the
20 diamonds would be all 100 micron. And with this
21 predetermined height, you place all the diamonds on.
22 Then you start to do the measurement of the height of
23 all these tips, and you can find out the difference of
24 those heights. Then you define those differences.

25 The measurement can be from the top down or

1 from the substrate up. That is designated profile.

2 BY MR. HA:

3 Q. Understood.

4 So I think I drew what you just explained to
5 me. I'm handing you a paper where counsel made this
6 drawing of a flat line, as much as I can possibly do,
7 that says "Substrate." And then I drew a dotted line on
8 top of that that says "100 micron," which is, I think,
9 the predetermined height that you want. And I placed
10 four diamond-looking particles, some of which are below
11 the dotted line, some of which are above the dotted
12 line.

13 I'm handing you a red pen.

14 Can you draw for me where the designated
15 profile is in that schematic?

16 THE LEAD INTERPRETER: He says you're wasting
17 his time.

18 THE WITNESS: This is the first definition.
19 This is the baseline, 1.

20 And then, 2, this is the second baseline.

21 Is it clear?

22 BY MR. HA:

23 Q. Where is the --

24 MR. CHAN: I want to interject for a second.

25 I know there was some laughter, and the

1 witness said "You're wasting my time" and there was a
2 bunch of laughter. I just want to make sure the record
3 reflects that so it doesn't sound like in the transcript
4 that you're screaming --

5 MR. HA: Yes, we're all having a good time.

6 MR. CHAN: Do not inject any words that are
7 not necessary.

8 THE WITNESS: Okay, sorry. Sorry.

9 MR. HA: No, not at all. I did not take any
10 offense.

11 Thanks for clarifying the record, Alex, making
12 it clear we're all having a good time now.

13 Q. On that you drew two baselines, one on the
14 substrate and one on the highest protruding diamond
15 location, correct, in red?

16 A. Yes.

17 Q. Can you point to me where the designated
18 profile is on that image? Where is the designated
19 profile on that image?

20 A. As I said, we will first define this one here
21 and we will then define this one, and that's 1 and
22 that's 2.

23 Q. Are there two designated profiles there or one
24 designated profile?

25 A. Normally, we only designated one.

1 Q. So on that image, have you drawn two
2 designated profiles or just one designated profile?

3 A. That is when you do the measurement. You can
4 decide which one you want to use as a baseline. You can
5 define from this baseline up or from this baseline down.

6 Q. So I see baselines, but I'm not sure I
7 understand where the designated profile is.

8 A. As I said, this is a perfect substrate. In
9 reality, a substrate may -- of course, is not perfect.
10 It may have -- it's not so flat. You have some bumps
11 maybe, and then you place the diamonds on there.
12 Diamonds -- number of diamonds could be anywhere from
13 10,000 to 20,000 pieces, for instance, and of course,
14 the highest point on the left substrate may not be
15 identical as the one at the right, and you have the
16 tolerance.

17 So that you define a baseline like baseline 1,
18 and you start to measure that and you measure all those
19 heights, all those points, and it could have a tolerance
20 of anywhere, for instance, from five to 10 micron
21 differences among those 10,000 to 20,000 diamonds. And
22 doing these measurements globally and measure all those
23 tolerances, then you can form a profile.

24 Q. Understood. So let's just do that with the
25 four particles and the perfectly flat substrate example

1 that I have there.

2 Just -- let's just focus on that particular
3 one, okay?

4 So let's pick the substrate on the bottom as
5 the baseline.

6 That's the baseline option, right?

7 And as we talked about, the 100 micron dotted
8 line is the predetermined height that you want to place
9 all your diamonds on. And I placed four diamond
10 particles on that perfectly flat substrate baseline.

11 Where is the designated profile in that
12 particular instance?

13 MR. CHAN: Objection. Form. Misstates
14 testimony, again.

15 THE WITNESS: Only four pieces?

16 BY MR. HA:

17 Q. Yes, just a hypothetical, only four diamond
18 particles, perfectly flat substrate.

19 Where is the designated profile?

20 MR. CHAN: Objection. Form. Hypothetical.

21 THE WITNESS: Can I draw on this?

22 BY MR. HA:

23 Q. Absolutely. If you want to draw the
24 designated profile, please draw it using the green pen I
25 just handed you.

1 A. Based on our research, if a structure is like
2 this, you have a perfect substrate here and you place
3 four diamonds on, and this -- in this structure, of
4 course, we will select the substrate as the baseline to
5 start.

6 Q. Maybe I misunderstood.

7 Are you drawing the designated profile using
8 the schematic hypothetical I provided you, or are you
9 about to generate a completely new diagram?

10 A. I intend to draw the true and actual way of
11 doing the measurement.

12 Q. Then let me hand you a brand-new piece of
13 paper so that the record is clear.

14 MR. CHAN: Have we already marked that paper?

15 MR. HA: I'll mark it.

16 I'm marking the schematic that counsel drew
17 where Dr. Tsai added two baselines in red as Exhibit
18 1047.

19 (Tsai Deposition Exhibit 1047 was marked for
20 identification and is attached to the transcript.)

21 THE WITNESS: This is the actual baseline,
22 maybe here, and this is the substrate.

23

24 BY MR. HA:

25 Q. Would you mind writing out "substrate,"

1 please?

2 A. (In English) Substrate and diamond, diamond,
3 diamond, diamond, diamond, all the diamond. Diamond,
4 diamond or diamond.

5 Q. Okay.

6 A. We will do the measurement. Then we will
7 define the error value. Because the measurement may not
8 be perfect, it has some error occur. So we define what
9 the error will be from the instrument. For instance, 3
10 to 5 micron.

11 The tolerance of the substrate, of course,
12 it's not perfect. Let's assume it's 10 micron. Then
13 the baseline could be at here.

14 Q. When you say "here," I missed that.

15 A. It may not be that big. Let's say only 5
16 micron. And this line has a tolerance of 5 micron.

17 Q. Okay.

18 A. That's the first one we may --

19 MR. CHAN: Can you draw that line for the
20 clarity of the record?

21 And let the record reflect that this is an
22 orange line.

23 THE WITNESS: (In English) Tolerance. Error.
24 Tolerance.

25 (In Chinese) We would define this as a

1 baseline, and its tolerance is 5 micron.

2 BY MR. HA:

3 Q. Dr. Tsai, just a quick question before you
4 proceed.

5 The orange line that you drew as a baseline,
6 is that a flat line, or is that following the tolerance
7 of the substrate?

8 A. We would define that as a line, but this line
9 may have a tolerance of 5 micron.

10 Q. So it's a line that's not perfectly flat, but
11 it could be going up and down about 5 micron, is that
12 right?

13 A. That is the actual line, but during the
14 measurement, we would not define a baseline like a line
15 that would go a little bit up and down. We would define
16 it as a line with a tolerance of 5 micron.

17 Q. All right, great.

18 A. Assuming this one is 100 micron, and this one
19 assuming is 102 micron, and this one is 103 micron. If
20 you want to define a baseline at the top, then it would
21 define like this. This is the second line.

22 If you use this second line as a baseline,
23 then, of course, it also has a tolerance. If you define
24 it as a 5 micron -- so this 5 micron represents the
25 tolerance of baseline at the top. And you use this

1 baseline as a line and you define. That 100 micron is
2 the first one, and then go down and look at others. If
3 that is 80 micron, then there's about a 20-micron
4 difference.

5 Q. So you're saying this top line, topmost line
6 that you draw in orange, is one designated profile, and
7 the second orange line that you drew 80 micron above the
8 substrate is also a second designated profile?

9 MR. CHAN: Objection. Form. Misstates
10 testimony.

11 THE WITNESS: There's only one baseline, and
12 you cannot have multiple starting points. You can only
13 count one starting point.

14 BY MR. HA:

15 Q. In this image you drew three possible
16 designated profiles, but you have to select just one of
17 them, is that what you're saying?

18 MR. CHAN: Objection. Form. Misstates
19 testimony.

20 THE WITNESS: I would like to set a tolerance.
21 Because there are 10,000 to 20,000 diamonds on that, and
22 I need to set a tolerance. The diamonds -- if the
23 diamonds are within this tolerance, I would set that as
24 a baseline.

25 BY MR. HA:

1 Q. I'm asking about the term "designated
2 profile," though. You keep using the word "baseline,"
3 and I don't know if they are the same thing or
4 different.

5 MR. CHAN: Objection. Form.

6 BY MR. HA:

7 Q. Are they the same or different?

8 A. I believe they are the same.

9 Q. So there's three different baselines that you
10 drew, each which have different tolerances.

11 Do you see that?

12 A. There are only two designated profiles, one
13 and two.

14 MR. HA: I'll mark for the record which ones
15 that I pointed to in purple, with a circle 1 and a
16 circle 2, and mark these as "designated profile."

17 MR. CHAN: Objection. Form. Misstates
18 testimony.

19 Let the record reflect that counsel for
20 petitioner drew "1" and "2" in purple in exhibit --

21 MR. HA: It's not marked yet, but I'm trying
22 to get clarification. So let me complete my question
23 first.

24 Q. Did I draw it understanding correctly, or are
25 you pointing to this bottom one as the designated

1 profile?

2 Let me correct this. I will get rid of this.

3 MR. CHAN: How about using a different color
4 of pen.

5 MR. HA: "1" and "2" in purple.

6 Q. Are the "1" and "2" purple written in the
7 designated profile accurate?

8 MR. CHAN: Objection to form.

9 THE WITNESS: That is if you select one of
10 those two to become the designated profile.

11 BY MR. HA:

12 Q. Understood. Thank you for that clarification.
13 Very much appreciated.

14 MR. CHAN: It's been more than an hour.

15 Do you guys want to take a short break?

16 MR. HA: Let's mark this for the record.

17 I'm going to enter this schematic that
18 Dr. Tsai generated as Exhibit 1048.

19 (Tsai Deposition Exhibit 1048 was marked for
20 identification and is attached to the transcript.)

21 MR. HA: And we are off the record.

22 (A recess was taken from 9:41 a.m. to 10:02
23 a.m.)

24 BY MR. HA:

25 Q. Welcome back, Dr. Tsai.

1 I have to ask, as we were grabbing coffee, I
2 saw you, your counsel, lead interpreter and your
3 assistant going off to a meeting.

4 Did you discuss any substance of the
5 deposition during this time?

6 A. No.

7 Q. I think we located the third paper that you
8 said you reviewed. I'm handing you a copy of Exhibit
9 2003.

10 Is this the document you said you reviewed?

11 MR. CHAN: For the transparency of the record,
12 he did ask me if he can take a nap during the break.

13 MR. HA: I'm sorry, what was that, Counsel?

14 MR. CHAN: He asked me if he can take a nap
15 during the break, for the transparency of the record.

16 MR. HA: I see. I see.

17 Let me make the record clear on two points.

18 Thank you for clarifying that, Alex.

19 If Dr. Tsai needs to take a break and we need
20 a break momentarily, I'm happy to do that. I just want
21 to make sure Dr. Tsai is able to provide accurate and
22 honest testimony. So that's point No. 1.

23 And No. 2, I handed you -- can I have that
24 back?

25 I handed you Exhibit 2003, but that was from

1 IPR2024-00534.

2 Q. Is this the paper that you reviewed during
3 your preparation yesterday?

4 A. Yes.

5 Q. Okay. Can you turn to Exhibit 1004, which I
6 think you already have a copy of.

7 You said this is the other copy that you
8 reviewed, right?

9 A. Yes.

10 Q. And can you turn to the second page, 145, on
11 the left. We have marked column and line numbers on
12 this paper, so I'm going to refer to it by column and
13 line numbers.

14 Do you see column 3, line 1?

15 It starts with "Tsai, et al., [8] proposed a
16 novel advanced diamond disk (ADD) that contains diamond
17 grits with equal heights and identically shaped tips."

18 Do you see that?

19 A. Yes.

20 Q. And Tsai, et al. -- is that referring to you?

21 A. Yes.

22 Q. So ADD, then, is placing diamond grits with
23 equal heights and identically shaped tips, correct?

24 A. That is that we hope that we can have the
25 diamonds with the same height and same shaped tips on

1 that.

2 Q. Understood.

3 So let's turn to that Tsai, et al., [8]. If
4 you look at the reference section -- and I'm turning all
5 the way to the end of the page -- it says "M.Y. Tsai,"
6 and it's talking about a paper published in 2009.

7 And I think that's the same paper that I just
8 gave you that you reviewed yesterday, is that correct?

9 A. (In English) Yes.

10 MR. HA: So, then, let me mark that into
11 evidence. Let me mark this into evidence as Exhibit
12 1049.

13 (Tsai Deposition Exhibit 1049 was marked for
14 identification and is attached to the transcript.)

15 BY MR. HA:

16 Q. Can you turn to Figure 3 of this paper.

17 Is Figure 3 showing an image of the ADD that
18 was designed and fabricated?

19 A. It's ODD.

20 Q. Let me just make sure we're looking at the
21 same thing.

22 Are you looking at this one?

23 A. Yes.

24 MR. CHAN: Let the record reflect that you are
25 pointing to Exhibit 1049, Figures 2 and 3.

1 MR. HA: Yes. Thank you for that
2 clarification, Alex.

3 Q. Exhibit 1049, Figure 3 shows an image of an
4 ADD that you designed and fabricated, correct?

5 MR. CHAN: Objection. Form. Misstates the
6 testimony.

7 THE WITNESS: That one was designed by -- let
8 me rephrase that.

9 That one was designed and fabricated by Kinik
10 at that time.

11 BY MR. HA:

12 Q. You're the first-named author of this paper,
13 right?

14 A. Yes.

15 Q. You did not actually make ADD?

16 MR. CHAN: Objection. Form.

17 THE WITNESS: Because the cost of this one is
18 too high.

19 BY MR. HA:

20 Q. But you did not actually make the CMP pad
21 dresser shown here on Figure 3 of Exhibit 1049, right?

22 A. That is this one was not made by me, it was
23 made by Kinik.

24 Q. Okay. So one of your co-authors made the ADD
25 shown here on Figure 3, right?

1 MR. CHAN: Objection. Form.

2 THE WITNESS: No, this one was provided by
3 Kinik, when I worked with Kinik.

4 BY MR. HA:

5 Q. The only person named as a co-author from
6 Kinik that I see is Dr. James Sung, is that right?

7 A. Yes.

8 Q. So Dr. Sung made this ADD?

9 MR. CHAN: Objection. Form. Misstates
10 testimony.

11 THE WITNESS: No, this was provided by Kinik.

12 BY MR. HA:

13 Q. So the person who actually made figure -- the
14 ADD shown here in Figure 3 is not listed as a co-author?

15 MR. CHAN: Objection. Form. Misstates
16 testimony.

17 THE WITNESS: Actually, as to who made it, I
18 really don't know. We worked with Kinik at the time,
19 and this one was provided by Kinik.

20 BY MR. HA:

21 Q. So for all you know, Dr. Sung could have made
22 this ADD, then?

23 MR. CHAN: Objection. Form. Misstates
24 testimony. Calls for speculation.

25 THE WITNESS: I am not sure.

1 BY MR. HA:

2 Q. Okay. Do you know who designed this ADD?

3 A. Designed by Kinik.

4 Q. Do you know the person who designed this ADD?

5 A. I don't remember.

6 Q. Well, at any rate, this ADD has what appears
7 to be diamond grits with equal heights and identically
8 shaped tips on a flat substrate, is that correct?

9 MR. CHAN: Objection. Form. Misstates
10 testimony.

11 THE WITNESS: That was our goal. Our goal was
12 intending to make such a thing.

13 BY MR. HA:

14 Q. So that you could have a very flat designated
15 profile across the entire diamond disk, is that correct?

16 MR. CHAN: Objection. Form. Argumentative.

17 THE WITNESS: Are you referring to at the
18 tips?

19 BY MR. HA:

20 Q. Sure.

21 A. We were hoping that all tip heights were the
22 same, were identical. So they are all in consistency.
23 And the tips is where the profile is.

24 Q. Right.

25 And so you were trying to make identically

1 shaped tips with equal heights on a flat support
2 substrate so that you have a very flat designated
3 profile, correct?

4 MR. CHAN: Objection. Form. Argumentative.
5 Misstates testimony.

6 THE WITNESS: That was our goal, and we hoped
7 that, based on this goal, we could achieve it.

8 BY MR. HA:

9 Q. Great.

10 And ADD performed very well, correct?

11 MR. CHAN: Objection. Form. Argumentative.

12 THE WITNESS: Well, later on, we found that
13 the manufacturing cost of it was too high. In addition,
14 the tips was too sharp, easy to wear. Therefore, we did
15 not make them later.

16 BY MR. HA:

17 Q. Understood.

18 I think you more or less state the same thing,
19 if you go back to Exhibit 1004, column 3 -- right here,
20 column 3. And line 3, I'll start reading.

21 "They indicated that the dressing rate of the
22 ADD reduced by approximately 30 percent, and the
23 polishing rate of the ADD was higher than that of a
24 conventional diamond disk. However, a major
25 disadvantage of the ADD was its manufacturing cost that

1 increased by more than threefold."

2 Do you see that?

3 A. (No audible response.)

4 Q. So ADD performed better than conventional
5 diamond disk, but the downside was too expensive, is
6 that correct?

7 A. Yes.

8 Q. The next sentence says: "In this paper, a
9 novel design of a diamond conditioner -- i.e., an
10 organic diamond disk, ODD is proposed. This design
11 remarkably improves the leveling of diamond tips and
12 markedly reduces the CMP cost."

13 Do you see that?

14 A. Yes.

15 Q. So ODD was really trying to mimic ADD, but
16 trying to make it as a lower cost, is that fair?

17 MR. CHAN: Objection. Form. Argumentative.

18 THE WITNESS: That was what we intend to try,
19 using different approaches to, first of all, reducing
20 the cost and also to minimizing the differences of the
21 tip heights to try to make them into equal height.

22 BY MR. HA:

23 Q. Is it fair to say that you and your co-authors
24 thought hard about how to achieve CMP pad dressers that
25 mimic ADD at a much lower cost, and came up with ODD?

1 MR. CHAN: Objection. Form. Argumentative.

2 THE WITNESS: Back at that time, our goal was
3 trying to reduce the tip heights -- to reduce the
4 difference of tip heights.

5 BY MR. HA:

6 Q. And you wanted to try to reduce cost, as well,
7 right?

8 MR. CHAN: Objection. Form. Argumentative.

9 THE WITNESS: We are doing the research. Most
10 of the time we don't pay much attention in considering
11 about the cost.

12 BY MR. HA:

13 Q. Didn't you state here in Exhibit 1004, column
14 3, that a major disadvantage of ADD was that it
15 increased cost so the ODD design markedly reduces the
16 CMP cost?

17 MR. CHAN: Objection. Form.

18 THE WITNESS: Actually, talking about the
19 cost, of course, we work with the manufacturer. It's
20 their concern about the cost in general. We are doing
21 the research. Normally, we do not care about the cost.
22 However, when we write a paper, we must show some
23 several contributions. Therefore, the paper can be
24 accepted and published.

25 Regarding what the actual cost was, we didn't

1 care, but if you want to know the actual cost, you need
2 to double-check with the actual manufacturer.

3 BY MR. HA:

4 Q. Understood.

5 And I personally thought this ODD was a very
6 clever way to make these CMP pad dressers. So injecting
7 a little bit of personal thought on to this and contrary
8 to counsel's advice to you.

9 But, at any rate, you and your co-authors came
10 up with the experiment on how to make this ODD shown
11 here on Figure 2, correct?

12 A. Yes.

13 Q. So you guys sat down together, thought hard
14 about what experiments to do, and came up with the
15 experiments shown here on Figure 2 of Exhibit 1004,
16 correct?

17 A. Actually, we were working with the team of
18 Kinik at the time, and in the hope of making this kind
19 of product. And I do believe that the Kinik was going
20 to make a good product with lower cost. Somehow, later,
21 this design, this product failed, and has not been sold
22 in the market. The reason was because diamonds were
23 falling off easily.

24 Q. Understood.

25 But the goal of these experiments were to try

1 to remarkably improve the leveling of diamond tips,
2 correct?

3 MR. CHAN: Objection to form. Argumentative.

4 THE WITNESS: We tried to reduce the
5 difference of the tip heights.

6 Well, just like I said, we tried to avoid
7 wafers to be scratched and be damaged during the
8 process. Therefore, that we had to make sure, No. 1,
9 diamond particles would not fall off, and, No. 2,
10 diamond products would not have any cracks to scratch
11 the wafer.

12 BY MR. HA:

13 Q. Okay. So you came up -- you and your
14 co-authors came up with these experiments, and then you
15 actually ran these experiments, and the results that are
16 shown in Figure 3 to the end of the paper, Figure 9, are
17 the confirmational evidence that you guys made these
18 ODDs, right?

19 MR. CHAN: Objection. Form. Argumentative.

20 THE WITNESS: I still want to emphasize that
21 Kinik only provided diamond disks to us. All
22 experiments were performed both by me and my students,
23 not by Kinik.

24 BY MR. HA:

25 Q. Okay. Your co-authors -- in general, you guys

1 came up with the experiments, thought about it, then
2 actually made the CMP pad dresser, ODD CMP pad dresser
3 according to those experiments, and then you made the
4 measurements, and then you published the paper, right?

5 MR. CHAN: Objection. Form. Argumentative.
6 Misstates testimony.

7 THE WITNESS: At that time we worked with
8 Kinik, as I said, and it was Kinik who made this ODD,
9 this diamond disk, and provide to us. Then, in our lab,
10 we did some measurements to it, came up with the data.
11 Based on those data, we published a paper. And so
12 because Kinik provided the funding and, of course,
13 provided the diamond disk, and therefore, that, based on
14 the Taiwanese culture, we would like to put them onto
15 the paper as a -- one of the co-author, and we found a
16 supervisor of the company and put this guy's name on
17 that.

18 BY MR. HA:

19 Q. I see.

20 So some people at Kinik designed the ODD
21 experiments, made the ODD, then gave the ODD to you and
22 you did the measurements and published the paper, is
23 that right?

24 MR. CHAN: Objection. Form. Misstates
25 testimony.

1 THE WITNESS: That was Kinik provided the
2 diamond disk to me so I could perform some experiments
3 and doing measurements. And based on the data coming
4 out from these experiments, I published a paper.

5 THE CHECK INTERPRETER: Check rendition:
6 "Kinik gave me the diamond disks for testing. And after
7 performing the tests, based on that, I performed my
8 experiments, and then based on that, I published my
9 paper."

10 BY MR. HA:

11 Q. Got it.

12 THE LEAD INTERPRETER: Let me double-confirm.
13 (The lead interpreter consulted with the
14 witness in Mandarin Chinese.)

15 THE LEAD INTERPRETER: Then I agree with the
16 word "tests," because there's a word between "tests" and
17 "measurements," and the witness clarified that he also
18 tested the performance of a pad and the wafer.

19 BY MR. HA:

20 Q. Okay. So you did not have personal
21 involvement in the design and fabrication of the ODD
22 disks, is that right?

23 MR. CHAN: Objection. Form. Misstates
24 testimony.

25 THE WITNESS: Actually, in my lab I can only

1 make this similar type of ODD.

2 BY MR. HA:

3 Q. But for the ODD published in Exhibit 1004, you
4 did not have personal involvement in the design and
5 fabrication of the ODD disks, correct?

6 MR. CHAN: Objection. Form. Argumentative.
7 Misstates testimony.

8 THE WITNESS: Well, regarding the technical
9 know-how of manufacturing a product, obviously, the
10 company cooperated with us and would not inform or give
11 us every single steps of this know-how. But in my lab,
12 I am able to make this similar ODD.

13 BY MR. HA:

14 Q. Oh, I'm sure you are very capable of making
15 ODD, but what I want to know is, for the ODD made and
16 published in Exhibit 1004, did you personally design and
17 fabricate any one of these ODD disks?

18 MR. CHAN: Objection. Form. Misstates
19 testimony.

20 THE WITNESS: No, I actually was involved with
21 the discussions of these. Otherwise, there's no way
22 that I could make my own ODD.

23 BY MR. HA:

24 Q. Can you clarify what you mean by you were
25 "involved with the discussions of these"?

1 A. In my lab, we would try to utilize various
2 types of epoxy, for instance, in order to bond diamonds
3 on the substrate.

4 In addition, we also would like to find out in
5 our lab what type of tooling could be used and what type
6 of mesh to be used so the outcome will be better.

7 Q. So, Dr. Tsai, I am not interested currently
8 about what your current capabilities are. I want to
9 know the historical events that happened relative to
10 Exhibit 1004. Okay?

11 So for these ODD disks reported in Exhibit
12 1004, did you have any involvement in the design and
13 fabrication of these ODD disks, or was it mostly Kinik?

14 MR. CHAN: Objection. Form.

15 THE WITNESS: Back at that time, we did a
16 number of experiments, came up with the data, provided
17 it to Kinik as the foundation so that they could go
18 ahead to do the fabrication of these. For instance, we
19 did a number of researches to determine epoxy, tooling,
20 et cetera. After the experiments was completed, then
21 Kinik took those data, and then they could put into
22 their formula and do some fine-tuning and improvement.
23 Then they could make the diamond disk.

24 BY MR. HA:

25 Q. So you did have personal involvement in the

1 design and development of these ODD disks?

2 MR. CHAN: Objection. Form.

3 THE WITNESS: I did the researches for them as
4 to the final product that was made by Kinik.

5 BY MR. HA:

6 Q. Okay. So Kinik made the ODD disks reported
7 here in Exhibit 1004, correct?

8 MR. CHAN: Objection. Form. Argumentative.

9 THE WITNESS: The experiments that we
10 performed back at that time was using the disks protrude
11 by Kinik to us. However, the quality back then was not
12 so good for our experiments. However, in writing the
13 paper, we need to show the contributions. Therefore, we
14 select some better ones to report on the paper.

15 THE CHECK INTERPRETER: Check rendition: "In
16 my experiments, I used diamond disks provided by Kinik
17 because the diamond disks that were created by our lab
18 did not have the quality of -- the diamond disk that was
19 created by the lab was not as good.

20 "And, of course, in this paper, as I
21 mentioned, we need to show our contribution. That's why
22 I used better diamond disks, then published the paper."

23 BY MR. HA:

24 Q. So you made ODD disks that are not reported
25 here, but the ODD disks that are reported here in

1 Exhibit 1004 were made by Kinik, correct?

2 MR. CHAN: Objection. Form. Misstates
3 testimony.

4 THE WITNESS: The photos I took for these
5 products were the ones made by Kinik.

6 BY MR. HA:

7 Q. Who designed the experiment shown in Figure 2?
8 Was it Kinik, or was it you?

9 A. Well, this was illustrated by me.

10 Actually, the purpose is to give it to the
11 reviewer to this paper, given some opinion, because for
12 a new design or a product, we need to describe in
13 general what the manufacturing flow and process is.

14 So I depicted this like this and show it to
15 the reviewer and to express the idea.

16 Q. Who originally came up with this idea?

17 A. I believe it should be Kinik.

18 Q. Do you know if Kinik was thinking about
19 designated profile when coming up with this idea?

20 MR. CHAN: Objection. Form. Calls for
21 speculation.

22 I want to be sure my objection is translated.

23 THE WITNESS: I'm not sure.

24 BY MR. HA:

25 Q. Would it surprise you that Dr. Sung had

1 possession of the concept of designated profiles before
2 Exhibit 1004 was published?

3 MR. CHAN: Objection. Form. Calling for
4 speculation.

5 THE WITNESS: I don't know.

6 BY MR. HA:

7 Q. Would it surprise you if Kinik had possession
8 of the concept of designated profiles before Exhibit
9 1004 was published?

10 A. I don't know.

11 Q. I'm handing you Exhibit 1005, which is a copy
12 of Sung '026.

13 If you look on the front page of Exhibit 1005,
14 you see, on top, a publication date of March 15th, 2007,
15 correct?

16 A. Yes.

17 Q. And your paper, Exhibit 1004, was published in
18 2012, correct?

19 A. Yes.

20 Q. So Sung '026 was published about five years
21 before your paper, Exhibit 1004, was published, right?

22 A. (In English) Yes.

23 Q. Okay. Can you turn to paragraph 11 of Sung
24 '026.

25 A. (In English) Yes.

1 Q. Can you look at the second sentence which
2 starts "As such."

3 It says: "As such, the superabrasive
4 particles may protrude to a predetermined height that is
5 along a designated profile."

6 Correct?

7 A. (In English) Yes.

8 Q. So, Dr. Sung, who is at Kinik, already had
9 possession of the concept of designated profiles at
10 least five years before he co-authored Exhibit 1004 with
11 you, correct?

12 MR. CHAN: Objection. Form. Calls for
13 speculation.

14 THE WITNESS: I don't know.

15 BY MR. HA:

16 Q. Can you go to Exhibit 1049.

17 When was Exhibit 1049 published?

18 A. 2009.

19 Q. Okay. So in 2007, Dr. Sung published Sung
20 '026, talking about the concept of designated profile,
21 then, in 2009, published a paper with ADD that shows
22 diamond grits of equal heights and identically shaped
23 tips, and then, in 2012, published Exhibit 1004 that
24 tried to mimic the performance of ADD, is that right?

25 MR. CHAN: Objection. Form. Calls for

1 speculation.

2 THE WITNESS: I don't know.

3 BY MR. HA:

4 Q. What don't you know about my question? Is it
5 the question, or you just don't know the answer to my
6 question?

7 A. Regarding when he has possessed this concept
8 or not, I don't know.

9 Q. My question didn't include the words
10 "possessed the concept."

11 I said, and let me repeat the question, in
12 2007, Dr. Sung published Sung '026, talking about the
13 concept of designated profile, correct?

14 A. (In English) Yes.

15 MR. CHAN: Object to form.

16 BY MR. HA:

17 Q. Then, in 2009, Dr. Sung and his co-authors
18 published the paper on ADD that shows diamond grits of
19 equal heights and identically shaped tips, correct?

20 MR. CHAN: Objection. Form. Calls for
21 speculation.

22 THE WITNESS: These two are different. For
23 '026, that was Dr. Sung's patent. But this one was
24 written by me.

25 BY MR. HA:

1 Q. But Exhibit 1049 does list Dr. Sung as a
2 co-author, correct?

3 A. (In English) Yes.

4 Q. So let me start again.

5 In 2009, Dr. Sung published Sung '026, talking
6 about the concept of designated profile, correct?

7 MR. CHAN: Objection. Form. Calling for
8 speculation.

9 THE WITNESS: He just mentioned about that
10 term.

11 BY MR. HA:

12 Q. Okay. Then, in 2009, you and Dr. Sung
13 co-authored a paper that talks about ADD having diamond
14 grits of equal heights and identically shaped tips
15 correct?

16 A. Not with Dr. Sung. I need to emphasize that
17 that was with Kinik.

18 Q. Okay. Then, in 2012, you and Dr. Sung
19 co-authored a paper on ODD that tried to mimic the
20 performance of ADD, is that correct?

21 MR. CHAN: Objection. Form. Argumentative.

22 THE WITNESS: No. Actually, I did not work
23 with Dr. Sung. I was working with Kinik.

24 BY MR. HA:

25 Q. Then we will just let the record speak for

1 itself regarding who is named as authors on Exhibit 1049
2 and 1004.

3 Can you turn back to Exhibit 1004 and go to
4 the "Conclusion" section.

5 MR. HA: Actually, my co-counsel here needs a
6 break, so if we can take five minutes, I'd appreciate
7 that.

8 (A recess was taken from 11:03 a.m. to 11:21
9 a.m.)

10 BY MR. HA:

11 Q. Can you turn back to Exhibit 1004, please.

12 Can you go to the "Conclusion" section of the
13 paper, and can you locate column 11, line 18, please.

14 A. (In English) Okay.

15 Q. Do you see the sentence that begins with "In
16 summary"?

17 A. Yes.

18 Q. It says: "In summary, the ODD, as compared to
19 the BDD, can yield a higher wafer removal rate, provide
20 better surface quality, lower the defect count and
21 reduce pad consumption."

22 Do you see that?

23 A. Yes.

24 Q. Then if you go to column 12, line 1, it says:
25 "The results confirm that ODD can replace conventional

1 pad conditioners for the manufacture of semiconductors
2 using CMP."

3 Correct?

4 A. Yes.

5 Q. So is that conventional pad conditioner the
6 same thing as BDD?

7 A. Okay, that refers to the brazing way or
8 brazing approach back at that time that we used.

9 Q. Got it.

10 So the conventional pad conditioner is the BDD
11 that you mentioned in column 11, lines 18 through 21?

12 A. We did not directly refer to BDD, that term
13 itself, but it was actually a brazing approach.

14 Q. I'm just trying to understand. In column 12,
15 lines 1 and 2, you talk about conventional pad
16 conditioners.

17 BDD is one of these conventional pad
18 conditioners?

19 A. (In English) Yes.

20 Q. I see. Okay.

21 And "BDD" stands for brazed diamond disk?

22 A. (In English) Yes.

23 Q. Can you now go to column 8, lines 10 through
24 26.

25 A. (In English) Yes.

1 Q. I'll give you a chance to read that paragraph.
2 Please let me know when you're done reading that
3 paragraph.

4 A. Okay.

5 Q. So you're talking here in this paragraph about
6 the cutters that the BDD and ODD has, correct?

7 A. It's similar to all diamonds.

8 Q. In fact, you say here, on line 10, "Figure 5
9 shows the cutter images of the BDD and the ODD produced
10 using a stylus-type 2D surface roughness instrument."

11 Correct?

12 A. (In English) Yes.

13 Q. Then you say, all the way down at line 22,
14 "However, as shown in Figure 6, in the case of the ODD,
15 the diamond tips of the ODD can be leveled to less than
16 15 micron because the tips" -- "because the diamond tips
17 are already leveled."

18 Correct?

19 A. (In English) Yes.

20 Q. Then you conclude, "The better leveled ODD has
21 more cutters that can dress the pad, and thus they share
22 an equal dressing load."

23 Correct?

24 A. Yes.

25 Q. So ODD has more cutters than BDD, is that

1 correct?

2 A. Yes.

3 Q. Do you have a guesstimate in terms of the
4 number of cutters that the ODD disk had?

5 MR. CHAN: Objection. Form. Beyond the
6 scope.

7 THE WITNESS: I did not actually seriously
8 count them, but generally, they would be over 10,000
9 pieces.

10 BY MR. HA:

11 Q. When you say "pieces," you mean 10,000
12 cutters?

13 A. No, no, diamonds.

14 Q. But you don't know how many cutters there
15 would be among the 10,000 diamond particles, correct?

16 MR. CHAN: Objection to form. Beyond the
17 scope.

18 THE WITNESS: For that, it needs to do the
19 measurements in order to know it.

20 BY MR. HA:

21 Q. All you know here is that the ODD has more
22 cutters than the BDD, correct?

23 A. Yes.

24 Q. Can you turn to column 2, line 14. Line 14
25 says: "A typical diamond disk contains over 10,000

1 grits. However, less than 10 percent of the diamond
2 grits are engaged in cutting the polishing pad."

3 Do you see that?

4 A. (In English) Yes.

5 Q. And we already established that BDD is a
6 typical diamond disk, correct?

7 A. Yes.

8 Q. And about 10 percent of 10,000 grits means
9 about 1,000 cutters, correct?

10 MR. CHAN: Objection to form. Argumentative.

11 THE WITNESS: This is just a way to describe
12 this matter. It may not be 10,000 grits, it may be
13 20,000, it may be 30,000. As to how many of them making
14 the contact points, we can only roughly estimate. If
15 you want to know the numbers, you need to actually do
16 the measurements.

17 BY MR. HA:

18 Q. But you state here about less than 10 percent
19 of the diamond grits are engaged in cutting the
20 polishing pad, right?

21 MR. CHAN: Objection to form. Relevance.

22 THE WITNESS: This is just a general
23 description. Approximately less than 10 percent. It
24 could be anywhere from 1 percent to 10 percent.

25 BY MR. HA:

1 Q. But it can be 10 percent, right? Correct?

2 MR. CHAN: Objection. Argumentative.

3 THE WITNESS: You still need to have the
4 testing and measurement in order to know that.

5 BY MR. HA:

6 Q. But you wrote this back in 2012, trying to
7 explain some of the key points of your findings,
8 correct?

9 MR. CHAN: Objection. Argumentative.

10 THE WITNESS: This is rather just a
11 description. It was not yet verified by any
12 experiments.

13 BY MR. HA:

14 Q. But this is what you were guessing the typical
15 CMP pad dressers had in terms of cutters back in 2012,
16 correct?

17 MR. CHAN: Objection. Form. Argumentative.

18 THE WITNESS: Actually, like I said, when you
19 write a paper you need to describe this matter and to
20 allow people to know that this is one important matter,
21 and so the -- either the editor or the reader would know
22 that this is referring to research. But in reality,
23 without any experiment, you would not know it.

24 BY MR. HA:

25 Q. Right.

1 But back in 2012, your best guess as to how
2 many cutters a typical diamond disk had was about 10
3 percent of the total number of diamond grits, correct?

4 MR. CHAN: Objection. Form. Argumentative.

5 THE WITNESS: No, it was not like that.
6 Because I wasn't sure about it. Therefore, I said less
7 than 10 percent. That means it is possible that it can
8 be anywhere from zero to 10 percent. I'm not sure.
9 This is just a general description.

10 BY MR. HA:

11 Q. Well, you didn't put 1 percent here, correct?

12 A. That was why I put in "less than." It was
13 anywhere from zero to 10.

14 Q. Right.

15 And I'm asking you, you did not write "less
16 than 1 percent," correct?

17 MR. CHAN: Objection. Form. Argumentative.

18 THE WITNESS: Well, like I said, when we write
19 a paper we need to write some description to allow
20 people to know that we are very knowledgeable about
21 this. That's a way of doing this paper writing.

22 And also, another purpose is so that the
23 reader can be very interested in this kind of a topic.

24 In addition, the readers themselves can also
25 look at this and thinking about this and try to have a

1 precise quantified -- quantify the number of this.

2 BY MR. HA:

3 Q. Right.

4 And I'm sure you were very knowledgeable about
5 this even in 2012, and you did not write "less than 1
6 percent."

7 Your best guess as to the total number of
8 cutters in a typical diamond disk was anywhere from zero
9 to less than 10 percent, correct?

10 MR. CHAN: Objection. Form. Argumentative.

11 THE WITNESS: Generally speaking, on the
12 paper, in the introduction it only introduces the
13 conceptual concepts of this paper in order to attract
14 the interest of the readers and to be interested in this
15 topic.

16 Actually, to quantify the number towards the
17 end of the paper or back of the paper, we may do some
18 quantification about this for the references for other
19 people, for readers. Somehow, we actually did not do
20 any experiments so we cannot definitely or clearly say
21 the exact number.

22 BY MR. HA:

23 Q. Okay. I understand you did not do the exact
24 experiments, but let me ask you this question.

25 Is it fair that somebody reading your paper

1 would say, okay, a typical diamond disk probably has
2 about a thousand cutters and ODD has more cutters, so
3 it's probably likely that ODD has more than a thousand
4 cutters?

5 MR. CHAN: Objection. Form. Calling for
6 speculation.

7 THE WITNESS: Well, like I said, it's only a
8 concept. If a reader agrees with what I said in here,
9 then what I said was that it's possible that anywhere
10 from zero to 10 percent, if they think what I was
11 talking about was okay.

12 THE CHECK INTERPRETER: The witness also said
13 that "then the absolute number of the grits may not be
14 correct."

15 MR. HA: I'm not sure if I understand the
16 translation.

17 Could the translator try to translate one more
18 time, please?

19 THE LEAD INTERPRETER: Okay. "Like I said, it
20 is only a concept. If a reader reads it and says that
21 what I am describing is okay, then they would know that
22 I was going to indicate that it's possible that the
23 number of cutters is anywhere from zero to 10 percent."

24 MR. CHAN: Same objection.

25 MR. HA: I'm sorry, Alex, what are you

1 objecting to?

2 MR. CHAN: I think you asked him to
3 retranslate, so I'm just saying "same objection" as to
4 the one I already lodged.

5 MR. HA: So you're just objecting to my
6 question? Okay, understood.

7 THE CHECK INTERPRETER: Let me do my version:
8 "So the range between zero to 10 percent is just a
9 concept, so if this concept that is zero to 10 percent
10 is okay to the readers, then there's no such thing as
11 the absolute number of the grits, basically because it
12 could be zero."

13 BY MR. HA:

14 Q. Okay. Then let me ask my question because
15 maybe my question was not clear.

16 A POSITA reading your paper, Exhibit 1004 --
17 is it fair for a POSITA to think the following: A
18 typical diamond has about 10,000 grits where less than
19 10 percent of the diamond grits are engaged in cutting
20 the polishing pad, so a typical diamond disk probably
21 has anywhere from zero to about a thousand cutters.

22 Is that fair?

23 MR. CHAN: Objection. Form. Objection.
24 Form. Beyond the scope.

25 THE WITNESS: In here, it says over 10,000.

1 That could be 20,000, 30,000, 40,000, 50,000, even up to
2 100,000. It's all possible. Then it says "less than 10
3 percent." So a POSITA may think that that would be
4 anywhere from zero to 10 percent.

5 BY MR. HA:

6 Q. So it's not fair for a POSITA to think that
7 having about a thousand cutters or anywhere between zero
8 and a thousand cutters in a typical diamond disk?

9 Actually, withdrawn. That question is not
10 even a sentence. Let me re-ask that.

11 So it's not fair for a POSITA to think that a
12 typical diamond disk could have anywhere from about zero
13 to a thousand cutters?

14 THE LEAD INTERPRETER: Did you say "it's fair"
15 or "not fair"?

16 THE CHECK INTERPRETER: "Not fair."

17 THE LEAD INTERPRETER: "Not fair." Okay.

18 MR. CHAN: Objection. Form. Argumentative.

19 THE WITNESS: If this POSITA is a true actual
20 professional POSITA, then he should know that where it
21 says over 10,000, and this person should know or try to
22 understand how many total grits there are. This person
23 should know this first.

24 And then regarding the working grits, it could
25 be anywhere from zero to 10 percent.

1 Then if this POSITA is very sharp, very smart,
2 then he can actually precisely to quantify this
3 percentage.

4 THE CHECK INTERPRETER: Check rendition:
5 "First of all, if the POSITA is professional, the first
6 thing that he would try to figure out is the meaning of
7 greater than 10,000, how many grits are greater than
8 10,000, how many are we looking at? And then he would
9 look at the scope that is zero to 10 percent of the
10 number of the total grits to be determined. And this
11 will -- and that percentage will depict the number of
12 the working grits. If a POSITA is more advanced or
13 sophisticated, that POSITA would be capable of more
14 accurately defining or quantifying the working grits."

15 BY MR. HA:

16 Q. Then let me ask this question.

17 How did you come up with the statement "less
18 than 10 percent of the diamond grits in a conventional
19 or typical diamond disk engaged in cutting the polishing
20 pad"? Where did you come up with that sentence?

21 A. As I said, when we write a paper, in the
22 introduction, we intend to allow reader to get
23 interested to read this paper first. So it could be 10
24 percent or 20 percent. I can write anything like this.
25 Actually, I don't care about that.

1 To write this is to pave the way so that the
2 readers can know that the intention of the paper
3 eventually is try to reduce the differences of tip
4 heights and to increase the working grits.

5 Also, when we write the paper up after here,
6 we would also indicate why we want to do this research,
7 and we employed ODD. The purpose is try to reduce the
8 difference of the diamond tip heights, as well as
9 increasing the working grits. The purpose of that is to
10 prolong the longevity of the diamond disk, as well as
11 the pad.

12 If such, then this paper would show its
13 contribution. Then we can publish. We can be promoted
14 to be a professor.

15 Q. Understood.

16 You said that -- just want to kind of make
17 sure I understood.

18 You said "In the introduction, we intend to
19 allow reader to get interested to read this paper first.
20 So it could be 10 percent or 20 percent. I can write
21 anything like this."

22 So the statement that "less than 10 percent of
23 the diamond grits" -- you just made up this number? You
24 didn't actually verify this, is that correct?

25 MR. CHAN: Objection. Form. Argumentative.

1 THE WITNESS: I have done so many years of
2 researches. At least, I have some common sense.

3 BY MR. HA:

4 Q. Got it.

5 So the common-sense understanding, back in
6 2012, was about zero to 10 percent of the diamond grits
7 in a conventional or typical diamond disk are engaged in
8 cutting, correct?

9 MR. CHAN: Objection. Form. Argumentative.
10 Misstates testimony.

11 THE WITNESS: I still want to emphasize that
12 regarding the actual exact value, we still need to go
13 through the experiments in order to know it. That is
14 the reason why I wouldn't dare or I don't want to be
15 very specific. I can only write some rough idea, rough
16 numbers in it.

17 BY MR. HA:

18 Q. Right.

19 But the rough idea, based on common sense back
20 in 2012, was that about zero to 10 percent of the
21 diamond grits in a typical diamond disk are engaged as
22 cutters, correct?

23 MR. CHAN: Objection. Form. Misstates
24 testimony.

25 THE WITNESS: Well, like I said, we do

1 researches when we write paper. In the introduction, we
2 need to write something in it. And like I said, I wrote
3 like that in this paper. That actually is not the key
4 point for the entire paper. The key points are actually
5 at the back regarding the experimental data. Those are
6 the details.

7 So this one actually is not really a key
8 point. If you keep asking the same question regarding
9 this, which is not a key point, I really don't know how
10 to answer you in the detail.

11 BY MR. HA:

12 Q. I understand it's not the key point of your
13 paper, but it is a key point in this IPR proceeding that
14 we're doing the deposition for. This is why I keep
15 asking you this question.

16 So back in 2012, based on common sense, the
17 rough number of cutters in a typical diamond disk is
18 anywhere from zero to 10 percent of the total number of
19 diamond disks (sic), right?

20 MR. CHAN: Objection. Form. Argumentative.

21 THE WITNESS: If so, then, my answer would be
22 that I did not do any related research or study.
23 Therefore, I am not able to offer the answer.

24 BY MR. HA:

25 Q. Okay. You're the author of this paper, but

1 you cannot confirm for me whether this statement "zero
2 to 10 percent of the diamond grits are engaged in
3 cutting the polishing pad" is correct?

4 MR. CHAN: Objection. Form.

5 THE WITNESS: I still would like to emphasize
6 that in this introduction I wrote this so that the
7 reader can read this paper, and I just wrote this
8 statement right there for that purpose. If you want to
9 know the true actual quantity, then, really, it needs to
10 take the experiment in order to know it.

11 BY MR. HA:

12 Q. Okay. Let's move on. I don't think we are
13 going to get anything more there.

14 On your key points of the paper, though, did
15 you try as best as possible to provide a reporting of
16 your work that is most representative of the results
17 that you obtained?

18 A. Yes.

19 Q. And you provided a number of images between
20 Figure 1 through Figure 9 that show the ODD that you
21 measured, is that right?

22 A. All figures?

23 Q. Right.

24 A. Some figures are just the pictures and some
25 pictures showing the measurement data. Some figures are

1 just the illustration of the concepts.

2 Q. But these figures should provide the reader a
3 clear picture of what is representative of ODD, correct?

4 A. That's true, but I do find an error on this
5 article here, which is Figure 3. Figure 3 is not ODD.

6 Q. Interesting.

7 What is it?

8 A. After, when I reviewed it, I found this error.

9 Q. What is that picture of, if it's not ODD?

10 A. That picture is BDD.

11 Q. Okay. Then how about Figure 5? Is Figure 5B
12 ODD?

13 A. A is BDD. B is ODD.

14 Q. Okay.

15 A. All the others should be correct.

16 Q. So Figure 8 is correct?

17 A. (In English) Yes.

18 Q. Figure 8.

19 A. Figure 8 -- the two above are ODD. When you
20 look at A and B, two pictures at the top are ODD, two at
21 the bottom are BDD. They are reversed.

22 Q. So Figure 8 is incorrect because the top row
23 is ODD and the bottom row is BDD, is that right?

24 A. That's correct.

25 Q. Then let's look at the accurate figure,

1 Figure 5.

2 A. Yes.

3 Q. What is the diamond-to-diamond particle
4 spacing shown in Figure 5B?

5 MR. CHAN: Objection. Form.

6 THE WITNESS: Are you asking about the
7 distance of the spacing, or something else?

8 BY MR. HA:

9 Q. The distance between nearby diamond particles.
10 So this distance. The distance between two neighboring
11 diamond particles.

12 MR. CHAN: Objection. Form.

13 THE WITNESS: This is not the key point for my
14 research. My key point is relating to the tip heights.

15 BY MR. HA:

16 Q. Let me ask it this way.

17 If you look at Figure 5B, I see scale bars x
18 and y with micron, correct?

19 Looking at Figure 5B and the scale shown on
20 Figure 5B, what do you estimate the particle-to-particle
21 spacing to be?

22 MR. CHAN: Objection. Form.

23 THE WITNESS: My initial estimate, when I look
24 at it, it would be around 500 micron.

25 BY MR. HA:

1 Q. Okay. Is this a typical spacing that you see
2 across different portions of ODD?

3 MR. CHAN: Objection. Form. Beyond the
4 scope.

5 THE WITNESS: It all depends on how you design
6 it.

7 BY MR. HA:

8 Q. For this particular ODD that you measured, if
9 you were to look at different areas of the ODD, what
10 would a typical particle-to-particle spacing be?

11 MR. CHAN: Objection. Form.

12 THE WITNESS: Well, again, it depends on the
13 design of this ODD. But back at the time, I was not
14 focusing on this point. This was not the key point for
15 my research at the time.

16 BY MR. HA:

17 Q. So you don't recall what other portions of the
18 diamond disks look like, other than this picture here in
19 Figure 5B, correct?

20 MR. CHAN: Objection. Form.

21 THE WITNESS: I was doing the research. When
22 you do the research, I want to make the comparison. For
23 that purpose, I found this ODD, which have the similar
24 spacing of the diamonds with the BDD, and to do the
25 comparison.

1 And at least for this purpose, the number of
2 the diamonds on both of them could be similar.

3 BY MR. HA:

4 Q. I understand that. But here's my actual
5 question.

6 To get Figure 5B image, you took a CMP pad
7 dresser, ODD CMP pad dresser, correct?

8 A. Yes.

9 Q. Then you image one area of that ODD, correct?

10 MR. CHAN: Objection. Form. Argumentative.

11 THE WITNESS: I was not using optical
12 approach, I was using the probing. I took a probe.
13 Assuming this is a diamond disk, this is a probe. When
14 it goes down, when it bumps into a diamond, it would go
15 up and down and up. Go up and down and then go down.

16 Going through this, then you can measure the
17 number -- the value of the area.

18 BY MR. HA:

19 Q. I understand, Dr. Tsai.

20 But for the sake of time, I'm going to ask you
21 my next question, which is: You did this probing, let's
22 say -- and I'm approaching Dr. Tsai with Exhibit 1004.

23 MR. HA: Actually, do we have a clean copy of
24 Exhibit 1004?

25 Let's use Dr. Tsai's copy.

1 Q. Let's say you just did the probing experiment
2 in this blue box where you're doing this. Okay?

3 And let's say this probing gave you Figure 5B.
4 Okay?

5 Did you do any additional probing in other
6 areas, like the ones I drew in red or orange boxes?

7 MR. CHAN: Can I object?

8 Objection. Counsel for petitioner drew
9 several boxes with respect to Figure 3, which is a BDD
10 and not an ODD. I just want to make that clear for the
11 record.

12 MR. HA: Okay. Let's make that clear.

13 Q. Dr. Tsai, is Figure 3, the left-top portion,
14 showing ODD or BDD?

15 A. I want to make it clear. This picture and
16 this picture are not ODD.

17 Q. Okay. So let's assume that Figure 3 is a
18 picture of ODD, and we are taking different probing, and
19 you measured the probing in this area of the ODD.

20 Did you do any other measurements in the boxes
21 such as in the boxes that I have drawn in orange?

22 MR. CHAN: Let the record reflect that the
23 witness pointed to the top two figures in Figure 3 as
24 being ODD, and counsel for petitioner pointed to the
25 left drawing, in the top-left corner, with several

1 boxes.

2 THE WITNESS: For doing experiment, we
3 generally will measure several boxes.

4 BY MR. HA:

5 Q. Okay.

6 A. Then we refer to the baseline we have. We'll
7 measure the difference of the heights. Then after the
8 measurement, we will take the measured data and put it
9 into Excel to find the average value and error bar.

10 Q. Okay. Let me just make sure.

11 Let's say you generated Figure 5B based on
12 this green box on the left side of this ODD disk, okay?

13 Did you generate similar images similar to
14 Figure 5B in the other boxes, in the other regions shown
15 in these orange boxes?

16 MR. CHAN: Objection. Form. Beyond the
17 scope.

18 THE WITNESS: When we do researches, we should
19 adopt a standard model. In other words, we should have
20 a standard.

21 Of course, I would not just do just one box.
22 I would do several boxes. And actually, I don't
23 remember how many, but they all adopt the same standard,
24 same baseline, same way of calculation. Then, if we
25 submit to the -- to the journal, the editor -- the

1 reviewer will review all these.

2 During the research, usually, we will mark
3 those error boxes.

4 BY MR. HA:

5 Q. Understood.

6 MR. CHAN: For the record, I think the witness
7 pointed to Figure 6 as reflecting an error bar.

8 MR. HA: Understood.

9 Q. In those other boxes that you measured, what
10 were the diamond-to-diamond spacing in those other
11 boxes, approximately.

12 MR. CHAN: Objection. Form. Beyond the
13 scope.

14 THE WITNESS: The spacing was not the key
15 point for my research. Therefore, I am not sure.

16 BY MR. HA:

17 Q. Okay. Since we marked this up, could you do
18 me a favor and write here in Figure 3 that this is BDD.

19 A. But that is ODD.

20 Q. Okay, please make that clear.

21 And what is this? Is this BDD or ODD?

22 A. That is BDD.

23 MR. HA: And "that," Dr. Tsai was pointing to
24 the top-left portion of Figure 3.

25 Q. But Figure 1, top left, is also BDD, right?

1 A. (In English) Yes.

2 Q. This BDD in Figure 1 and this BDD in Figure 3
3 look different.

4 Why?

5 A. When we do experiments, we use a number of
6 diamond disks. They have different design, different
7 style, different type, so we have different pictures.

8 Q. I think you also said Figure 5B is ODD, and
9 that is accurate, correct?

10 A. Yes.

11 Q. Could you label here which one is BDD and
12 which one is ODD?

13 Okay. And same request in figure -- oh, 8.
14 You already did that, ODD and BDD. Okay.

15 MR. HA: Let me move this into evidence as
16 Exhibit 1050.

17 (Tsai Deposition Exhibit 1050 was marked for
18 identification and is attached to the transcript.)

19 BY MR. HA:

20 Q. Continuing with the same document, could you
21 please turn to column 5, line 23.

22 Do you see the portion that says "First the
23 diamond grits are leveled on the surface of a mold for
24 their regular distribution"?

25 A. Yes.

1 Q. What did you mean by the term "regular
2 distribution"?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: When we do this, first of all,
5 we will build a mold, and on top of it, we will put the
6 flat plate, and on top of the plate, we just coat the
7 adhesive agent, or the glue, on that. On the top of
8 that, we put the mesh. Of course, mesh -- you have
9 holes. And then you spread the diamond grits on there,
10 and the diamond grits will fall into the hole and stick
11 onto the plate because you have the glue.

12 Then you remove the mesh. After that, the
13 diamond grits will stick on the plate temporarily,
14 regularly placed on that.

15 Then we take a plate to press it down, and
16 because the glue is very soft, therefore, diamonds will
17 touch the bottom plate. That bottom plate with the
18 contact with the diamonds can have the leveling.

19 BY MR. HA:

20 Q. So it is very clear. I want to talk about the
21 mesh that you use, then.

22 The mesh -- what is the spacing of the holes
23 in the mesh?

24 MR. CHAN: Objection. Form. Beyond the
25 scope.

1 THE WITNESS: Like I said, we do the research
2 and we make the comparison with BDD. Therefore, I need
3 to compare with the rough spacing of the BDD in order to
4 do the research.

5 BY MR. HA:

6 Q. Can you tell me a little bit more about what
7 the mesh looked like? Would you like to draw it?

8 THE CHECK INTERPRETER: The witness said
9 "Okay."

10 BY MR. HA:

11 Q. To be clear, sorry, sir, you just pointed to
12 the BDD. I want to know about the mesh that you
13 utilized to fabricate ODD.

14 Can you show me what the mesh looked like?

15 A. It's not described in here.

16 Well, like I said, that figure shows a rough
17 flow or general flow. Of course, I don't want to show
18 the entire detail of the flow. Otherwise, they will
19 copy that and they would know my experimental data.

20 Q. I understand.

21 But for the purposes of this IPR proceeding, I
22 would like to know which mesh you used to make the ODD
23 and what that mesh looked like.

24 Can you draw what the mesh looked like on the
25 paper, please.

1 MR. CHAN: Objection. Form. Beyond the
2 scope.

3 THE WITNESS: Because we have different
4 design, of course, the mesh would look like this, like a
5 circle so that the diamond can fall in.

6 BY MR. HA:

7 Q. Can you show me what the mesh looked like on
8 the scale of what the diamond particle sizes are?

9 MR. CHAN: Objection. Form.

10 MR. HA: Withdrawn. Let's do it this way.

11 Q. Can you turn to Figure 5.

12 Can you overlay on Figure 5B what the mesh
13 would look like?

14 MR. CHAN: Objection. Form. Beyond the
15 scope.

16 THE WITNESS: A mesh would look like this.
17 Many, many holes. All these are holes. It depends on
18 the size of the diamond particles to design the size of
19 the hole.

20 Well, underneath that is what I said, adhesive
21 agent. Then we spread the diamond particles down, and
22 they will fall into those holes.

23 BY MR. HA:

24 Q. So you drew about 10 circles over what looks
25 like the shape of a diamond disk, correct?

1 MR. CHAN: Objection. Form.

2 MR. HA: Dr. Tsai drew very large concentric
3 circles, and then on the outer ring that's formed by
4 those two concentric circles, he drew a series of 11
5 small circles.

6 My question is: Are these 11 small circles
7 holes of the mesh?

8 MR. CHAN: Objection. Form.

9 THE WITNESS: Those holes are the holes for --
10 so that the diamond can fall in.

11 BY MR. HA:

12 Q. Great.

13 Can you draw for me a couple more of these
14 holes to give me a representation of what the mesh would
15 look like?

16 Could you draw a couple more, please.

17 A. Depends on how many holes you want to have.
18 Maybe 10,000, 20,000. But these are all the mesh.

19 Q. Understood.

20 And so these holes on, let's say, the right
21 side of the figure and these holes on the left side of
22 the figure, they have approximately equal spacing
23 between the holes, correct?

24 MR. CHAN: Objection. Form. Beyond the
25 scope. Argumentative.

1 THE WITNESS: That is if you wanted to do the
2 design, we would try to design a mesh with the holes
3 similar to that figure there.

4 BY MR. HA:

5 Q. Which is?

6 A. That is the BDD diamonds.

7 Q. For the mesh that you utilized to make the ODD
8 shown in Figure 5B, does the spacing of the holes, on
9 the right side of this new exhibit we're generating,
10 approximately equal to the spacing of the holes on the
11 left side of the image?

12 MR. CHAN: Objection. Form. Argumentative.
13 Beyond the scope.

14 THE WITNESS: We would do our best to make
15 them equal.

16 BY MR. HA:

17 Q. And that's true on the top and the bottom
18 portion of the image, as well, correct?

19 MR. CHAN: Same objection.

20 THE WITNESS: We will do our best to make them
21 the same.

22 BY MR. TA:

23 Q. And, in fact, that's true across the entire
24 concentric circle of this image, correct?

25 MR. CHAN: Objection. Form. Argumentative.

1 THE WITNESS: We will try to do our best to
2 make them the same.

3 BY MR. HA:

4 Q. Great.

5 MR. TA: Let me move this into evidence, as
6 well. I'm going to mark this as Exhibit 1051.

7 (Tsai Deposition Exhibit 1051 was marked for
8 identification and is attached to the transcript.)

9 MR. HA: Do you guys want to take a break?

10 I can continue if Dr. Tsai wants to, or we can
11 take a break.

12 THE WITNESS: Take a break.

13 MR. HA: Sounds good.

14 (A recess was taken from 12:46 p.m. to 1:39
15 p.m.)

16 BY MR. HA:

17 Q. Welcome back, Dr. Tsai.

18 Do you remember, I think the first day or
19 maybe the second day of the depositions, we talked about
20 the background technology of the CMP pad dresser?

21 A. (In English) Yes.

22 Q. Let me hand you a copy of the '802 petition,
23 as well. And can you please turn to page 6. Actually,
24 in the interest of time, let's turn to page 8.

25 Do you remember this figure on top of page 8?

1 A. Yes.

2 Q. And by the way, have you seen the petition
3 before I handed it to you just now?

4 A. No.

5 Q. So on that day 1, here's a question I asked
6 you.

7 I asked you for your opinion on what may
8 happen when the diamond particles are pressed down and
9 rubbed against the polyurethane and whether deformations
10 will occur.

11 And your answer was "I'm not sure."

12 Do you remember that?

13 A. Because that was at the time I said that this
14 paper was not provided by me, so I did not know how to
15 answer it.

16 Q. Understood.

17 So, then, let's try to re-ask and get an
18 answer one more time.

19 This is just a schematic illustration of a
20 diamond CMP pad dresser on top that's coming down to a
21 polyurethane CMP pad. Okay?

22 And on the right side of the schematic, what's
23 being illustrated is that the diamond tips are cutting
24 the asperities on the CMP pad -- polyurethane CMP pad.

25 Do you see that?

1 A. Yes.

2 Q. Is it also possible that those diamond tips
3 simply deform the CMP pad?

4 MR. CHAN: Objection to form. Argumentative.

5 THE WITNESS: Because this diagram was not
6 drawn by me, so I don't know.

7 BY MR. HA:

8 Q. Oh, I'm not asking about whether this diagram
9 is illustrating that, I'm asking for your professional
10 opinion.

11 When a CMP pad dresser comes down and rubs
12 against a polyurethane CMP pad, is it possible that
13 those diamond tips simply deform the CMP pad without
14 cutting asperities?

15 MR. CHAN: Objection. Form. Beyond the
16 scope. Argumentative.

17 THE WITNESS: Because, here, it does mention a
18 lot of other conditions.

19 THE CHECK INTERPRETER: "Does not."

20 THE LEAD INTERPRETER: Let me rephrase that.

21 THE WITNESS: Because it does not mention a
22 lot of other conditions; therefore, I don't know.

23 BY MR. HA:

24 Q. So just generally speaking, when a CMP pad
25 dresser is rubbing against a CMP pad, can deformations

1 of the CMP occur?

2 MR. CHAN: Objection. Form. Hypothetical.

3 THE WITNESS: I still think that we need to
4 make it clear about all the conditions. Otherwise, I
5 don't know how to answer.

6 BY MR. HA:

7 Q. What happens if some of the diamond tips are
8 dulled? Can that cause the CMP pad to be deformed when
9 a CMP pad dresser is pressed down and rubbed against the
10 CMP pad.

11 MR. CHAN: Objection. Form. Compound.

12 THE WITNESS: Well, it depends on what
13 distance between you are using and how much is the tip
14 height and what kind of pad is used, as well as some
15 parameters. These are all involved.

16 BY MR. HA:

17 Q. So is it possible, or not possible?

18 A. That I cannot be sure because the
19 characteristics or features of these two are much
20 different.

21 Q. I'm giving you a copy of Exhibit 1008.

22 Do you recognize this paper, Dr. Tsai?

23 A. Yes.

24 Q. This is a paper that you authored with Wen Kai
25 Chen, right?

1 A. Yes.

2 Q. Can you turn to page 260.

3 A. Where is 260?

4 Q. Page 260. Or page 8, on the bottom. I was
5 looking at the top.

6 And go to the right column, and second
7 paragraph, please. And the last sentence, which starts
8 with "Sung."

9 Do you see that?

10 A. Yes.

11 Q. It says: "Sung, Reference 17, pointed out
12 that dulling of cutting tips can cause excessive pad
13 deformation with minimal cutting, which reduces the
14 removal of the glazed layers."

15 Do you see that?

16 A. Yes.

17 Q. So when the tips are dulled, it can cause both
18 pad deformation and reduced cutting, correct?

19 MR. CHAN: Objection. Form. Calls for
20 speculation.

21 THE WITNESS: This depends on what kind of
22 experiments that you're doing and how many working
23 particles are there, as well as the type of cutting pad.

24 BY MR. HA:

25 Q. I agree.

1 But Dr. Sung specifically observed that pad
2 deformations can occur when the diamond dresser has tips
3 that are dulled and are rubbed against the CMP pad,
4 right?

5 MR. CHAN: Objection. Argumentative.

6 THE WITNESS: Yes, he did make that
7 observation, but I believe that if we apply more
8 rotating force and higher pressure force, then it can
9 start to do the cutting.

10 BY MR. HA:

11 Q. Got it.

12 So with smaller forces, more likely to deform;
13 with higher forces, more likely to cut, is that correct?

14 MR. CHAN: Objection. Form. Misstates the
15 testimony.

16 THE WITNESS: Well, you just mentioned about
17 the tips already worn out, and, of course, you need to
18 apply more forces in order to cut it. Otherwise, they
19 are not able to do the cutting.

20 BY MR. HA:

21 Q. What about for regularly sharp tips? Isn't it
22 the same? More forces, more likely to cut; less forces,
23 more likely to deform?

24 MR. CHAN: Objection. Form. Argumentative.

25 THE WITNESS: It depends on how many tips you

1 have, as well as what kind of material.

2 BY MR. HA:

3 Q. So is the answer to my question "yes" or "no"?

4 MR. CHAN: Objection. Form.

5 THE WITNESS: I still think that you need to
6 clarify or define about the situation with how many
7 tips, the situation about the pad. Then it would be
8 better to determine.

9 BY MR. HA:

10 Q. So you can't give me a rough ballpark estimate
11 that more forces of the diamond tips onto the CMP pad
12 dresser means more likely to cut, versus less forces
13 between the diamond tips and the CMP pad dresser means
14 more likely to deform?

15 MR. CHAN: Objection. Argumentative.

16 THE WITNESS: It also still depends on
17 understanding what kind of conditions. You need to
18 define what kind of conditions, because we do the
19 experiment, we need to have a definition or define a
20 condition or a situation. Then we can say we can carry
21 on the experiment. For these two, the hardnesses
22 between them are much different.

23 Therefore, I can say that even a little force
24 can probably penetrate into the pad. You would not
25 deform the pad because the pad tends to be very soft.

1 It's like a soft soil or like a sludge.

2 BY MR. HA:

3 Q. Got it.

4 So even small forces between a diamond tip and
5 a soft polyurethane CMP pad means it's more likely that
6 it will cut than deform, is that right?

7 MR. CHAN: Objection. Form. Misstates
8 testimony.

9 THE WITNESS: Well, like I said, it's likely
10 that it would cut in.

11 And when you talk about the deformation, what
12 kind of deformation?

13 You have not made it clear. There are many
14 different types of deformation.

15 BY MR. HA:

16 Q. Well, let me stay with the forces, then.

17 You said small or little force is more likely
18 to cut or penetrate the CMP pad.

19 Is a three-kilogram-applied load a small force
20 or a large force?

21 MR. CHAN: Objection. Form. Hypothetical.
22 Beyond the scope.

23 THE WITNESS: I'm not sure I can answer. I
24 don't know. I never did any study of this.

25 BY MR. HA:

1 Q. You have decades of experience on CMP pad
2 dressers, correct?

3 A. (In English) Yes.

4 Q. Is three-kilogram-applied load considered
5 little force, normal amount of force, or large amount of
6 force in terms of the applied load between a CMP pad
7 dresser and a CMP pad?

8 MR. CHAN: Objection. Form. Relevance.
9 Beyond the scope.

10 THE WITNESS: You still need to have the
11 movement, such as a rotation or sliding around in order
12 to generate the effect of removal. Only pressing down,
13 there's no effect of removal.

14 BY MR. HA:

15 Q. Okay, then let's do this. Diamond pad
16 conditioner rotating at 10 rpms, CMP pad -- polyurethane
17 CMP pad rotating at 40 rpms, applied load at three
18 kilograms.

19 Do you consider that small, normal, or large
20 forces?

21 MR. CHAN: Objection. Form.

22 Counsel, I think you are reading from a
23 document.

24 Is that Exhibits 2003 and 534?

25 MR. HA: I don't need to tell you what I was

1 reading from.

2 MR. CHAN: I want the record --

3 MR. HA: You're not trying to coach the
4 witness so --

5 MR. CHAN: I'm just trying to see where the
6 scenario is just so I know what you're referring to.

7 BY MR. HA:

8 Q. Can you answer the question?

9 A. Regarding this force, I think I need to know
10 how many working particles are there. For instance, if
11 there are only five, then this force is considered to be
12 a large force; if there are more than 10,000 working
13 particles, then, of course, the force is a small one.

14 Q. Let's assume there are 10,000 particles on
15 that CMP pad dresser. Same hypothetical. Okay?

16 And let me give you the conditions one more
17 time: 10,000 diamond particles, the diamond pad
18 conditioner is rotating at 10 rpms, polyurethane pad is
19 rotating at 40 rpms, and the applied load is about three
20 kilograms.

21 Would you consider that small, normal, or
22 large amount of forces?

23 MR. CHAN: Objection to form. Hypothetical.

24 THE WITNESS: Well, for that you need to give
25 me a base value, a baseline value to compare. Then I

1 can tell you if it is big or small.

2 BY MR. HA:

3 Q. What's the baseline value that you need?

4 A. (In English) I don't know.

5 (In Chinese) I don't know. You need to tell
6 me.

7 Q. I'm asking you based on your decades of
8 experience in CMP pad dressing.

9 Those conditions that I gave you, would you
10 consider them normal operating conditions, or not?

11 MR. CHAN: Objection. Form. Hypothetical.
12 Beyond the scope.

13 THE WITNESS: I still think that I need to do
14 experiments in order to understand about this.

15 BY MR. HA:

16 Q. Okay. So based on your decades of experience,
17 you cannot tell me if those conditions that I gave you
18 are within normal operating conditions of CMP pad
19 dressing, is that correct?

20 MR. CHAN: Objection. Form.

21 THE WITNESS: Well, it's not that I cannot
22 tell you. To us, we are doing the dressing, and what we
23 need to do is to look at whether it is effective or are
24 causing any result to wafers.

25 Regarding how big the force is or how small it

1 is, that is not something we need to care about. All we
2 care about is the result to the wafer.

3 BY MR. HA:

4 Q. Okay. Can you go to Exhibit 1004, and can you
5 go to page 3 where it says "Experimental Setup."

6 You're at the "Experimental Setup" section?

7 A. Yes.

8 Q. Okay. Let's see if the conditions you
9 describe here is within normal operating conditions to
10 determine if the force being applied is little, normal
11 or large, okay?

12 So it begins "Dressing experiments were
13 performed using a polishing pad mounted on a
14 commercially modified polishing machine with variable
15 speed control."

16 Correct?

17 By the way, do you need the translation of
18 this, because it's written in English?

19 A. No, it's okay.

20 Q. Okay. Then let's keep reading.

21 "Diamond pad conditioner was attached via
22 connecting holder to a rotating head spinning at 10
23 rpms."

24 Correct?

25 A. Yes.

1 Q. "A polyurethane pad was mounted on a table
2 disk that rotated at a speed of 40 rpms."

3 Okay?

4 A. Yes.

5 Q. It says: "The oscillation speed of the
6 conditioner was set at approximately 5 millimeters per
7 second, and the applied load was fixed at approximately
8 three kilograms."

9 Do you see that?

10 A. Yes.

11 Q. And then it says: "After the pad was dressed,
12 its surface topology was measured using a stylus-type 3D
13 surface roughness instrument."

14 Correct?

15 A. Yes.

16 Q. So based on that, those conditions that you
17 just read, does that mean it is little amount of forces,
18 normal amount of forces, or large amount of forces?

19 MR. CHAN: Objection to form. Beyond the
20 scope. Hypothetical.

21 THE WITNESS: No.

22 BY MR. HA:

23 Q. What is "no"?

24 A. I cannot determine that.

25 Q. You cannot tell me whether it's little, normal

1 or large amount of forces, correct?

2 A. Correct.

3 Q. Are these conditions typical of the type of
4 experiments that you run when you do dressing
5 experiments?

6 A. When we do experiments, we will test various
7 parameters in order to find the better ones, to use them
8 as the base for performing experiments.

9 Q. I don't think you answered my question,
10 Dr. Tsai.

11 Are these conditions typical of the type of
12 experiments that you run when you do dressing
13 experiments?

14 MR. CHAN: Objection. Form. Hypothetical.
15 Argumentative.

16 THE WITNESS: It's not necessarily so. It
17 depends.

18 BY MR. HA:

19 Q. So it's not typical?

20 MR. CHAN: Objection to form. Misstates
21 testimony.

22 THE WITNESS: We may not necessarily be just
23 using this set of parameters. We may use some other set
24 in some other experiment, so it depends. As long as
25 these experimental parameters are the same, then that

1 would be okay, but that is not the key point.

2 BY MR. HA:

3 Q. Okay. Let's move to your declaration, which
4 I'll hand you a copy of.

5 Let's go to paragraph 9 of your declaration,
6 please. In fact, let's actually start at paragraph 5.

7 Paragraph 5 is "Relevant Legal Principles,"
8 correct?

9 A. Yes.

10 Q. And then paragraph 9 has a subheading of your
11 understanding of the law concerning priority date,
12 correct?

13 A. Yes.

14 Q. And both on Monday and yesterday, you provided
15 the following testimony.

16 "QUESTION: So you don't understand the 'Legal
17 Understanding' sections in your declarations, correct?

18 "ANSWER: For those, indeed, I don't have much
19 understanding."

20 Is that still true today?

21 MR. CHAN: Objection. Form.

22 THE WITNESS: Because, Counsel, you asked me
23 about this type of questions in the past. Therefore,
24 for that sake, I went onto the internet to try to check
25 some relevant information, and I scanned through the

1 content of 102, 103 and 112. So I think I have a little
2 bit better understanding now.

3 So I would say yes.

4 BY MR. HA:

5 Q. That's great. I'm very thankful that you did
6 that for us. I appreciate that.

7 So, then, this is going to make our discussion
8 even more simple.

9 So you're aware of something called a priority
10 date that you laid out here in paragraphs 9 and 12,
11 correct?

12 A. Let me tell you my understanding and see if
13 it's right or wrong for your records, anyway.

14 Talk about 103. I think it says that
15 regarding the early day's invention or the invention in
16 the past. Then, later on, we have another invention.
17 It is similar to the prior one. Then this invention, in
18 the later date, is very obvious that it can be traced
19 back to the previous invention.

20 Q. I see.

21 So your understanding of the priority date
22 issue is based on what you called 103 and obviousness?

23 MR. CHAN: Objection. Form. Misstates the
24 testimony.

25 THE WITNESS: Well, because, Counsel, you

1 asked me about these questions in the past, and I was
2 not clear about these terminologies. But anyway, I
3 tried to understand about these. Since the time is very
4 short, I did not have enough time. Still, I would say
5 that I don't have much understanding about them.

6 BY MR. HA:

7 Q. Got it.

8 And I appreciate you doing that. I really,
9 really do. So let me try to, then, make it very clear.

10 Under this Priority Date section, you have, in
11 paragraph 10, a mention of something called a
12 continuation-in-part application.

13 Do you see that?

14 A. Yes.

15 Q. And you state here that "Continuation-in-part
16 applications may also claim priority to an earlier
17 application."

18 Do you see that?

19 A. Yes.

20 THE LEAD INTERPRETER: He needs the
21 translation.

22 MR. HA: Yes.

23 THE WITNESS: Therefore, you're saying that
24 the earlier one -- you're saying the later patent cannot
25 be used, or the earlier one -- earlier patent cannot be

1 used?

2 BY MR. HA:

3 Q. Are you asking me that question, sir? Or are
4 you asking the translator?

5 A. (In English) I don't know this one.

6 Q. You don't understand?

7 That's okay. Thank you for being honest.

8 Well, then, let's just go to paragraph 56 of
9 your declaration.

10 So you stated here that "I understand the
11 issues in this proceeding include whether two of
12 Dr. Sung's patent applications -- Sung '817 and Sung
13 '786 -- would have sufficiently informed the POSITA of
14 the subject matter of Limitations 1E and 1F of Claim 1
15 of the '802 patent."

16 Do you see that?

17 A. Yes.

18 Q. Then you said: "Based on the legal principles
19 in section 2 of this declaration, I understand that the
20 priority date of certain claims of the '802 patent
21 depend on whether a POSITA would reasonably understand
22 that the subject matter of those claims were disclosed
23 in Dr. Sung's earlier applications."

24 Correct?

25 A. Yes.

1 Q. But you don't really have a good understanding
2 of the legal principles in section 2 right now, correct?

3 A. I still want to stress that these are relating
4 to the laws and patent knowledges, which my profession
5 is in the technologies and technical field. Therefore,
6 that I -- I don't like -- like a lawyer, I'm not a
7 professional in that. Especially in such a short period
8 of time and under the condition, I am exhausted.

9 Q. I completely appreciate that, and it took me
10 many years to learn U.S. law, so I completely appreciate
11 that, as well.

12 So I'll keep on going. I'm not going to harp
13 on the legal understanding much longer.

14 I did want to make sure, though, your
15 declaration really only talks about Limitations 1E and
16 1F of the '802 patent between paragraph 56 through
17 paragraph 81, correct?

18 A. (In English) Yes.

19 Q. And you only talk about two applications,
20 which are Sung '817 and Sung '786, correct?

21 A. Yes.

22 Q. And I'll just ask this for the record.

23 There are many other earlier applications that
24 the '802 patent claims priority to, in addition to Sung
25 '817 and Sung '786.

1 You did not talk about any of those other
2 earlier applications, correct?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: These are the patent issues.
5 Which I don't know much about that. But primarily for
6 these issues, I worked with my lawyer in this regard.

7 I myself -- I actually am only focusing on the
8 profession and technologies.

9 BY MR. HA:

10 Q. Okay. Understood. So let me try to focus
11 more on the technology aspects, then.

12 Let's go to page 65 of your declaration.

13 So here, we're talking about Limitation 1F
14 which says "and the difference in protrusion distance
15 between the highest 1 percent of the protruding tips of
16 the monolayer of superabrasive particles are within
17 about 80 micron or less."

18 Do you see that?

19 A. Yes.

20 Q. Do you have an understanding of what
21 Limitation 1F means?

22 A. (In English) Yes, I understand.

23 Q. Okay. So let's say there's a thousand
24 particles. I think what Limitation 1F is saying is
25 that, among the thousand particles, the difference in

1 the protrusion heights between the top 10 highest
2 protruding tips are within about 80 micron or less, is
3 that correct?

4 MR. CHAN: Objection. Form.

5 THE WITNESS: I think, here, he only has a
6 general description. It does not mention anything about
7 the quantity of diamond particles.

8 BY MR. HA:

9 Q. I understand.

10 I'm just saying, you know, this claim
11 limitation -- well, okay, let's strike that.

12 The claim limitation is talking about the
13 difference in protrusion distance between just the top
14 highest 1 percent of the protruding tips, right?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. HA:

18 Q. So it could be a thousand particles, 10,000
19 particles, however many particles, we're only looking at
20 the highest 1 percent of the protruding tips, right?

21 MR. CHAN: Objection. Form. Argumentative.

22 THE WITNESS: It still doesn't say how many in
23 total about diamond particles on this diamond disk. For
24 instance, if it's 10,000, then 1 percent is 100. If
25 it's 30,000, then 1 percent is 300. So you need to know

1 up front how many in total of the diamond particles.

2 Then you can calculate it, how many in 1 percent.

3 BY MR. HA:

4 Q. I think we're in agreement, then. Great. I
5 think we're reading it exactly the same way.

6 Then, looking at paragraph 65, you say Sung
7 '817 includes the following disclosure, and could you
8 read that, whatever it, at 14 -- 16 to 21, talks about?

9 A. So this section here?

10 Q. Yes.

11 A. Okay.

12 Q. First of all, what is "ID"? What is "ID"?

13 A. Where is --

14 Q. What is "ID"?

15 MR. CHAN: Objection to form. Relevance.

16 THE WITNESS: I don't remember it.

17 BY MR. HA:

18 Q. Okay. Well, let me read that paragraph into
19 the record.

20 "In another aspect, the plurality of cutting
21 elements are arranged such that their tips vary from the
22 designated profile by from about 5 micron to about 100
23 micron."

24 Okay, let me stop there.

25 I don't see any mention about the highest 1

1 percent of the protruding tips there.

2 Do you?

3 A. Looking at the text, it does not mention it.

4 Q. Does that text provide written description
5 support for Limitation 1F?

6 A. Their tips.

7 I'm sorry, please repeat your question again.

8 Q. Sure.

9 Does what you point out here in paragraph 65
10 provide written description support for Limitation 1F?

11 A. From the text, it does not mention about 1
12 percent.

13 Q. So it does not support Limitation 1F, or it
14 does support Limitation 1F?

15 A. I cannot be sure about that, but it does
16 mention their tips.

17 Q. And what does their tips inform you?

18 A. That informs me that there are many tips.

19 Q. Does it tell you anything about the highest 1
20 percent of the protruding tips?

21 A. Not from the text.

22 Q. Is there anything else in there that would
23 inform you about the highest 1 percent of the protruding
24 tips?

25 A. From the text, no.

1 Q. Is there anything else in Sung '817 that would
2 inform you about the highest 1 percent of the protruding
3 tips?

4 A. I don't remember.

5 Q. And between paragraphs 65 and 67, you haven't
6 cited to any other portion of Sung '817, right?

7 A. Regarding the legal topics and the legal
8 issues, I discussed with my lawyer for that. Basically,
9 I only focus on technical issues and I come up with my
10 idea and thoughts.

11 Q. Understood.

12 So this section between paragraph 56 all the
13 way to paragraph 81 is mostly a result of what you
14 discussed with your counsel, is that right?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: I still want to emphasize that
17 we did a lot of discussions between I and my lawyer.
18 Then again, I only focusing on providing technical
19 matters and issues and providing my professional
20 knowledges. In terms of the legal issues and legal
21 matters, mostly, it's being handled by my lawyer.

22 BY MR. HA:

23 Q. Understood, and understandably so.

24 So between paragraphs 56 through 81, you don't
25 really have a good understanding of what's being said

1 here.

2 Is that fair?

3 MR. CHAN: Objection. Form. Argumentative.

4 THE WITNESS: It's not exactly so. I don't
5 think it's quite right. I said that I understand about
6 technical portion in here. In terms of legal part of
7 it, I don't have much understanding. It's mostly the
8 profession of my lawyer.

9 BY MR. HA:

10 Q. Got it. So let me rephrase it for
11 clarification.

12 The legal conclusions that are drawn between
13 paragraphs 56 through 81, you don't really have a good
14 understanding, correct?

15 MR. CHAN: Objection. Form. Argumentative.

16 THE WITNESS: I think I am roughly or
17 generally have some understanding of that, but then
18 again, I am not the expert, or my profession is not in
19 these regards. Therefore, that I am not able to
20 accurately to talk about them.

21 BY MR. HA:

22 Q. Okay. You cannot accurately talk about the
23 legal conclusions drawn between paragraphs 56 to 81,
24 correct?

25 A. Actually, I can come up with my viewpoint and

1 my idea regarding my profession. Legal matters, I
2 think, it belongs to the legal experts to handle that.

3 Q. Understood.

4 And you're not a legal expert, correct?

5 A. Yes.

6 Q. So you cannot draw accurate legal conclusions,
7 correct?

8 A. However, my lawyer did discuss with me about
9 my professional knowledge and combining with his legal
10 knowledge and profession to draw the conclusion.

11 Q. Right.

12 So these conclusions are your lawyer's
13 conclusions, not your conclusions, right?

14 MR. CHAN: Objection. Form. Argumentative.

15 THE WITNESS: No, no, no, it's not like that.
16 I still want to say we discussed this together and I
17 provided my professional knowledge and my expertise, and
18 regarding the legal matters, the lawyer will provide
19 that. Together we discuss and come to the conclusion.

20 BY MR. HA:

21 Q. Can you turn to paragraph 58.

22 Limitation 1E says: "Wherein the difference
23 in protrusion distance between the highest protruding
24 tip and the second highest protruding tip of the
25 monolayer of superabrasive is less than or equal to

1 about 50 micron."

2 Do you see that?

3 A. Yes.

4 Q. Then, in paragraph 58, you provide two
5 different paragraphs that are right below where you say
6 "Sung '817 includes the following disclosures."

7 Do you see that?

8 A. Yes.

9 Q. Do you see any mention of the highest
10 protruding tip and the second highest protruding tip in
11 those two paragraphs that you provided?

12 A. No.

13 Q. Do those two paragraphs support -- provide
14 written description support for the difference in
15 protrusion distance between the highest protruding tip
16 and the second highest protruding tip?

17 MR. CHAN: Objection. Form.

18 THE WITNESS: Well, in here, it says the
19 designated profile. I believe that the variation of the
20 tip heights is starting to be defined from here.

21 Therefore, I think we need to know about this designated
22 profile.

23 BY MR. HA:

24 Q. So what --

25 THE CHECK INTERPRETER: The witness said:

1 "Therefore, I don't know whether the first -- the
2 highest and the second highest tips are suggested by
3 this term 'designated profile.'"

4 BY MR. HA:

5 Q. The witness said he doesn't know or he knows?

6 THE CHECK INTERPRETER: He doesn't know. Not
7 sure whether that suggested.

8 MR. HA: To clarify the record, the witness
9 said "I do not know whether these two paragraphs
10 provided in paragraph 58 suggest the highest and the
11 second highest tips," is that correct?

12 MR. CHAN: For the purpose of this record, I
13 think the translators disagree on the accurate
14 translation, and in that sense, maybe it's better to
15 re-ask the question so we get a clear answer. I also
16 heard it in a different way.

17 MR. HA: I'd rather have the answer stand and
18 have the translator provide the answer that was
19 provided.

20 THE CHECK INTERPRETER: We have disagreement
21 as to what we heard.

22 MR. HA: Can we hear from the lead translator,
23 followed by the check interpreter.

24 THE LEAD INTERPRETER: I have to look at the
25 record.

1 My translation is that: "Well, here, it says
2 'designated profile.' I believe the variation of the
3 tip heights starts to be defined from here, and
4 therefore, I think we need to know about this designated
5 profile first."

6 This is what I heard.

7 MR. HA: Check translator, please.

8 THE CHECK INTERPRETER: "This description is
9 somewhat different. I see designated profile. I think
10 the variation of the tips is defined based on the
11 designated profile. Therefore, I know that maybe the
12 first highest tip and second highest tip are suggested
13 by the term 'designated profile.'"

14 MR. HA: Okay.

15 THE LEAD INTERPRETER: My argument is that I
16 don't think I heard that the witness mentioned about
17 "the first highest tip and the second highest tip is
18 suggested by the term 'designated profile.'"

19 So I think maybe we can have the witness to
20 clarify. Maybe I am wrong, or maybe he's wrong.

21 MR. HA: Okay. So let me re-ask the question,
22 then.

23 Q. Do those two paragraphs under your paragraph
24 58 provide written description support for the
25 difference in protrusion distance between the highest

1 protruding tip and the second highest protruding tip?

2 A. For this designated profile, if the definition
3 is to define from the top-down approach, then that is
4 covered.

5 Q. So if you define the designated profile as the
6 highest protruding tip, in that instance, Limitation 1E,
7 the difference in protrusion distance between the
8 highest protruding tip and the second highest protruding
9 tip is supported.

10 Is that your testimony?

11 A. Yes.

12 Q. What if you defined the designated profile as
13 a substrate, as you talked about earlier.

14 In that instance, is Limitation 1E supported?

15 MR. CHAN: Objection to form. Misstates
16 testimony.

17 THE WITNESS: In general, when we define
18 designated profile, we would define the highest tip as
19 the profile because we care about the working
20 particles -- let me rephrase the second part.

21 Because we care about the working tips that
22 penetrate into the pad, how many of them.

23 THE CHECK INTERPRETER: Check rendition:

24 "Usually, when we define a designated profile, usually,
25 it defines the tip for tip relationship. But because we

1 don't -- because what we really care about is the depth
2 of penetration into the pad by the tips of the number of
3 working particles."

4 THE LEAD INTERPRETER: I think I have a
5 different opinion because the witness did not say
6 "defines the tip for tip relationship."

7 THE CHECK INTERPRETER: I heard him say that.

8 THE LEAD INTERPRETER: "No highest tip defined
9 the profile at the highest tip." So let me clarify.

10 (The lead interpreter consulted with the
11 witness in Mandarin Chinese.)

12 THE LEAD INTERPRETER: The witness clarifies
13 that "when we define the designated profile, we usually
14 find the highest tip to define."

15 BY MR. HA:

16 Q. I understand that you may usually utilize the
17 highest protruding tip from a designated profile, but
18 you also provided the possibility of defining designated
19 profile as the substrate in Exhibit 1048, correct?

20 A. Yes.

21 Q. So in that possible definition of the
22 designated profile being the substrate, is Limitation 1E
23 supported by these two paragraphs under your paragraph
24 58?

25 A. Because we care about the number of working

1 particles for those highest tips, because these working
2 particles can do the dressing to the pad. Therefore,
3 that usually we will define from highest tip and
4 downwards.

5 Q. Yes --

6 THE CHECK INTERPRETER: Also the sentence "in
7 order to determine the number of working particles."

8 THE LEAD INTERPRETER: Thank you.

9 BY MR. HA:

10 Q. I completely understand that. But I need to
11 know the other possibility, as well.

12 So I understand you regarding the highest
13 protruding tip being the designated profile. I need to
14 understand the other scenario, as well, where the
15 designated profile is the substrate. Okay?

16 So in that instance, is Limitation 1E
17 supported by these two paragraphs under paragraph 58, if
18 the designated profile is defined as the substrate?

19 MR. CHAN: Objection. Hypothetical.

20 THE WITNESS: Well, this second definition is
21 not able to describe or calculate the number of working
22 particles where the first one you start from the highest
23 tip and downwards. Then you can calculate the number of
24 working particles.

25 BY MR. HA:

1 Q. But if you start from the bottom and start
2 there, you couldn't figure out this Limitation 1E, is
3 that right?

4 MR. CHAN: Objection. Form. Misstates
5 testimony. Argumentative.

6 THE WITNESS: The most direct way is that
7 usually we will define the highest tip to start with as
8 a profile, and then it's easier to figure out the total
9 working particles.

10 THE CHECK INTERPRETER: "And the protrusion
11 difference."

12 THE LEAD INTERPRETER: Yes.

13 BY MR. HA:

14 Q. Okay. But you couldn't do it if you start
15 from the bottom, right?

16 MR. CHAN: Objection. Form. Hypothetical.

17 THE WITNESS: Well, for us researchers, this
18 is the most direct and most effective way.

19 BY MR. HA:

20 Q. That's not my question.

21 Can you or can you not figure out Limitation
22 1E, if you start from the bottom as the designated
23 profile?

24 MR. CHAN: Objection. Form.

25 THE WITNESS: Like I said, there are many,

1 many diamond particles on the diamond disk. Like I
2 showed in the morning, if we use a probe to scan through
3 from the top down to do the measurement, it would be
4 easier to find out the differences of the heights, and
5 if you do this from bottom -- from the substrate, from
6 bottom up, it is not possible to do so.

7 BY MR. HA:

8 Q. Okay. Understood.

9 So I understood about the bottom now. Let's
10 go back to defining the designated profile as the
11 highest protruding tip.

12 A. Yes.

13 Q. So I understand what you're saying, that this
14 disclosure, if you interpret designated profile as the
15 highest tip to be teaching you the location of the
16 highest protruding tip.

17 Where in these two paragraphs provides the
18 support that the difference in protrusion distance
19 between the highest protruding tip and the second
20 highest protruding tip is less than or equal to 50
21 micron?

22 A. I look at this paragraph. It describes 1 to
23 150 micron, 5 to 100 micron, 10 to 75 micron, 10 to 50
24 micron, 20 to 100 micron. So, in total, it covers from
25 1 to 150 micron, where Sung '817, for that regard, if we

1 have arranged from 1 to 150 micron, of course, Claim 1E
2 says 50 micron, that is covered inside.

3 Q. So my question now is, Sung '817 talks about
4 the variation of all of the tips, from the highest
5 protruding tip to be, for example, like I said, 1 micron
6 to 150 and 10 micron to 50 micron, and whatnot, right?

7 Where does it specifically say that the
8 protrusion distance between the highest protruding tip
9 and the second highest protruding tip meets less than or
10 equal to about 50 micron?

11 A. I believe this is a very simple mathematical
12 issue. Sung '817 has a range from 1 to 150 micron, and
13 here's this 50 micron. Of course, 50 micron is already
14 included, covered in this range. So I believe it's a
15 simple math.

16 Q. Understood.

17 I guess my real point is, how do we know that
18 this disclosure is specifically talking about the
19 highest to the second highest, not like, say, the 10th
20 or the 100th, or whatnot?

21 MR. CHAN: Objection. Form.

22 THE WITNESS: Well, here, it says their tips,
23 although we don't know how many tips, but there are
24 many. Regardless of how many, from the mathematical
25 viewpoint, 50 is already included in the range from 1 to

1 150. I believe that's already in there.

2 BY MR. HA:

3 Q. I think you're focused on the distance, 50
4 micron.

5 I'm more focused on identifying which of the
6 tips -- not the distances, which of the tips are being
7 described here, right?

8 A. Here, it says their tips. That means there
9 are many tips here, including the highest, the second
10 highest, and so on and so forth. So these two are
11 already included in there.

12 Q. Got it.

13 Just to make sure, then, if we go to
14 Limitation 1F on paragraph 65, this is the same
15 rationale, right?

16 You start with the designated profile being
17 the highest protruding tip, and because Sung '817 talks
18 about their tips and all of the tips, your opinion is
19 that that covers the highest 1 percent of the protruding
20 tips, as well, is that right?

21 A. Yes.

22 Q. And just like before, if you start with the
23 designated profile at the substrate, it's not possible
24 to do this calculation, correct?

25 MR. CHAN: Objection. Form. Argumentative.

1 THE WITNESS: Well, just like I said, it is
2 common sense that you start from the highest tip to go
3 downwards to do the calculation. That would be the
4 simplest, easiest and most effective approach.
5 Actually, we care about the number of working particles.

6 BY MR. HA:

7 Q. Right.

8 But my question is, again, if you start from
9 the substrate, it's not possible to do this calculation
10 to figure out the Limitation 1F, correct?

11 A. I still want to emphasize that we usually use
12 the highest tip to do the definition and to figure out
13 the number of working particles. That would be the most
14 effective way.

15 Q. So, sir, you have to answer my question first
16 before you provide your clarification.

17 So let me try to ask my question one more
18 time. Please clearly answer my question and then
19 provide your clarification, if you can. Okay?

20 MR. CHAN: Objection. Form.

21 BY MR. HA:

22 Q. Let me try to ask my question one more time.
23 If you start from the substrate as the
24 designated profile, it's not possible to figure out
25 Limitation 1F, correct?

1 MR. CHAN: Objection. Form. Hypothetical.
2 Argumentative.

3 THE WITNESS: I still want to emphasize that
4 if you want to determine the number of working
5 particles, I believe the most effective way is to start
6 from the highest tip and work downwards, and so, then,
7 we can clearly figure out the distances. And that's a
8 very effective way to do the measurement, as well.

9 BY MR. HA:

10 Q. Sir, I'm going to be asking the same question
11 over and over again until I get my answer, so I'll ask
12 it one more time.

13 If you start from the substrate as the
14 designated profile, it's not possible to figure out
15 Limitation 1F, correct?

16 MR. CHAN: Objection. Form. Argumentative.

17 THE WITNESS: Well, I still want to say, if we
18 define from the highest -- from the highest tip and
19 downwards is the most convenient approach. If you want
20 to start from the substrate, then even if it's a very
21 flat substrate, then you can imagine there are 50,000
22 particles on there, you want to scan them through to do
23 the measurement, unless the substrate is extremely flat.

24 Otherwise, you have a lot of errors and
25 problems involved. In addition, it's time consuming,

1 and also, it's not effective, so that that's not a good
2 way to do so.

3 So usually, you define from the highest point
4 down, would be the most direct way.

5 MR. CHAN: It's almost two hours, Counsel.
6 Whenever you want to take a break.

7 MR. HA: I'd like to get an answer to my
8 question here, so I'm going to try until I do.

9 Q. Earlier, when I asked you about Limitation 1E,
10 the question was "Can you or can you not figure out
11 Limitation 1E, if you start from the bottom as the
12 designated profile?"

13 Your answer was: "Where to find out the
14 differences of the height, and if you do this from the
15 bottom -- from the bottom, from the substrate, from the
16 bottom up, it is not possible to do so."

17 Is that also true for Limitation 1F?

18 A. Well, what I was saying was for the
19 conventional or commercially used diamond disk, the
20 substrate is not so flat. Therefore, it's not possible.
21 But again, if you have a very, very flat substrate, you
22 have a chance to do that. But it would be too much
23 trouble to do that.

24 And so, like I said maybe yesterday, if you
25 use the reverse casting method to do that, there is a

1 chance, if you can make the substrate very flat, but
2 then, again, it's too much trouble.

3 Q. So you're now changing your answer for 1E,
4 too?

5 MR. CHAN: Objection. Form.

6 THE CHECK INTERPRETER: I need to clarify with
7 the witness. I heard "reverse method," but it was
8 translated as "reverse casting." I'm not sure if we are
9 talking about the same thing.

10 (The check interpreter consulted with the
11 witness in Mandarin Chinese.)

12 THE CHECK INTERPRETER: Okay, "reverse
13 casting."

14 THE WITNESS: Well, like I said, I'm talking
15 about the conventional way of making diamond disk, like
16 you use the best way to make the diamond disk. And the
17 substrate would not be very flat.

18 Therefore, if you want to start from the
19 substrate, it would be too much trouble, spending too
20 much effort, and it's not possible to do so.

21 But then, again, counsel did not ask me about
22 any other approach, but I would explain to you, if you
23 use the reverse casting method to make the ODD, maybe
24 there is a chance still much trouble, so that we are
25 talking about conventional approach from the substrate.

1 It is not possible.

2 But you are asking me, am I going to change my
3 answer?

4 I don't know whether I should change it now,
5 but this is my reply to you.

6 MR. HA: Okay. Let's take a break.

7 THE CHECK INTERPRETER: Let me re-render:

8 "That to say if we adopt a traditional approach -- that
9 is we create traditional diamond disk by the brazing
10 approach, the substrate cannot be flat, and you have to
11 make a lot of efforts, and it's very cumbersome and it's
12 impossible to be done and nobody would do it.

13 "But you didn't ask me about other alternative
14 approach. I think if we can use reverse casting method
15 for ODD, in that case, we can have a much flatter
16 substrate and there might be opportunities, but still,
17 it would still be very cumbersome.

18 "But when I gave my testimony, I was talking
19 about conventional diamond disk, so I don't know that
20 counts as me changing my testimony."

21 MR. HA: Okay, let's take a break.

22 (A recess was taken from 3:34 p.m. to 4:03
23 p.m.)

24 BY MR. HA:

25 Q. Dr. Tsai, can you please turn to your

1 declaration.

2 Do you have your declaration in front of you?

3 You don't have a list of all the materials
4 considered in your declaration, so I just want to try to
5 understand what you actually did look at.

6 So if you turn to paragraph 20 of your
7 declaration, you say here, "I understand that Samsung
8 argues that the leveling of diamond grits described in
9 Tsai designates a flat contour above the epoxy resin to
10 which each of the tips of diamond particles is intended
11 to aligned."

12 Then you have a quote, or parentheses, that
13 says "PET.@36."

14 I think you're citing to the petition,
15 correct?

16 A. By regarding the professional content, as I
17 indicated, I wrote them. Actually, my counsel asked me
18 a number of questions, which I provided my part of the
19 professional contents to him.

20 Regarding the legal part of it, it was handled
21 by my lawyer.

22 Q. I get that, but I'm just asking a very simple
23 question.

24 Does PET.@36 refer to the petition?

25 A. I'm not quite sure.

1 Q. And you said you never looked at the petition
2 before today, correct?

3 A. Actually, Monday, Counsel, you showed it to
4 me.

5 Q. I did not show you the -- actually, I take
6 that back. Maybe I did.

7 You testified that you never looked at the
8 petition before you submitted your declaration, though,
9 correct?

10 MR. CHAN: Objection. Misstates testimony.

11 THE WITNESS: Regarding the declaration, as I
12 indicated, my lawyer and I had a number of online
13 meetings in the past, and counsel did ask me a lot of
14 questions. I provided my professional knowledge and
15 technologies to him, and that, of course, was through
16 the online translation, and with the assistant to do the
17 translation of the content that I provided. And then
18 finally, compiled this declaration.

19 BY MR. HA:

20 Q. So my question -- I will ask my question
21 again. It's a very simple "yes" or "no" question. And
22 as I've been recommended during break, I'm going to ask
23 you to provide your answer using a "yes" or a "no," and
24 then, if you want to provide clarifications after that,
25 that's great. But I'm going to ask my question again.

1 Did you review the '802 petition before you
2 submitted your declaration?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: (In English) No.

5 BY MR. HA:

6 Q. Do you know what an institution decision is?

7 A. I don't know.

8 Q. So what you cite to here, on the second
9 sentence of paragraph 20, you never have seen that
10 document either, correct?

11 A. Although I did not see that document before,
12 but regarding this statement here, my counsel did ask me
13 about relevant questions online, and then he got the
14 answer, and then he put this in.

15 Q. But you don't have personal knowledge whether
16 that statement -- actually, strike that.

17 I did want to make one clarification for the
18 record. My co-counsel here tells me that we did not
19 provide you a copy of the '802 petition on Monday. It
20 was a copy of the '270 petition that we provided you on
21 Monday, so I just wanted to make that clear.

22 A. But you showed me this figure.

23 Q. Yes, that figure is in both the '270 petition
24 and the '802 petition, which is why they look similar.

25 It's not a trick question. You don't need to

1 worry about it. I'm just making it clear for the
2 record.

3 So can you actually go to the petition,
4 please, and can you turn to the page that has -- it's
5 very close to the front -- that has a Roman numeral VI,
6 and it's got this table of exhibits. "Petitioner's
7 Exhibit List" is the title.

8 Did you review all of the exhibits that were
9 submitted by the petitioner?

10 MR. CHAN: Objection. Form.

11 THE WITNESS: I only reviewed a portion of
12 them. That was regarding my professional part of it.
13 My counsel provided those to me, and we had discussion
14 about that.

15 BY MR. HA:

16 Q. Okay.

17 THE CHECK INTERPRETER: "I only reviewed a
18 portion of them, and that was related to my professional
19 part of it. Regarding the patents, my counsel discussed
20 them with me, and I just provided my opinions and
21 ideas."

22 BY MR. HA:

23 Q. One particular exhibit I'm interested in
24 seeing whether you reviewed is Exhibit 1011.

25 Have you seen that exhibit before?

1 A. No.

2 Q. Then let me hand it to you.

3 As shown in the title of this document, this
4 is "Declaration of Dr. James Sung in Support of
5 Plaintiff's Answering Brief in Opposition to Defendant's
6 Motion to Stay."

7 Have you seen this document before?

8 A. No.

9 Q. Okay. The first line of Exhibit 1011 says:
10 "I, Chien-Min Sung, hereby declare under the penalty of
11 perjury that the following is true and correct."

12 Do you see that?

13 MR. CHAN: Objection. Form.

14 THE WITNESS: Yes.

15 BY MR. HA:

16 Q. And do you remember what the penalty of
17 perjury is, Dr. Tsai?

18 A. (In English) Yes.

19 Q. Okay. It's punishable by either fine or
20 imprisonment or both, correct?

21 MR. CHAN: Objection. Form. Beyond the
22 scope.

23 BY MR. HA:

24 Q. I'm not trying to trick you. Paragraph 24
25 specifies what the penalty of perjury is, so if you want

1 to flip to paragraph 24, this is what Dr. Sung said when
2 he submitted this declaration.

3 He says, "I declare that all statements made
4 herein on my own knowledge are true and that all
5 statements made on information and belief are believed
6 to be true, and further, that the statements are made
7 with the knowledge that willful, false statements and
8 the like so made are punishable by fine or imprisonment
9 or both."

10 You see that, right?

11 A. Yes.

12 Q. So you remember what the penalty of perjury
13 is, which is potentially fine or imprisonment or both,
14 right?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: (In English) I understand.

17 BY MR. HA:

18 Q. Okay. So Dr. Sung, when he made this
19 declaration, was probably very careful in what he said,
20 correct?

21 MR. CHAN: Objection. Form. Calling for
22 speculation.

23 THE WITNESS: (In English) I don't know.

24 BY MR. HA:

25 Q. Okay. Well, paragraph 4.

1 Can you turn to that.

2 He says, "I am the sole named inventor and
3 believe I am the rightful owner of the '802 patent."

4 Do you see that?

5 MR. CHAN: Objection. Form. Calling for
6 speculation.

7 THE WITNESS: Yes.

8 BY MR. HA:

9 Q. Okay. Turn to paragraph 7, please.

10 Dr. Sung further declares that he and Kinik
11 entered into agent agreement on October 28th, 1996, in
12 which Kinik would own two-thirds and he would own
13 one-third of the joint venture, correct?

14 MR. CHAN: Objection. Form. Lack of
15 foundation. Relevance. Form.

16 THE WITNESS: Yes.

17 BY MR. HA:

18 Q. And in paragraph 14, Dr. Sung testifies that
19 the joint venture was terminated around June 2012 by
20 Kinik, correct?

21 THE CHECK INTERPRETER: Which sentence?

22 BY MR. HA:

23 Q. Well --

24 A. In 2012.

25 Q. 2012.

1 The joint venture was terminated approximately
2 around June 2012, correct?

3 MR. CHAN: Objection. Form. Calling for
4 speculation.

5 BY MR. HA:

6 Q. That's what Dr. Sung says, right, in paragraph
7 14?

8 MR. CHAN: Objection. Form. Calling for
9 speculation.

10 THE WITNESS: Since I did not write this
11 document, but if this was written by Dr. Sung, I don't
12 think I have an understanding of it.

13 BY MR. HA:

14 Q. Oh, I'm just trying to walk through the
15 document with you so you understand what Dr. Sung said.
16 Okay?

17 THE CHECK INTERPRETER: The witness
18 rerendition: "Since I did not write this document, but
19 if it was written by Dr. Sung, I don't think I know
20 whether what he said is true."

21 BY MR. HA:

22 Q. Okay. I'm not asking for your personal
23 knowledge of these events, I'm just trying to explain to
24 you what Dr. Sung said by walking through the document
25 with you.

1 Okay? You understand?

2 A. Yes.

3 Q. So in paragraph 14, Dr. Sung said, "In June
4 2012, more than a year before the planned termination of
5 the JV agreement," which stands for the joint venture
6 agreement, "Kinik stopped making royalty payments that
7 were required under the JV agreement, and that means
8 that the joint venture agreement terminated."

9 Do you understand that?

10 MR. CHAN: Objection. Form. Objection.
11 Speculation.

12 THE WITNESS: (In English) Okay, I
13 understand.

14 BY MR. HA:

15 Q. Just to summarize, there was a joint venture
16 agreement between Kinik and Dr. Sung between 1996 and
17 about 2012.

18 Do you understand that?

19 MR. CHAN: Objection. Form. Hearsay. Lack
20 of foundation. Relevance.

21 BY MR. HA:

22 Q. Let's move on to paragraph 17.

23 Dr. Sung says, "After the joint venture
24 terminated, I continued to conduct my own research and
25 development in CMP disk technology. During this period,

1 I invented the subject matter that forms the basis of
2 the patent applications from which the '802 patent
3 issued"?

4 Do you see that?

5 A. Yes.

6 Q. And Dr. Sung didn't limit his statement to any
7 specific claims of the '802 patent in paragraph 17,
8 correct?

9 MR. CHAN: Objection. Form. Hearsay,
10 relevance. Calls for speculation.

11 THE WITNESS: Yes.

12 BY MR. HA:

13 Q. He just broadly noted that he invented the
14 subject matter that forms the basis of the patent
15 application from which the '802 patent issued, correct?

16 MR. CHAN: Objection. Form. Hearsay,
17 relevance. Calling for speculation.

18 THE WITNESS: I am not him so I really do not
19 know about what he was thinking about.

20 BY MR. HA:

21 Q. Okay, that's fair. I'm just walking through
22 with you what he said in a declaration he submitted
23 under the penalty of perjury.

24 A. Yes.

25 Q. Then, in paragraph 18, Dr. Sung declares, "I

1 invented this new subject matter, which is claimed in
2 the '802 patent after the joint venture with Kinik ended
3 in October 28, 2013. This invention is not disclosed in
4 any of the patents or patent applications to which the
5 '802 patent claims priority."

6 Do you see that?

7 MR. CHAN: Objection. Form. Hearsay.
8 Relevance. Calling for speculation.

9 THE WITNESS: I see that, but I don't have a
10 good understanding of it.

11 BY MR. HA:

12 Q. Okay. Can you go back to paragraph 56 of your
13 declaration.

14 Sung '817 is a patent application to which the
15 '802 patent claims priority to, correct?

16 MR. CHAN: Objection. Form.

17 THE WITNESS: For that I still want to
18 emphasize that regarding this declaration or all
19 declarations, I am only -- I was only focusing on my
20 profession and my professional knowledge, as well as the
21 technologies. Regarding the legal matters and the
22 patent matters, all of those were taken care by my
23 lawyer.

24 BY MR. HA:

25 Q. And Dr. Sung -- I'm going to ask one more

1 time. It's totally fine for you to provide this
2 clarification, but if you can answer my question first
3 with a "yes" or a "no," and then provide your
4 clarification, it will really speed up things. Okay?

5 So one more time, Sung '817 is a patent
6 application to which the '802 patent claimed priority
7 to, correct?

8 MR. CHAN: Objection. Form.

9 THE WITNESS: (In English) Yes.

10 BY MR. HA:

11 Q. And Sung '786 is also a patent application to
12 which the '802 patent claimed priority to, correct?

13 MR. CHAN: Objection. Form.

14 THE WITNESS: (In English) Yes.

15 BY MR. HA:

16 Q. And you're providing your opinion that the
17 invention, as reflected in the Limitations 1E and 1F of
18 the '802 patent, are disclosed in Sung '817 and Sung
19 '786, correct?

20 MR. CHAN: Objection. Form.

21 THE WITNESS: Well, this portion belongs to
22 the patent matters. I think, for that, it was the
23 lawyer who took care of that to make that understanding
24 of it.

25 BY MR. HA: