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Transcript of Ming-Yi Tsai, Volume 1

Date: February 17, 2025

Case: Samsung Electronics Co., Ltd., et al. -v- Sung (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

IPR2024-00533

Samsung Electronics Co. Ltd. et al v. Chien-Min Sung

Samsung's Exhibit 1050

Ex. 1050, Page 1

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

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SAMSUNG ELECTRONICS CO. LTD., :
SAMSUNG ELECTRONICS AMERICA, INC., :
SAMSUNG SEMICONDUCTOR, INC., AND :
SAMSUNG AUSTIN SEMICONDUCTOR LLC, :
PETITIONER, : IPR2024-00533
v. : (PATENT 8,974,270)
CHIEN-MIN SUNG :
PATENT OWNER. :
-----x

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VIDEOTAPED DEPOSITION OF MING-YI TSAI
VOLUME 1
TAICHUNG CITY, TAIWAN
MONDAY, FEBRUARY 17, 2025
12:59 p.m.

Job No.: 572612
Pages: 1 - 156
Reported by: Mark McClure, CRR

Videotaped deposition of MING-YI TSAI, held in:

NATIONAL CHIN-YI UNIVERSITY OF TECHNOLOGY

NO. 57, SECTION 2

ZHONGSHAN ROAD

TAIPING DISTRICT

TAICHUNG CITY 411030

TAIWAN

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10 TAI LEE, THE LEAD INTERPRETER

11

12 (APPEARING IN PERSON)

13 JOSEPH TSENG, THE CHECK INTERPRETER

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C O N T E N T S

EXAMINATION OF MING-YI TSAI	PAGE
BY MR. HA	8

E X H I B I T S

(ATTACHED TO TRANSCRIPT)

TSAI DEPOSITION EXHIBITS	PAGE
Exhibit 1037 Single Diamond Dressing	66
Characteristics of CMP	
Polyurethane Pad - 7 pages	
Exhibit 1038 Patent US 9,138,862 - 19 pages	67
Exhibit 1039 Patent US 9,724,802 - 20 pages	67
Exhibit 1040 Declaration of Prof. Ming-Yi Tsai	71
38 pages	
Exhibit 1041 Second Declaration of	109
Prof. Ming-Yi Tsai - 53 pages	
Exhibit 1042 PCD Pad Conditioners for Low	147
Pressure Chemical Mechanical	
Planarization of Semiconductors	
29 pages	

1	E X H I B I T S		
2	(Attached to transcript)		
3	TSAI DEPOSITION EXHIBITS		page
4	Exhibit 1043	International Journal of Machine	148
5		Tools & Manufacture - 8 pages	
6	Exhibit 1044	Dressing Behaviors of PCD	149
7		Conditioners on CMP Polishing	
8		Pads - 7 pages	
9	Exhibit 1045	Mosaic Diamond Pad Conditioners	149
10		for Improved CMP Performance	
11		6 pages	
12	Exhibit 1046	The Black Pad with Graphite	150
13		Impregnation for CMP - 6 pages	
14	Exhibit 1047	The CMP by Polishing with GiP	150
15		Dressed by BODD Diagram - 7 pages	
16	Exhibit 1048	Diamond & Related Materials	150
17		6 pages	
18	Exhibit 1049	Development of a Novel Cooling	151
19		System-Assisted Minimum Quantity	
20		Lubrication Method for Improvement	
21		of Milling Performance - 10 pages	
22			
23			
24			
25			

1
2
3
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E X H I B I T S

PREVIOUSLY MARKED

(Attached to transcript)

TSAI DEPOSITION EXHIBITS	PAGE
Exhibit 1001	69
Exhibit 1005	66
Exhibit 1013	58
Exhibit 1014	58
Exhibit 2004	104

QUESTIONS WITNESS INSTRUCTED NOT TO ANSWER

PAGE	LINE
62	17
63	4
63	17

1
2
3
4
5
6
7
8
9
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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. Hello, Dr. Tsai.

We have a lot of people here today, so I'll
just first try to make clear how we should be
communicating today.

First and foremost, you will be the key person
throughout this deposition, Doctor.

You and I will have a conversation where I
will be asking you a series of questions and you will be
providing answers to my questions.

Is that clear?

A. Clear.

Q. And we have two interpreters here today who
will facilitate the translation of Chinese and English.

1 A. Okay.

2 Q. Mr. Tai Lee, here, will provide the -- most of
3 the translations, and Mr. Tseng will provide some
4 commentary if he believes that some of the original
5 translation may require some further clarification.

6 Is that clear?

7 A. Okay.

8 Q. And I understand that you have to get back to
9 taking care of your father, who is severely ill, so I
10 will try to be as efficient as possible.

11 A. Okay.

12 Q. But given the translation issue, I cannot
13 guarantee if we will be able to finish earlier than the
14 promised seven hours, but I'll try my best.

15 So let's start with some of the formalities.

16 Can you please state your full name for the
17 record.

18 A. My name is Ming-Yi Tsai.

19 Q. Can you please state your current address.

20 A. No. 10, Lane 27, Yu Ren South Road, Taiping
21 District, Taichung City.

22 Q. Can you please state your current occupation.

23 A. My current occupation is a professor, a
24 teacher.

25 Q. Did you bring any notes with you today?

1 A. No.

2 Q. And you did not bring any documents, either,
3 correct?

4 A. No.

5 Q. Have you ever been deposed before?

6 A. (In English) No.

7 Q. Is there any reason why you cannot answer
8 truthfully and accurately today?

9 A. (In English) No.

10 Q. You're not under any medication or any other
11 physical illness that would prevent you from testifying
12 truthfully and accurately, correct?

13 A. Correct.

14 Q. I just want to make sure you fully understand
15 the oath that you took today. You swore under the
16 penalty of perjury that you will provide accurate and
17 truthful testimony.

18 Do you understand that?

19 THE CHECK INTERPRETER: The witness just
20 asked, "What is perjury?"

21 THE WITNESS: I don't understand what kind of
22 penalty. I don't understand.

23 BY MR. HA:

24 Q. Under U.S. law, if you fail to provide
25 truthful and accurate testimony, it can have severe

1 consequences, such as imprisonment or even fines.

2 Is that clear?

3 A. Clear.

4 Q. Great.

5 Now, if there is anything about my question
6 that you do not understand, please ask me to clarify it,
7 like you just did.

8 Is that fair?

9 A. Okay.

10 Q. If you do not ask me to clarify my question,
11 I'll assume that you fully understood my question.

12 Is that also fair?

13 A. Okay.

14 Q. And since this is your first deposition,
15 throughout the course of the depositions, you're going
16 to hear me talk about some exhibit numbers. This is
17 really mainly for recordkeeping purposes, and you don't
18 have to be confused or worried about that. Okay?

19 A. Okay.

20 Q. And I will make very clear which document you
21 should be looking at, if you need to be looking at a
22 document, so that's all you need to be focused on.
23 Okay?

24 A. Okay.

25 Q. Now, also, Mr. Chan, here, might be lodging

1 some very short objections after I ask my questions.

2 Do you know what an objection is?

3 A. I don't know.

4 Q. Well, under the rules, Mr. Chan is allowed to
5 object four different ways. There's only four ways:
6 Objection, form; objection, hearsay; objection,
7 relevance; and objection, foundation.

8 Quite frankly, unless you're a US lawyer, you
9 don't have to worry about what those words mean.

10 A. Okay.

11 Q. And the most important thing is you should
12 really just be focused on what I'm asking you and to
13 provide your answers as accurately and truthfully as
14 possible.

15 Is that clear?

16 A. Clear.

17 Q. And secondly, unless you're specifically
18 instructed by Mr. Chan not to answer my questions, you
19 are required to answer all my questions, even if
20 Mr. Chan lodges those four objections.

21 Is that clear?

22 A. Okay.

23 Q. All right. So I understand from your counsel,
24 and this is a direct quote that I got: "While Dr. Tsai
25 is proficient in reading and writing in English, his

1 unique accent could pose a unique challenge to the court
2 reporter. A certified translator will be needed to
3 ensure accurate testimony."

4 Do you agree with your counsel's
5 characterization of your English skills?

6 A. Talking about my English capability, yes, in
7 general, I'm okay with reading and writing. In terms of
8 speaking and listening, I'm not so good. Because when I
9 was studying my Ph.D. degree in that class, I was
10 required to publish SCI papers in English, so I need to
11 write in English.

12 At that time, of course, my English was good
13 in writing, but through 10-plus years now, I have been
14 promoted to professor, it's not required anymore for me
15 to publish any SCI papers, and so I believe that my
16 English is not as good as in the past, but, in general,
17 I believe I can still read and write.

18 Q. Thank you for that.

19 Did you have discussions with your counsel
20 while or before drafting your declarations?

21 MR. CHAN: Objection. I caution the witness
22 not to disclose any attorney-client communications.

23 To the extent you are able to answer this
24 question without divulging any such communications, you
25 may do so.

1 THE WITNESS: We had several discussions
2 online.

3 BY MR. HA:

4 Q. Were those online discussions verbal
5 discussions or over text?

6 A. Verbal.

7 Q. Did those discussions happen in English?

8 A. For those discussions, the counsel was using
9 English, but we used the translation device to assist us
10 to do the translation. In addition, I do have an
11 assistant helping me for doing the translation.

12 Q. Okay. Let me provide you a copy of your
13 declaration that you submitted in IPR2024-00533,
14 directed to U.S. Patent No. 8,974,270.

15 While we're grabbing that, is it okay for me
16 to call this patent the '270 patent?

17 A. Okay.

18 Q. Let me also give you -- or actually, let me
19 withdraw that.

20 You also submitted two declarations for
21 IPR2024-00534, directed to U.S. Patent No. 9,138,862.

22 Do you recall that?

23 A. (In English) Yes.

24 Q. You also submitted a declaration in
25 IPR2024-00535, directed to U.S. Patent No. 9,724,802.

1 Do you recall that?

2 A. (In English) Yes.

3 Q. So I will call those two patent numbers '862
4 patent and '802 patent, respectively.

5 Is that okay?

6 MR. CHAN: Let me just lodge my objection. I
7 want to be sure that counsel for the petitioner is very
8 clear that today's deposition is limited to '270. To
9 the extent there's any questions related to any other
10 patents, that's beyond the scope.

11 THE WITNESS: Okay.

12 BY MR. HA:

13 Q. Did you write your own declarations in each of
14 these three proceedings?

15 A. As I answered earlier, those were prepared by
16 discussing with my lawyers, and we finished those
17 together.

18 Q. Who actually wrote your declaration?

19 A. I'm not sure.

20 Q. You did not write your own declaration?

21 MR. CHAN: Objection. Argumentative.

22 THE WITNESS: Should I answer it now?

23 BY MR. HA:

24 Q. Absolutely.

25 A. As I said, we had many online meetings

1 discussing with our counsel, and I asked a lot of
2 questions. They also came up with a lot of questions.
3 So, collectively, we had a discussion and completed the
4 discussion. Then the counsel, of course, compiled,
5 edited those contents and prepared those, and I --
6 finally, I reviewed and checked and made some revisions
7 and made sure those were accurate.

8 THE CHECK INTERPRETER: Just one minor
9 correction. The witness answered: "I asked a lot of
10 questions. A lot of questions were asked."

11 BY MR. HA:

12 Q. So you read each and every word that's
13 contained in your declarations, correct?

14 MR. CHAN: Objection. Asked and answered.

15 THE WITNESS: I had answered it.

16 BY MR. HA:

17 Q. How long did you prepare for this deposition?

18 A. Well, I'm not quite sure about how long.
19 Actually, if I can recall, probably before the new year
20 time, probably sometime in between November-December of
21 last year, and the lawyers started to ask questions from
22 time to time until present time.

23 So how should I answer that?

24 Could be even earlier than that.

25 Q. I'm sorry, I may have misheard your earlier

1 answer, so I'm going to ask the question again and
2 circle back to this.

3 Your declarations in the three proceedings --
4 did you read each and every word that is contained in
5 your declaration?

6 MR. CHAN: Objection. Asked and answered.

7 THE WITNESS: Yes, I had answered just now.

8 BY MR. HA:

9 Q. That's not an answer to my question.

10 The question is: Did you read each and every
11 word that is contained in your declaration?

12 That is a "yes" or "no" answer.

13 A. I had answered it.

14 MR. CHAN: Let me help move things along.

15 You can answer it again.

16 THE WITNESS: Okay. As I said that we had
17 many online meetings in the past to clarify many, many
18 questions back and forth for quite a long time, and
19 finally, we decided to have these declarations. But I
20 need to say that I'm not sure about a lot of the legal
21 terminologies in those declarations. Those, I'm not
22 sure about that; therefore, I cannot say I understand
23 all of those contents.

24 BY MR. HA:

25 Q. So you do not fully understand every -- each

1 and every word of your declaration, is that correct?

2 MR. CHAN: Objection. Argumentative.

3 THE WITNESS: Should I answer it?

4 MR. CHAN: Yes.

5 THE WITNESS: The contents relating to the
6 professional technical contents, which I had checked.

7 BY MR. HA:

8 Q. That's not my question.

9 Did you fully understand each and every word
10 that is contained in your declaration?

11 A. In terms of the legal terminologies, I don't
12 have too much understanding to that. But for the
13 professional contents of those, yes, I do.

14 Q. So you don't understand the legal
15 understanding sections in your declarations, correct?

16 MR. CHAN: Objection. Argumentative.

17 THE WITNESS: For those, indeed, I don't have
18 much understanding.

19 BY MR. HA:

20 Q. Let me circle back to what I was asking
21 earlier, which was how much time you prepared for this
22 deposition.

23 Can you provide an approximate number of hours
24 on how long you prepared for this deposition?

25 A. (In English) I don't remember. I don't

1 remember.

2 Q. Did you review any documents on your own to
3 prepare for this deposition?

4 A. I reviewed those handwritten papers that I had
5 in the past, and also, I did some survey in terms of the
6 relevant patents.

7 Q. What do you mean by "handwritten papers"?

8 A. Meaning the SCI papers that I had published.

9 Q. When you say "I did some survey in terms of
10 the relevant patents," which patents are you talking
11 about?

12 A. Those were the patents relating to this
13 litigation, and I had asked my counsel to forward those
14 patents for me to review.

15 Q. Now, Dr. Tsai, I noticed you're reading the
16 real-time transcript currently.

17 A. Yes.

18 Q. I will give you two options.

19 Do you require reading the real-time
20 transcript to provide accurate and honest testimony?

21 A. No, not required.

22 Q. Okay. Do you prefer -- second option, do you
23 prefer to read the transcript without the interpreter
24 translating my questions into Chinese?

25 A. Still, I need the translation.

1 Q. Okay. Then I'm going to ask you to put aside
2 the real-time live -- real-time transcript and listen to
3 the questions in Chinese, please.

4 So let's begin by making sure that my
5 understanding of the basic technology is accurate.

6 A. Okay.

7 Q. Let me hand you a copy of the petition that we
8 filed directed to the '270 patent.

9 Do you recognize this document?

10 A. No.

11 Q. You did not read the petition prior to
12 drafting your '270 declaration?

13 A. No.

14 Q. This is the first time you've seen the '270
15 petition, is that correct?

16 A. Yes, I see this the first time.

17 Q. Okay. Can you please turn to page 6 of the
18 petition.

19 Do you see the section that says "Technology
20 Background"?

21 A. I do.

22 Q. There's a subsection called "Chemical
23 Mechanical Planarization (CMP)."

24 Do you see that?

25 A. Yes.

1 Q. And there is a paragraph below that
2 subheading, correct?

3 A. Yes.

4 Q. Can you read that paragraph?

5 I'll give you a chance to read that paragraph.

6 Can you please let me know when you're
7 finished?

8 A. Okay.

9 Q. Is there anything in that paragraph that is
10 inaccurate?

11 A. I don't think there's anything.

12 Q. So let's start with the last sentence.

13 "We stated here, as shown below, a chemical
14 slurry is applied to a CMP pad as a semiconductor wafer
15 is mechanically pressed onto a rotating CMP pad to
16 planarize the semiconductor wafer."

17 Correct?

18 A. Yes.

19 Q. And that's an accurate statement, correct?

20 MR. CHAN: Objection. Argumentative.

21 THE WITNESS: So should I answer?

22 BY MR. HA:

23 Q. Again, as I explained to you at the beginning
24 of the deposition, Mr. Chan might lodge some objections,
25 but unless he tells you specifically not to answer, you

1 have to answer my questions.

2 A. This approach has been used by most of the
3 people at the present time, but, of course, it may not
4 be necessary just using this approach. There are many
5 other ways to reach the same result, and -- but now, I
6 would say most of the technical people, they may adapt
7 this approach.

8 Q. So my question was: Is there anything
9 inaccurate about that sentence?

10 MR. CHAN: Objection.

11 Is that a question?

12 That's for counsel, actually. But that's a
13 statement, not a question.

14 BY MR. HA:

15 Q. Can you answer it "yes" or "no"?

16 A. Currently, for the CMP technologies, most of
17 them are using this technology, that's true. But may
18 not be all of the technologies -- may not be everyone is
19 using only these technologies. There are other
20 technologies as well to do the polishing and also to do
21 the planarization.

22 Q. Okay. Thank you for that clarification.

23 Let's turn to page 7.

24 The first sentence says: "The rotating
25 polishing pad is typically made of a soft polymeric

1 material, such as polyurethane."

2 Is that an accurate statement?

3 MR. CHAN: Let me just lodge an objection
4 because I would assume counsel will be asking a lot of
5 questions, and I'll object to every one of those
6 questions about this petition as hearsay because he did
7 not write this petition.

8 BY MR. HA:

9 Q. And, Dr. Tsai, Mr. Chan is lodging objections
10 for the record.

11 Is it okay if we do not translate those
12 objections into Chinese?

13 A. I still think translation is good.

14 Q. And why do you think that?

15 A. So that I can clearly provide my opinion to
16 your question.

17 In addition, I'm not familiar with the legal
18 side of this.

19 Q. And I'll represent to you those objections are
20 not germane to what I'm asking you. Mr. Chan is just
21 trying to preserve objections for the record. It has no
22 bearing on the accuracy and truthfulness of your answer.

23 So I will ask one more time.

24 Is it okay if we do not translate Mr. Chan's
25 objections into Chinese so that you can get back to your

1 father quickly?

2 A. I still think that the translation is good.

3 Q. Can you please explain why, when I have
4 already explained to you that his objections do not have
5 any material bearing on you providing accurate and
6 truthful testimony?

7 A. Because this is the first time I do this
8 deposition, I need to be pretty careful about that, and
9 please, I need the translation.

10 MR. HA: All right.

11 I will just make an objection here that it
12 feels like Mr. Chan is coaching the witness, and
13 Mr. Chan should really limit the objections to the four
14 explicitly prescribed and authorized objections that are
15 authorized under the PTAB rules.

16 MR. CHAN: I would add that the IPR litigation
17 guide prescribes examples of four objections, but
18 they're not limited to only those four objections. So,
19 to that extent, the parties disagree.

20 I don't want to waste your time, Counsel, but
21 the PTAB litigation guide, I hope I remember, paragraph
22 No. 3, says "Examples of objections," it specifically
23 says "Examples." It's not limited to those four
24 objections. Objections that are not appropriate would
25 be those that suggest an answer.

1 MR. HA: One of the objections you lodged was
2 asked and answered, which is explicitly prohibited by
3 the rules, Counsel.

4 I will restate my statement and I will caution
5 the attorney that, if you keep coaching the witness, we
6 will have to go to the Court.

7 Let me continue on with my deposition.

8 Q. Let's turn back to page 7. It says: "The
9 rotating polishing pad is typically made of a soft
10 polymeric material such as polyurethane."

11 Is that an accurate statement?

12 MR. CHAN: Same objection.

13 THE WITNESS: For the polishing pad, there are
14 many different types of a material that can be used, and
15 they do have different applications to apply to a
16 different wafer on the thin films. This polyurethane is
17 just one.

18 BY MR. HA:

19 Q. Okay. If you keep reading along, it further
20 states, at the bottom of the first paragraph: "The pad
21 must be reconditioned to regenerate asperities for
22 optimal performance."

23 Do you see that?

24 A. Yes, I see that.

25 Q. Is that an accurate statement?

1 A. Yes, it's accurate. Generally, that is the
2 case.

3 Q. Next sentence: "A CMP pad dresser (labeled as
4 a diamond dresser and also often called a pad
5 conditioner) is used to revive the pad surface by
6 combing or cutting the surface of the CMP pads using
7 superabrasive particles such as diamond particles."

8 Do you see that sentence?

9 A. Yes, I see this.

10 Q. Is that an accurate statement?

11 A. Generally, it is correct.

12 Q. So if I'm understanding the technology
13 correctly, the CMP pad dresser is utilized during the
14 processing and fabrication of integrated circuits to
15 condition the CMP pads, is that correct?

16 THE CHECK INTERPRETER: Check rendition:
17 (Speaking Chinese.)

18 THE WITNESS: Yes.

19 BY MR. HA:

20 Q. I believe there are many different types of
21 CMP pad dressers that have been designed and developed
22 over the years, is that correct?

23 A. Correct.

24 Q. And, in fact, you published a number of
25 different papers explaining the different types of CMP

1 pad dressers that you designed and you developed, is
2 that correct?

3 A. Correct.

4 Q. Why were you designing and developing these
5 different types of CMP pad dressers?

6 A. When I was studying my Ph.D. class, when we
7 did the research, with our understanding that first key
8 point or first critical point is that a diamond disk is
9 not allowed to drop or -- to drop any particles to scrap
10 the wafers.

11 The very important -- the first important
12 critical point in designing a diamond disk is not to
13 allow the diamond to drop.

14 THE CHECK INTERPRETER: "To fall off."

15 THE WITNESS: So like I said, the critical
16 points back at that time was that we would adapt several
17 approaches, several ways to ensure that the diamond --
18 on the diamond disk, the diamond should not fall off.
19 So we developed some technologies to try to prevent from
20 that. That's No. 1.

21 And No. 2, while our diamond disk is doing the
22 conditioning to the pad, we hope that the pressing force
23 to the pad should not be too big. If it's too big,
24 then, probably, the diamond tend to scrap the wafer.

25 THE CHECK INTERPRETER: "Or may fall off."

1 THE LEAD INTERPRETER: "Or may fall off."

2 Thank you.

3 THE CHECK INTERPRETER: And the witness

4 stated: "That's what we want to achieve at that time."

5 BY MR. HA:

6 Q. So you were designing different types of CMP
7 pad dressers to have certain desirable characteristics,
8 is that correct?

9 A. Correct.

10 Q. And then once you've designed those CMP pad
11 dressers, then you made or developed those CMP pad
12 dressers to actually have those desirable
13 characteristics, is that right?

14 MR. CHAN: Objection. Argumentative.

15 THE WITNESS: Well, we are doing the research
16 work, research and development, so it may or it may not
17 be either that research is good or bad, because, during
18 the research process, we would record what was going on
19 in the whole process, and to know why the phenomenon is
20 such or not such. And so that is for preparing for the
21 next research to make the improvements.

22 So a research may not reach the ultimate
23 result that they desired, but just in the whole process,
24 we try to find some good direction for that.

25

1 BY MR. HA:

2 Q. Understood.

3 So you are designing new types of CMP pad
4 dressers to have desired properties and trying to make
5 them so that you can measure and determine and research
6 whether those properties provide improvements, is that
7 correct?

8 MR. CHAN: Same objection. Argumentative.

9 THE WITNESS: I believe that is true.

10 BY MR. HA:

11 Q. And when you end up making these different
12 types of CMP pad dressers, do they all come out exactly
13 the same way as you originally designed them?

14 A. Although I'm not quite clear about that, but
15 I'm sure that they absolutely may not be identical every
16 time.

17 Q. And once you've developed these new different
18 types of CMP pad dressers, you are then testing them
19 during conditions that mimic the fabrication and
20 processing of integrated circuits, correct?

21 A. Correct.

22 Q. By the way, I know we've been going a little
23 over an hour. If you ever need to take a break, just
24 let me know, but if you don't, I will continue to ask my
25 questions.

1 A. No need to take a break.

2 Q. Okay.

3 MR. HA: And the same goes for everyone else
4 in the room -- court reporter, interpreters, opposing
5 counsel, anybody.

6 Q. Okay, let's, then, go back to page 7.

7 Do you see the schematic on top of page 7 of
8 the petition?

9 A. Yes.

10 Q. I see a polishing pad in pink on a platen.
11 Do you see that?

12 A. Yes.

13 Q. And that polishing pad is rotating on the
14 platen, is that correct?

15 A. Yes.

16 Q. And I also see the diamond dresser is rotating
17 in order to revive that pad surface, is that correct?

18 A. Yes.

19 Q. And when the polishing pad and the diamond
20 dresser are rubbed against each other, there's friction
21 that is generated, is that correct?

22 A. Yes.

23 Q. And if there's friction, it means that there
24 are at least some diamond particles that are actually
25 touching the CMP pad and rubbing against it, correct?

1 A. Correct.

2 Q. Okay. Can you turn to page 8 next.

3 The figure on the top of page 8 schematically
4 shows the diamond particles cutting new asperities.

5 Do you see that?

6 A. Which diagram?

7 Q. The diagram on the topmost part of page 8.

8 A. And which one?

9 There are two.

10 Q. Well, the diagram shows, on the left, a CMP
11 pad dresser coming down towards the pores of the CMP
12 pad, and then there's an arrow that goes to the right
13 that shows when the diamond particles make contact with
14 those pores, asperities are being generated.

15 Do you see that?

16 A. Yes.

17 MR. CHAN: Can we take a break?

18 MR. HA: Let me ask a couple more questions.

19 I'm almost done with this line of questioning.

20 Q. The schematic shows new asperities are being
21 generated, correct?

22 A. This is just an illustration; it does not show
23 the actual CMP condition or situation.

24 Q. Correct.

25 But the schematic you understand to be

1 representing the generation of new asperities, correct?

2 A. Well, it is hoped that to generate more
3 asperities on the surface of the pad, and in addition to
4 clear, to clean the dirt on the surface, but it would be
5 more than just this. So I'm very confused why they show
6 this diagram.

7 Q. Understood.

8 Is it also possible that when those diamond
9 particles make contact with the pores, that those
10 asperities may not necessarily form?

11 MR. CHAN: Objection. Beyond the scope.

12 THE WITNESS: I think this is rather difficult
13 to make sure about that. I'm not sure.

14 BY MR. HA:

15 Q. Let me ask it a different way.

16 Is it possible that those diamond particles
17 would at least deform the pores without forming
18 asperities?

19 MR. CHAN: Same objection.

20 THE WITNESS: Because there are so many
21 different types of pad and -- but I did not do any
22 experiments regarding that, so I am not sure I can
23 answer this question.

24 BY MR. HA:

25 Q. So you can't answer if a soft polyurethane

1 will deform when diamond particles contact those
2 polyurethane pores?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: I believe that that takes the
5 experiments to test.

6 BY MR. HA:

7 Q. Okay. So it's your testimony when a hard
8 diamond particle is rubbed against a polyurethane, a
9 very sort material, you cannot opine whether
10 deformations of the polyurethane will occur?

11 MR. CHAN: Same objection.

12 THE WITNESS: You are talking about
13 deformation. There are many, many types. Of course,
14 when this particle presses down to the soft material,
15 that material will be pressed down.

16 But when you say "deformation," I really don't
17 quite understand. There are too many different types.

18 BY MR. HA:

19 Q. So some type of deformation will occur.

20 That's your testimony, correct?

21 A. Can you point to me where you see that kind of
22 statement on the document to let me know?

23 Q. I'm just asking for your own professional
24 opinion on what may happen when diamond particles are
25 pressed down and rubbed against polyurethane.

1 Will deformations occur?

2 A. (In English) I'm not sure.

3 MR. HA: Okay. Let's take a break.

4 (A recess was taken from 2:18 p.m. to 2:35
5 p.m.)

6 BY MR. HA:

7 Q. Let's change gears a little bit. You don't
8 have to be looking at the petition anymore.

9 I already gave you a copy of your declaration
10 for the '270 proceeding, correct?

11 A. Yes.

12 Q. Can you turn to your CV that is appended at
13 the back of your declaration.

14 A. Uh-huh.

15 Q. Okay. So I just want to go through your
16 background a little bit.

17 It says you graduated from the National Taiwan
18 University of Science and Technology with a bachelor of
19 arts degree in mechanical engineering in 1993, is that
20 correct?

21 A. Yes.

22 Q. And your CV says you were only there between
23 August 1992 to July 1993, is that correct?

24 A. Yes.

25 Q. So you received or completed your bachelor's

1 degree in only one year?

2 A. Two years.

3 Q. Two years.

4 You completed your bachelor's in two years?

5 THE LEAD INTERPRETER: Our educational system
6 is that he started his study in a technical institute
7 for two years to get a two-years' diploma, then further
8 study for two more years in this university --

9 MR. HA: Understood.

10 THE LEAD INTERPRETER: -- to get a bachelor's
11 degree.

12 MR. HA: Got it.

13 Q. What did you study at the National Taiwan
14 University of Science and Technology?

15 A. I was majored in manufacturing and CMP, and
16 the manufacturing process and CMP.

17 Q. So manufacturing process of what, sir?

18 A. You're talking about my -- for my bachelor's
19 degree study, I remember there were many.

20 THE CHECK INTERPRETER: I think -- based on
21 what just happened, I think the witness probably
22 misunderstood the previous question. He thought that it
23 was about his Ph.D. studies.

24 BY MR. HA:

25 Q. Let me -- just to clear the record, I'm going

1 to ask the question one more time.

2 What did you study for your bachelor's degree
3 in the National Taiwan University of Science and
4 Technology?

5 THE CHECK INTERPRETER: (Speaking in
6 Mandarin.)

7 THE WITNESS: Mechanical.

8 THE CHECK INTERPRETER: "Mechanical
9 engineering."

10 BY MR. HA:

11 Q. Did that study involve anything related to CMP
12 pad dressers?

13 A. (In English) I don't remember. I don't
14 remember.

15 (In Chinese) There's very, very minimum. I
16 believe there's none.

17 Q. Did the study involve anything related to
18 integrated circuit fabrication and processing?

19 A. It has been quite a long time ago so I am not
20 sure.

21 Q. Your next education states National Chung
22 Hsing University.

23 A. Yes.

24 Q. And you received your master's in mechanical
25 engineering, again?

1 A. Yes.

2 Q. You started there in August 1997, correct?

3 A. I believe so.

4 Q. What did you do between 1993 and 1997?

5 A. I worked in here.

6 Q. What did you work on?

7 A. Teaching assistant.

8 Q. What were you teaching?

9 A. I was teaching the lab courses in terms of CNC
10 processing.

11 Q. What is CNC?

12 A. (In English) Computer numerical control,
13 machine tool.

14 (In Chinese) Computer numerical control,
15 machine tool.

16 Q. Does CNC relate at all to CMP pad dressers?

17 A. (In English) No.

18 (In Chinese) No.

19 Q. Does CNC relate at all to integrated circuit
20 fabrication and processing?

21 A. (In English) I'm not sure. I'm not sure.

22 (In Chinese) If you're talking about the
23 entirety of the integrated circuit, the IC, then I'm not
24 sure.

25 Q. I am.

1 With that understanding, does CNC have any
2 relationship to integrated circuit fabrication and
3 processing?

4 A. Maybe some parts or components are required to
5 be processed by CNC machine.

6 Q. And then you received your master's degree in
7 mechanical engineering in 1999, correct?

8 A. Yes, yes, it's about right. I believe so.

9 Q. Did you write a thesis to receive your
10 master's degree?

11 A. Yes.

12 Q. What was the title of your master's thesis?

13 A. (In English) I don't remember. I don't
14 remember.

15 Q. That's understandable.

16 Generally, what was the subject matter?

17 A. (In English) CMP, chemical mechanical
18 polishing.

19 (In Chinese) CMP, chemical mechanical
20 polishing.

21 Q. What about CMP was your master's degree thesis
22 on?

23 A. (In English) I don't remember. I don't
24 remember.

25 (In Chinese) But anyway, it was related to

1 CMP.

2 Q. Was it related to the design and development
3 of CMP pad dressers?

4 A. I don't think it related to that. I don't
5 think it was related.

6 Q. So it was more related to the CMP as used in
7 integrated circuit fabrication processing, then,
8 correct?

9 A. According to my recollection, I believe that
10 it could be related to the study or research of doing
11 the experiments. I remember probably I was using four
12 inches or six inches wafer to do the experiment, to do
13 the polishing of the oxide surface.

14 Q. Understood.

15 Do you recall receiving any funding for your
16 master's degree?

17 A. I don't remember. Maybe from the government,
18 the council for science and technology, but I don't
19 remember.

20 Q. Okay. Let's, then, go to National Taiwan
21 University, where you received your Ph.D. in mechanical
22 engineering.

23 You started at National Taiwan University in
24 August 2002, is that correct?

25 (The interpreters and witness conferred in

1 Chinese.)

2 THE LEAD INTERPRETER: The witness is trying
3 to figure out Republic of China year because it's
4 different than the western year.

5 THE WITNESS: Maybe correct.

6 BY MR. HA:

7 Q. Maybe correct, okay.

8 What did you do between 1999 and 2002?

9 A. I again came back to this university and I was
10 promoted as a lecturer.

11 Q. What were you lecturing about?

12 A. I actually taught a lot of things because I
13 was the new guy. The department asked me to do whatever
14 I needed to teach. Then I teach it. I was very poor.

15 Q. Understood.

16 You received your Ph.D. in 2007?

17 A. I think it was about that time.

18 Q. What was the title of your Ph.D. thesis?

19 A. (In English) I don't remember, but --

20 (In Chinese) I don't remember, but it was
21 related to diamond disk.

22 Q. What about diamond disks were you doing your
23 research on?

24 A. Well, let me think.

25 Well, let me talk about the first part of it.

1 My study was mainly covering the diamond, because
2 diamond was composed by both the six faces and eight
3 faces together to form a diamond. So I was studying the
4 tip of a diamond when it contacts a pad. If it's a line
5 contact versus an area contact, what was the profile
6 could be on the surface.

7 And so I was trying to understand if a single
8 diamond with different shapes contacting to a pad, what
9 profile would be.

10 Q. Got it.

11 So you were trying to study the effect of how
12 diamond particles affect a CMP pad dresser during
13 integrated circuit fabrication?

14 A. Okay. Primarily trying to understand a single
15 diamond will cause the surface profile performance on
16 the pad by the specific, either the type or the
17 direction of the diamond.

18 Q. Understood.

19 THE CHECK INTERPRETER: Correction:

20 "Primarily trying to understand the single diamond --
21 primarily trying to understand the surface profile on
22 the pad with respect to a single diamond with respect to
23 its shapes and orientations."

24 BY MR. HA:

25 Q. Did you receive any funding for your Ph.D.

1 thesis?

2 A. I was just a student. I don't know about the
3 funding. Regarding the funding, it was a discussion
4 between my advisor versus the other party.

5 Q. Do you recall who the other party was?

6 A. Well, there are many sources of the funding.
7 It could be from the different agencies or institutes of
8 the government, or either from the big enterprises, and
9 I really do not know about the detail. For that, I
10 think we need to ask someone else about that.

11 Q. I heard the word "Kinik" from Dr. Tsai.

12 Was Kinik --

13 A. Big enterprise by the name Kinik. In Chinese,
14 it should be China --

15 MR. CHAN: Let me make this easier for
16 everyone. Kinik's Chinese name is "Zhong Sha."

17 BY MR. HA:

18 Q. I just want to make sure we have a clear
19 record.

20 The other party may be government entities or
21 a large corporation like Kinik.

22 Is that what I should understand?

23 A. Or maybe from other companies, but I am not
24 sure whether it was only from Kinik or not.

25 Q. Okay, understood.

1 Let me switch gears -- well, actually,
2 withdrawn.

3 So you first started working on CMP pad
4 dressers in 2002 as part of your Ph.D. thesis?

5 A. I believe it was about that time, yes.

6 Q. Okay.

7 A. At that time I was starting to be more
8 focusing on diamond disk.

9 Q. Okay. And before that, some of your
10 experience involved integrated circuit fabrication and
11 processing, correct?

12 A. Before that, actually, I understood -- or I
13 was familiar with the integrated circuit. However, I
14 was even more familiar with the CMP.

15 THE CHECK INTERPRETER: Check rendition:
16 "Before that, I generally have an understanding of
17 integrated circuit, but I have a better understanding of
18 CMP."

19 BY MR. HA:

20 Q. And CMP is one of the techniques you utilized
21 during integrated circuit fabrication and processing,
22 correct?

23 A. Back at that time, with my research, most of
24 my operation during the research, I was using the CMP
25 equipment.

1 Q. I think maybe my question was a little
2 unclear.

3 I'm just asking, CMP is a technique that gets
4 utilized in integrated circuit fabrication and
5 processing, correct?

6 A. Yes.

7 Q. So before you began your work on CMP pad
8 dressers in 2002, you had experience using CMP
9 techniques, correct?

10 A. If we are talking about before 2002, yes.

11 Q. And when you began your CMP pad dresser work
12 in 2002, you had no problem understanding how to design
13 and develop CMP pad dressers, correct?

14 MR. CHAN: Objection. Argumentative.

15 THE WITNESS: Can you re-ask the question
16 again?

17 (The lead interpreter and witness conferred in
18 Chinese.)

19 BY MR. HA:

20 Q. Sure.

21 So before you began your work on CMP pad
22 dressers in 2002, you had no problem understanding how
23 to design and develop pad dressers, correct?

24 A. No, no, no, I did not understand.

25 Q. You did not understand how to design and

1 develop CMP pad dressers in 2002?

2 A. That's correct.

3 Q. So you had no idea how to design a CMP pad
4 dresser in 2002 based on your earlier experience on CMP
5 techniques, is that correct?

6 A. (In English) Yes.

7 (In Chinese) That was because, back at that
8 time, I was not actually caring about the diamond disk.

9 Q. What do you --

10 THE CHECK INTERPRETER: "That was because, at
11 that time, I was actually not paying attention to
12 diamond disks."

13 BY MR. HA:

14 Q. When you say "back at that time," what do you
15 mean?

16 A. What I meant was when I was working on my
17 master's thesis, at that time, I did not pay attention
18 or care anything about diamond disks.

19 Q. So you began working on designing CMP pad
20 dressers in 2002, correct?

21 A. That was when I was studying my Ph.D. degree.
22 My advisor-professor would assign the topics to me.
23 Starting from that time, I was paying attention to
24 diamond disks.

25 Q. In 2003, one year after you began your Ph.D.,

1 did you have an understanding how to design and develop
2 CMP pad dressers?

3 A. Generally, when a person studying in a Ph.D.
4 degree, the first year, this person should pass the
5 qualification verification test.

6 Then you're qualified to carry on to the next
7 year.

8 So the time that I was actually -- got in
9 touch with the diamond disks was 2003. That was the
10 next year. Then, at that time -- before that time, I --
11 of course, I did not have any knowledge or understanding
12 about designing a diamond disk, and at that time, we
13 were starting to do the research of the thesis regarding
14 the fundamental research only.

15 And I then started to study the thing --
16 effect of a single point to the pad. I was not clear, I
17 did not have a good understanding about the entire
18 design or fabrication of the diamond disk.

19 Q. When did you get a understanding about how to
20 design or develop -- sorry, design and develop CMP pad
21 dressers?

22 A. Maybe either third year or the fourth year of
23 my study in the Ph.D. degree.

24 Q. So between 2000 and 2006 is when you first
25 gained understanding on how to design and develop CMP

1 pad dressers?

2 A. I think it was either starting from 2003 or
3 maybe 2004, I started to have a better understanding in
4 terms of the fabrication of the diamond disk.

5 Q. What gave you that better understanding?

6 A. Actually, I don't quite recall, but my
7 intention, of course, was to try to graduate, and, of
8 course, my boss -- that is, the advisor-professor --
9 probably would already ask me to do something.

10 Q. So you don't remember what gave you the better
11 understanding but you remember the date where you
12 started to have a better understanding of how to design
13 and develop CMP pad dressers?

14 A. Well, actually, the requirement to get the
15 Ph.D. degree to get a graduation was to design a diamond
16 disk. I remember that. Only after that I could
17 graduated [sic]. But it has been quite a long time. I
18 just cannot remember the total detail, which I really
19 cannot remember.

20 Q. But you do remember you started gaining the
21 understanding in 2003 specifically, right?

22 A. That's correct. It's about that time point.

23 Q. Okay. Let's change gears again.

24 Do you personally know Dr. Sung, the named
25 inventor of the three patents?

1 A. Yes, I do.

2 Q. When did you first become acquainted with
3 Dr. Sung?

4 MR. CHAN: Objection. Argumentative.

5 MR. HA: How is that argumentative, Alex?

6 MR. CHAN: Because you called him an
7 acquaintance, but now they're saying something
8 completely different because I'm understanding Chinese.
9 So there's also a chance --

10 MR. HA: So you're not lodging an objection to
11 my question, you're saying the translation --

12 MR. CHAN: Well, I'm just -- I'm going to --
13 Objection. Form.

14 I'll let you guys translate before I go
15 further.

16 For the record, I'm hearing "first time
17 meeting him," which is different from "acquaintance."

18 THE LEAD INTERPRETER: Yeah.

19 BY MR. HA:

20 Q. Let's just clear up the record. Let me just
21 ask the question.

22 When did you first meet Dr. Sung?

23 A. (In English) I don't remember.

24 (In Chinese) I think I don't quite remember
25 when was the first time I met Dr. Sung, but I believe it

1 was during the time when I was studying in the Ph.D.
2 degree where I was assigned by my teacher to go to Kinik
3 to do the research, to do some work over there, and
4 Dr. Sung was working in Kinik at the time.

5 So when you say when was the first time I meet
6 him, really, it's difficult to decide because when I
7 first time -- first saw him, I knew this person, but I
8 didn't know what was his name, and maybe he didn't know
9 me, either.

10 So only after several meetings, then I knew
11 that this is Dr. Sung.

12 So when you say first time meeting, really,
13 how to decide?

14 Q. Can you provide an approximate year when you
15 met Dr. Sung?

16 A. That was during the period when I was studying
17 the Ph.D. degree.

18 Q. So is it 2002?

19 A. I don't remember, but it could be either year
20 2002 or 2003, but anyway, in that time period.

21 Q. Were you working for Dr. Sung during that
22 period?

23 A. Back at that time, we were just working in
24 Kinik, and my boss was asking me to go to Kinik to study
25 diamond disks.

1 So when you say "working for Dr. Sung," I
2 don't know what that means.

3 Q. Was Dr. Sung providing any input to your
4 research for your Ph.D. thesis?

5 A. As I said, back at that time, I was doing the
6 study of the single diamond scrapping test. Therefore,
7 for that, we might have some meetings from time to time
8 to discuss about the result.

9 THE CHECK INTERPRETER: Check rendition: "As
10 I said, back at that time, I was studying the testing of
11 the scratch marks caused by a single point -- caused by
12 a single diamond on a single point, and after the
13 testing, I met with him to discuss the results."

14 BY MR. HA:

15 Q. So Dr. Sung was reviewing your test results,
16 correct?

17 A. Actually, there were many of them get together
18 to have a meeting to discuss about the phenomenon from
19 my result.

20 Q. That's not my question.

21 Was Dr. Sung reviewing your test results?

22 A. My test result?

23 Probably, yes, because all of them were in a
24 meeting.

25 Q. And you discussed your test results with

1 Dr. Sung, correct?

2 A. It was all of them and me in a meeting room to
3 discuss.

4 Q. Was Dr. Sung also suggesting new experiments
5 for your Ph.D. thesis?

6 A. At that time, I was focusing on Kinik, and
7 during the discussion, he gave me some direction.

8 Q. So Dr. Sung gave you directions on your Ph.D.
9 thesis work, correct?

10 MR. CHAN: Objection. Argumentative.

11 THE WITNESS: Well, the instruction from my
12 boss at the time was to -- my work was for Kinik.

13 BY MR. HA:

14 Q. So your work on your Ph.D. thesis was for
15 Kinik, correct?

16 A. Because Kinik could provide me some resources.

17 Q. So Kinik provided you resources for your Ph.D.
18 thesis, correct?

19 A. Yes, that's right.

20 Q. And that includes financial resources?

21 A. Oh, for that aspect, all the communication was
22 between my boss and that company. I was only a student
23 at the time.

24 Q. But the fact of the matter is, without Kinik,
25 you would not have been able to complete your Ph.D.

1 thesis, correct?

2 MR. CHAN: Objection. Argumentative.

3 THE WITNESS: It may not be so. I also had my
4 own capability. I probably could change some of my
5 thoughts in doing the study.

6 BY MR. HA:

7 Q. Do you recall what title Dr. Sung had at Kinik
8 while you were doing your Ph.D. thesis?

9 A. I don't remember. I don't remember.

10 Q. Would you be surprised if his title was
11 general manager of the diamond technology center, at
12 Kinik company?

13 MR. CHAN: Objection. Argumentative.

14 THE WITNESS: Well, actually, when you talk
15 about their chairman or the general manager, actually, I
16 was just a student back then.

17 And regarding his title, really, I don't know.
18 But I do know that he should have the position of very
19 important management level. Again, I was just a
20 student, so he didn't care about me.

21 BY MR. HA:

22 Q. And you continued to work with Dr. Sung even
23 after your Ph.D. thesis, correct?

24 MR. CHAN: Objection. Relevance.

25 THE WITNESS: Well, after that, I was still --

1 after my Ph.D. thesis, I was continuing to cooperate
2 with Kinik.

3 BY MR. HA:

4 Q. In fact, you coauthored at least 10 papers
5 with Dr. Sung, correct?

6 MR. CHAN: Objection. Argumentative.
7 Objection. Relevance.

8 THE WITNESS: I don't remember how many papers
9 that I coauthored with him -- actually, coauthored and
10 published with him.

11 BY MR. HA:

12 Q. Do you recall publishing any papers with him
13 in 2007?

14 A. I don't remember. I think I need to check.

15 Q. Are you checking, Dr. Tsai?

16 A. I don't see those information on here.

17 Q. So you don't remember one way or the other, is
18 that right?

19 A. I don't remember.

20 Q. Okay. I'm going to hand you a copy of one of
21 your papers that's titled "Single Diamond Dressing
22 Characteristics of CMP Polyurethane Pad."

23 Do you recognize this paper?

24 A. Yes. Yes, I do.

25 Q. And this was published in 2007, correct?

1 A. Yes.

2 Q. And both you and Dr. Sung are listed as
3 co-authors, correct?

4 A. Yes.

5 Q. How about in 2008?

6 A. I don't remember.

7 Q. And, you know, in the interest of saving time,
8 I am going to suggest one thing to both you and counsel,
9 which is, we've got a series of about 11 papers where
10 you coauthored publications with Dr. Sung.

11 Would you stipulate to the fact that you have
12 published more than 10 papers with Dr. Sung between 2007
13 and 2015?

14 MR. CHAN: Objection. I would not enter into
15 such a stipulation. If you want to enter into the
16 record each and every one of these papers, by all means,
17 but I can't stipulate to that.

18 MR. HA: Okay, that's fine, Mr. Chan. I'm
19 going to ask Dr. Tsai.

20 Q. I know you want to get back to your father.

21 Do you recall publishing about ten papers with
22 Dr. Sung between 2007 and 2015.

23 A. I don't recall.

24 Q. I guess we'll just have to do it the hard way.

25 MR. CHAN: Is it entered into evidence?

1 MR. HA: It is not entered into evidence yet.
2 We'll do that now as a collective set.

3 In the interest of saving time, while my
4 colleague here is looking for those additional exhibits,
5 I'm going to ask a different line of questions, and we
6 will circle back to this part.

7 Q. So do you still currently have a personal
8 relationship with Dr. Sung?

9 A. No.

10 Q. Do you have any professional relationship with
11 Dr. Sung?

12 A. No.

13 Q. When did your relationship with Dr. Sung
14 cease?

15 A. I believe it was the time when he left Kinik.

16 Q. When was that?

17 A. I don't remember, but I think that when he
18 left Kinik, he went to -- it seems that he went to
19 another company to work. At that moment, I remember we
20 still had some contact to each other, but I really don't
21 remember the time.

22 Q. Can you provide an approximate year?

23 A. Sorry, I really cannot provide the approximate
24 year.

25 Q. Was it after 2015?

1 THE CHECK INTERPRETER: He's doing the
2 conversion of the year system.

3 THE WITNESS: I really cannot be sure. Sorry,
4 I really can't be sure because my research later on was
5 not so much focusing on diamond disks. Therefore, I
6 really cannot be sure what was the time point.

7 BY MR. HA:

8 Q. Was it before COVID hit in 2020?

9 A. Yes.

10 Q. So it was before 2020?

11 A. Yes.

12 Q. Have you had any discussions with Dr. Sung
13 about these IPRs?

14 A. No.

15 Q. Have you had any discussions with Dr. Sung
16 about the '270 patent, the '862 patent and the '802
17 patent?

18 A. No, no.

19 Q. Would you consider Dr. Sung to be a reputable
20 person in the field of CMP pad dressers?

21 A. I think so.

22 Q. And you personally worked with Dr. Sung,
23 correct?

24 MR. CHAN: Argumentative. Objection.

25 THE WITNESS: I am a researcher, so I only

1 look at any issues from the angle of research where --
2 I'm not sure about Dr. Sung, what kind of angle he would
3 come in to look at the things. But, to me, I am totally
4 just a researcher. I only do research.

5 BY MR. HA:

6 Q. Sir, my question was: Have you personally
7 worked with Dr. Sung?

8 Did you misunderstand my question?

9 A. I did not work with him. I only worked in
10 Kinik.

11 Q. So you never --

12 THE CHECK INTERPRETER: "I worked with Kinik."

13 THE WITNESS: With Kinik, I cooperated with
14 it.

15 BY MR. HA:

16 Q. So Dr. Sung never provided suggestions and
17 comments to your research?

18 MR. CHAN: Objection. Form.

19 THE WITNESS: Well, I need to stress one more
20 time that when I was there, there were many people in
21 the meeting. Of course, collectively, they would make
22 some comments, and, of course, Dr. Sung probably would
23 say something also.

24 BY MR. HA:

25 Q. About how many people were in these meetings?

1 A. It depends.

2 Q. What's the largest size?

3 A. I don't remember.

4 Q. Were there any meetings where it was just
5 Dr. Sung?

6 A. I don't remember.

7 Q. So this is an exhibit that was provided in the
8 '862 proceeding as Exhibit 1014. I'm going to hand you
9 this piece of paper.

10 MR. CHAN: I'm sorry, can I have a copy?

11 I don't know what I'm looking at here.

12 Because this is a different IPR, correct?

13 MR. HA: You didn't bring --

14 MR. CHAN: This is the '270 IPR, so to the
15 extent you're introducing --

16 MR. HA: Exhibit 1013, then.

17 MS. AVENA: It's the same document.

18 MR. CHAN: Let me access the documents for the
19 purposes of this record.

20 This is 1013, correct?

21 And the title of this document is "Effect of
22 CMP conditioner diamond shape on pad topography and
23 oxide wafer performances," is that right?

24 MR. HA: Correct.

25 MR. CHAN: All right. Thank you.

1 BY MR. HA:

2 Q. Can you turn to the acknowledgment section.

3 Right above the references, on the last
4 page -- sorry, second-to-last page. It says: "The
5 author would like to thank Kinik Company and National
6 Science Council of the Republic of China, Taiwan for
7 financially supporting this research."

8 Do you see that?

9 So the Kinik company financially supported
10 your research, correct?

11 A. Yes.

12 Q. Okay. And you further state, "He is thankful
13 to the general manager Dr. J. Sung, and vice president
14 Y.L. Pai for their valuable suggestion and comment."

15 Do you see that?

16 A. Yes, I do.

17 Q. So Dr. Sung did provide valuable suggestion
18 and comments to your research, correct?

19 MR. CHAN: Objection. Form.

20 THE WITNESS: Well, when I do the research,
21 actually, we need to be following the academic ethic
22 standard to do the research. For anyone who helped us
23 in the research, in the academic viewpoint, we need to
24 offer the thanks to them. Therefore, we hope, into the
25 future, they can provide more support to us. I do

1 believe this is a Chinese way, Chinese culture to do
2 so -- offering the thanks to them in the hope that, in
3 the future, they can support us further.

4 To be honest, in reality, I contacted the most
5 with their engineers in the company.

6 BY MR. HA:

7 Q. So you were thanking Dr. Sung in the hopes of
8 receiving future financial support?

9 MR. CHAN: Objection. Misstates testimony.

10 THE WITNESS: Not the case. I was hoping that
11 Kinik could do so.

12 BY MR. HA:

13 Q. So by thanking Dr. Sung, you were hoping that
14 Kinik will provide more future financial support?

15 A. Well, people doing the research like us, we,
16 of course, hope that the enterprises can support us
17 further for the future research, and generally, when we
18 author a paper, or write a paper, at the end of the
19 paper, we will offer the thanks to these people and to
20 show a good gesture, good manner to them.

21 That's a typical Chinese way to do so in the
22 hope that the company can give us further support in the
23 future.

24 Q. And to be clear, this paper published in 2011,
25 correct?

1 A. Yes.

2 Q. And Dr. Sung is not listed as a coauthor on
3 this paper, correct?

4 A. That's right.

5 Q. But Dr. Sung did provide valuable suggestions
6 and comments, correct?

7 MR. CHAN: Objection. Form.

8 THE WITNESS: Just like I explained earlier,
9 this is a good manner, a good way, as a Taiwanese
10 person, to show to the other side.

11 BY MR. HA:

12 Q. Have you ever had any personal conversations
13 with Dr. Sung?

14 A. What was the time period?

15 Q. Any time period.

16 MR. CHAN: Objection to form.

17 THE WITNESS: I really cannot recall. I
18 really cannot. But I think that during the research in
19 Kinik, of course, we might have a chance to talk.

20 BY MR. HA:

21 Q. In your interactions with Dr. Sung, do you
22 have -- sorry. Withdrawn.

23 Based on your interactions with Dr. Sung, do
24 you have an opinion whether Dr. Sung is an honest
25 person, or not?

1 MR. CHAN: Objection. Form, relevance, and
2 foundation.

3 THE WITNESS: I was just a student or, in the
4 future, I was a scholar. Really, I don't know about
5 these kind of things.

6 BY MR. HA:

7 Q. So you have no opinion whether Dr. Sung is an
8 honest person or not?

9 MR. CHAN: Objection to form. Relevance.
10 Lack of foundation.

11 THE WITNESS: That's correct, I cannot make
12 any opinion or comment on that.

13 BY MR. HA:

14 Q. Do you know if -- were you aware that Dr. Sung
15 was convicted of a crime?

16 MR. CHAN: Objection. Form.

17 I would instruct the witness not to respond to
18 this question.

19 MR. HA: Do you want to go to the Board?

20 MR. CHAN: Yes.

21 MR. HA: I'm going to continue asking my
22 questions, and we will develop this record a little
23 more, and then we will go to the Board. Okay?

24 MR. CHAN: Sure.

25 Q. So I'm going to ask the question one more

1 time.

2 Do you know whether Dr. Sung has ever been
3 convicted of any crimes?

4 MR. CHAN: Same objection. I instruct the
5 witness not to respond.

6 MR. HA: What's the basis of the instruction?

7 MR. CHAN: Relevance, and beyond the scope.

8 MR. HA: That's not a proper basis.

9 MR. CHAN: Relevance is not a proper basis?

10 MR. HA: It's not a proper basis for
11 instruction to not answer questions.

12 MR. CHAN: I think we disagree with that.

13 MR. HA: I'm going to continue asking my
14 questions.

15 Q. Do you know if Dr. Sung stole any trade
16 secrets from any company that he previously worked for?

17 MR. CHAN: Same objection. I would instruct
18 the witness not to respond to this question.

19 BY MR. HA:

20 Q. Will you follow counsel's instruction?

21 A. Yes, I will follow that instruction.

22 Q. Okay. Are you aware of a trade secret
23 litigation between a company called GE and Iljin that
24 involved Dr. Sung?

25 MR. CHAN: Objection. Relevance, and form.

1 THE WITNESS: (In English) I don't know.

2 BY MR. HA:

3 Q. Are you aware of a New York Times newspaper
4 article that was published on August 3rd, 1993, that
5 stated the following: "GE argued that the technology
6 had been stolen in the early '80s by one of its former
7 employees, Chien-Min Sung."

8 MR. CHAN: Objection. Form. Relevance. Lack
9 of foundation.

10 THE WITNESS: (In English) I don't know.

11 BY MR. HA:

12 Q. Are you aware whether that article also said,
13 "It said Mr. Sung had established a series of aliases,
14 consulting firms and shell corporations to sell
15 technology GE had developed for high yield production of
16 industrial diamonds"?

17 MR. CHAN: Objection. Hearsay. Form. Lack
18 of foundation. I would move to strike the entire line
19 of this questioning from this transcript.

20 Also, objection, relevance.

21 You can answer.

22 THE WITNESS: I don't know.

23 BY MR. HA:

24 Q. Are you also aware that the article stated:
25 "Mr. Sung eventually pleaded guilty to federal criminal

1 charges and admitted in 1991 to transporting stolen
2 trade secrets"?

3 MR. CHAN: Objection. Form. Relevance.
4 Hearsay. Lack of foundation.

5 THE WITNESS: I don't know.

6 BY MR. HA:

7 Q. So you never knew whether Dr. Sung was ever
8 convicted of any crimes, correct?

9 A. That's right, I don't know.

10 Q. And you never knew that Dr. Sung pleaded
11 guilty to federal crimes, correct?

12 MR. CHAN: Same objection. Form. Relevance.
13 Hearsay. Lack of foundation.

14 MR. HA: Did he answer?

15 THE LEAD INTERPRETER: He answered.

16 THE WITNESS: (In English) I don't know.

17 BY MR. HA:

18 Q. Okay. The '270 patent is the parent patent of
19 the '862 patent and the '802 patent, correct?

20 A. I'm not sure.

21 Q. Do you know if the '270 patent, the '862
22 patent and the '802 patent are related in any way?

23 A. I am not quite sure.

24 MR. CHAN: Counsel, it's top of the hour.

25 Do you want to take a break?

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

2 THE WITNESS: Okay.

3 MR. HA: Let's take a break.

4 (A recess was taken from 4:03 p.m. to 4:22
5 p.m.)

6 MR. HA: Let me just get a housekeeping matter
7 done.

8 I gave you earlier the paper titled "Single
9 Diamond Dressing Characteristics of CMP Polyurethane
10 Pad," and I believe I gave that to both Dr. Tsai and
11 counsel, correct?

12 MR. CHAN: I have the "Single Diamond
13 Dressing Characteristics."

14 MR. HA: This is just purely for
15 record-keeping purposes. I'm going to move this into
16 evidence as Exhibit 1037, IPR2024-05333.

17 (Tsai Deposition Exhibit 1037 was marked for
18 identification and is attached to the transcript.)

19 BY MR. HA:

20 Q. So let's get back to actual questions.

21 I'm going to first hand you a copy of the '270
22 patent, which is 1005, in IPR2024-00533.

23 Do you recognize that?

24 A. Yes.

25 Q. I'm also going to give you a copy of the '862

1 patent.

2 MR. HA: Alex, what do you think about -- do
3 you want us to move this into evidence, or you're good
4 with just stipulating?

5 MR. CHAN: The '862 patent?

6 You can move it into evidence. I don't have a
7 copy of it.

8 MR. HA: You don't have a copy?

9 MR. CHAN: I have an electronic copy, I think.

10 MR. HA: Okay.

11 MR. CHAN: We probably do, because this
12 exhibit is not in the '270 IPR patent so --

13 MR. HA: We will move it into evidence. I
14 just wanted to make sure you had a copy of it.

15 I'm also handing you a copy of the '802
16 patent, and I'll move the '862 patent into evidence as
17 Exhibit 1038, in IPR2024-00533.

18 (Tsai Deposition Exhibit 1038 was marked for
19 identification and is attached to the transcript.)

20 MR. HA: And I'll move the '802 patent in
21 evidence as Exhibit 1039, in IPR2024-00533.

22 (Tsai Deposition Exhibit 1039 was marked for
23 identification and is attached to the transcript.)

24 BY MR. HA:

25 Q. Can you take a look at the first page of the

1 '802 patent, please?

2 A. Shouldn't we just talk about '270 today?

3 Q. With all due respect, I get to ask the
4 questions, and you have to answer my questions.

5 A. In my 533 declaration, I believe I was only
6 talking about the '270 patent.

7 Q. Okay. That's fine.

8 But you have the '802 patent in front of you,
9 correct?

10 A. Yes.

11 Q. Can you go to the section that says "Related
12 U.S. Application Data."

13 A. Well, today, I think we are only talking about
14 the contents relating to 533, so can I just answer the
15 questions focusing on this scope?

16 MR. HA: Counsel --

17 MR. CHAN: I can answer on behalf of the
18 witness.

19 MR. HA: You're not going to help out here?

20 This is a related set of patents. It will
21 become evident why it's related to '270.

22 MR. CHAN: I'm not objecting.

23 You can ask the question.

24 MR. HA: I've already explained to him that he
25 needs to answer my question, but he's not.

1 MR. CHAN: Let me just respond.

2 So counsel for the petitioner is asking you
3 for the family data or priority data. I think that is
4 something, if you know, you can answer. But if not the
5 preparer, based on what you've seen, then you just have
6 to testify truthfully.

7 THE WITNESS: Okay.

8 BY MR. HA:

9 Q. So can you answer my questions, Dr. Tsai?

10 A. Can you re-ask the question again?

11 Q. Can you go to the first page of the '802
12 patent and the section that says "Related U.S.
13 Application Data."

14 A. Okay.

15 Q. Are you there?

16 A. Yes.

17 Q. Do you see that it begins with something
18 called a "Continuation-in-part of Application
19 No. 13,802,112 filed on March 13, 2013, now patent
20 No. 9,138,862."

21 Do you see that statement?

22 A. Yes, I do.

23 Q. Okay. So the '802 patent is a
24 continuation-in-part of the '862 patent, correct?

25 A. I am not familiar with patents so I don't know

1 what that means.

2 THE CHECK INTERPRETER: "I'm not familiar with
3 the law. I'm not familiar with patents. I don't know
4 what it means."

5 BY MR. HA:

6 Q. Okay. Well, let's continue reading.

7 It also says, "which is a continuation-in-part
8 of Application No. 13,479,148, filed May 23rd, 2012, now
9 Patent No. 8,974,270."

10 Do you see that?

11 A. Yes.

12 Q. So similar question. The '862 patent is a
13 continuation-in-part of the '270 patent, correct?

14 A. Still, I'm not familiar with the law. I'm not
15 familiar with that profession, so I'm not sure.

16 Q. So you have no understanding of what the term
17 "continuation-in-part" means?

18 A. Actually, to the patent languages, I am not so
19 familiar with.

20 Q. So the answer is, you do not know what the
21 term "continuation-in-part application" means, correct?

22 A. Actually, I'm not quite sure. Of course, just
23 looking at the wording, it could be, in part, a
24 continuation of the other application, but legally
25 speaking, I really do not know exactly that is what it

1 means.

2 Q. Do you have an understanding of what the term
3 "continuation" means?

4 A. Yes.

5 Q. What is that understanding?

6 A. Well, in a general sense, of course. Our
7 understanding generally is that it's a continuing of
8 something, but in terms of the patent law or legally
9 speaking, I really don't know what that means.

10 Q. Do you have an understanding of how a
11 continuation application is different from a
12 continuation-in-part application?

13 A. (In English) Repeat.

14 Q. Do you have an understanding of how a
15 continuation application is different from a
16 continuation-in-part application?

17 A. I don't understand.

18 Q. Have you heard of the concept of claiming
19 priority?

20 A. I don't know.

21 MR. HA: Let me hand you a copy of your
22 declaration from the '802 patent, which -- I'll move
23 this into evidence as Exhibit 1040, and IPR2024-00533.

24 (Tsai Deposition Exhibit 1040 was marked for
25 identification and is attached to the transcript.)

1 BY MR. HA:

2 Q. Do you recognize that document?

3 A. Yes.

4 Q. That's a copy of your own declaration in the
5 '802 patent, correct?

6 A. Yes.

7 Q. Can you turn to paragraph 10 of your
8 declaration.

9 You stated, "Continuation applications may
10 claim priority to an earlier application. I further
11 understand that continuation-in-part applications may
12 also claim priority to an earlier application."

13 So my question is: Can you explain what your
14 understanding of paragraph 10 is?

15 A. I'm not quite clear about your question.

16 Can you make it clearer?

17 Q. What is your understanding of what you stated
18 in paragraph 10?

19 A. Well, I think what it means is that it depends
20 on who made the claims first. Then this application can
21 trace back to that prior application.

22 Q. Okay. Then go to paragraph 9, last sentence.
23 It says: "A group of patents and/or applications that
24 share priority date is known as a family of patents."

25 So my question is: What do you mean by "a

1 family of patents"?

2 A. That could mean that those patents are
3 related.

4 Q. Related how?

5 Let me ask it more specifically, then.

6 Is it related based on similar fields of
7 study?

8 A. I think probably it is.

9 Q. So the '802 patent, '862 patent and '270
10 patent all relate to the similar field of study,
11 correct?

12 MR. CHAN: Objection. Form.

13 THE WITNESS: I'm not sure.

14 BY MR. HA:

15 Q. So you're not sure if the '802 patent, '862
16 patent and '270 patent are related to the similar field
17 of study?

18 MR. CHAN: Objection. Form.

19 THE WITNESS: Well, actually, even for the
20 same field, it covers quite a lot of the detailed
21 technologies and it is quite broad.

22 BY MR. HA:

23 Q. So is your opinion that the '802, '862 and
24 '270 patents are directed to a similar or different
25 field of study?

1 MR. CHAN: Objection. Form.

2 THE WITNESS: For doing the Ph.D. study,
3 usually, we focus a particular point to do the in-depth
4 research. From that point, it can be split up into
5 many, many different technologies, and based on those,
6 probably we can apply and file for patents.

7 BY MR. HA:

8 Q. Did you understand my question, Dr. Tsai?

9 A. Can you ask one more time?

10 Q. In your opinion, are the '802 patent, the '862
11 patent and the '270 patent directed to the same or
12 different field of study?

13 MR. CHAN: Objection. Form.

14 THE WITNESS: Of course, they all direct to
15 the diamond disks, but even for that, there are many
16 different types or knowledges or applications.
17 Therefore, the different research is directed to
18 different things, and every research is -- probably can
19 be filed to become a patent.

20 BY MR. HA:

21 Q. Sir, you reviewed the '270 patent, correct?

22 A. I just roughly reviewed it.

23 Q. What do you mean by "roughly reviewed it"?

24 THE CHECK INTERPRETER: "I generally reviewed
25 it."

1 BY MR. HA:

2 Q. Did you read the entirety of the '270 patent?

3 A. I only reviewed that generally. I did not
4 review that in detail.

5 Q. What do you mean, generally?

6 A. What I mean was, I would generally review the
7 major points.

8 Q. Where are the major points found in the '270
9 patent?

10 A. So my understanding of the '270 patent, I
11 think that the most important point is that it defined
12 the distance between the tips.

13 Q. My specific question was: Where are the major
14 points of the '270 patent found? Can you point me to
15 the column and line numbers where the major points of
16 the '270 patent are found?

17 You are pointing to Figure 1 of the '270
18 patent?

19 A. Yes. It shows the distance between the
20 highest tip point and the lowest tip point.

21 Q. Did you review any other portions of the '270
22 patent before rendering your opinion?

23 A. I was only generally looked at it.

24 Q. So you did not review any other portions of
25 the '270 patent before rendering your opinion?

1 MR. CHAN: Objection. Form.

2 THE WITNESS: I'm not quite sure, but I do
3 know the most important point of invention in this
4 patent.

5 BY MR. HA:

6 Q. And that's in Figure 1 of the '270 patent,
7 correct?

8 MR. CHAN: Objection. Argumentative.

9 THE WITNESS: I think the most important point
10 or contribution of '270 patent is that it quantified the
11 tip heights.

12 BY MR. HA:

13 Q. Did you review columns 17 and 18 of the '270
14 patent?

15 A. Where are you pointing to?

16 Q. The entirety of columns 17 and 18.

17 A. I said that I was generally reviewed that, but
18 I don't know what questions you're getting at on this.

19 Q. My question is very simple.

20 Did you review columns 17 and 18 of the '270
21 patent before rendering your opinion?

22 A. I was only generally roughly looked at it.

23 Q. Can you answer my question with a "yes" or a
24 "no"?

25 Did you review columns 17 and 18 of the '270

1 patent before rendering your opinion?

2 A. I had answered already.

3 Q. Was that a "yes" or a "no"?

4 A. I did not very seriously looking at that in
5 detail but I was just generally looking at it.

6 Q. How about the '802 patent? Where are the
7 major points of the '802 patent found?

8 MR. CHAN: Objection. Beyond the scope, and
9 form.

10 THE WITNESS: Well, today we should only talk
11 about the 533 in this scope.

12 BY MR. HA:

13 Q. Respectfully, sir, you have to answer my
14 questions. It is not up to you to say we should only be
15 focused on something. This is a related patent to the
16 '270 patent. I have every right to ask my questions
17 about what the major points of the '802 patent is.

18 So will you answer my question, please.

19 MR. CHAN: Objection. Form. Beyond the
20 scope.

21 Counsel, I'll give you some latitude in terms
22 of asking questions related to different patents, but if
23 I know don't the answer, I'm going to have to sustain
24 all my objections.

25 THE WITNESS: Can you point to me that where

1 is the relationship between this patent and my 533
2 declaration?

3 BY MR. HA:

4 Q. I just did that for you, sir.

5 Where we outlined that the '802 patent is a
6 continuation-in-part application of the '862 patent,
7 which is, in turn, a continuation-in-part application of
8 the '270 patent. These are related family patents.

9 MR. CHAN: Objection. Form.

10 THE WITNESS: Well, can you point out in my
11 533 declaration where --

12 BY MR. HA:

13 Q. Sir. I'm not under deposition today.

14 A. -- where it says -- it indicates or refers to
15 '802 patent?

16 Q. Sir, I'm not being deposed today. You're
17 being deposed.

18 Are you refusing to answer my question?

19 MR. CHAN: Objection. Form.

20 THE WITNESS: Then I refuse to answer.

21 MR. HA: I think we have to go to the Board,
22 right?

23 Unless you're going to help out on this
24 situation, we may have to go to the Board and ask more
25 time for this.

1 MR. CHAN: What are you asking him,
2 specifically?

3 MR. HA: My question was: Where are the key
4 points of the '802 patent?

5 MR. CHAN: You can ask him, then -- you can
6 ask him --

7 MR. HA: He's not answering.

8 MR CHAN: You can ask him first if he's
9 prepared to answer those questions, then -- then you can
10 ask all those points, but I don't even know --

11 MR. HA: He submitted his declaration. How
12 more can he be prepared?

13 MR. CHAN: Yeah, but it doesn't mean he
14 remembers it today.

15 MR. HA: What are you talking about?
16 This is his declaration that he submitted.

17 MR. CHAN: That's right.

18 But is he prepared to talk about his
19 declaration --

20 MR. HA: This is about what he looked at in
21 terms of his '270 patent declaration. This is
22 family-related patents.

23 So you're not going to help out, right? We
24 have to go to the Board on this, right?

25 MR. CHAN: I don't know what you're asking me

1 to do. I'm not even objecting.

2 MR. HA: Ask him to answer my question.

3 MR. CHAN: To the extent -- and let me just
4 put this very clear on the record.

5 To the extent the witness is prepared to talk
6 about a different patent or a different IPR, you should,
7 by all means, respond and answer this question. But I'm
8 not objecting or asking him to refrain from answering
9 your question.

10 So ask it again.

11 MR. HA: So you did not --

12 MR. CHAN: I just did.

13 MR. HA: -- he literally said he's refusing to
14 answer my question.

15 You're not going to correct him on this?

16 MR. CHAN: Let me just clear -- this has
17 been -- the instruction I can give to the witness. I
18 can certainly to that.

19 For the record, the witness should try, to the
20 best that he can, to answer this question.

21 You cannot refuse this question because I have
22 not made any objection. Well, objection on the basis of
23 privilege.

24 So with that proviso, you should ask him
25 again -- oh, sorry, Mr. Lee, you need to translate so he

1 understands.

2 BY MR. HA:

3 Q. Where are the major points of the '802 patent
4 found?

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

7 THE WITNESS: Well, I still think that it
8 would be better that if you identify to me in my
9 declaration 533 where it states '802 patent.

10 MR. HA: You're going to let that answer
11 stand, Alex?

12 MR. CHAN: I can't inject -- do you want to
13 take a break, perhaps, and have a discussion?

14 MR. HA: Yeah, let's go off the record.

15 (Discussion off the record from 5:04 p.m. to
16 5:19 p.m.)

17 BY MR. HA:

18 Q. Welcome back, Dr. Tsai.

19 I'm going to ask my last question one more
20 time.

21 Where are the major points of the '802 patent
22 found?

23 A. Well, actually, those were described and
24 mentioned in my 535 declaration.

25 So which part of it do you like to talk about?

1 Would you let me know?

2 Q. What I want you to do is take a look at the
3 '802 patent, not the declaration.

4 A. The content of '802 patent were included in
5 declaration 535.

6 So can you clearly pointing out which part of
7 it you would like to ask?

8 Q. Dr. Tsai, I'm going to state it one more time.
9 I'm not being deposed here. You do not get to ask me
10 questions.

11 I get to ask you questions, and you must
12 answer them, is that clear?

13 A. Clear.

14 Q. I'm going to ask one more time.

15 Can you take a look at the '802 patent and
16 tell me where the key points of the '802 patent can be
17 found?

18 A. Most of the key -- the major points are stated
19 in declaration 535. I think that the important point of
20 it is talking about the quantitative relationship
21 between the tip -- between the tips.

22 Q. So where in the '802 patent are those
23 discussions about the quantitative differences between
24 the tips found? Can you point me to a figure or column
25 and line number?

1 A. This one here.

2 Q. The figure on the face of the patent?

3 Did you review any other portions of the '802
4 patent, other than that front figure, before rendering
5 your opinion?

6 A. I had answered earlier. I generally reviewed
7 it before.

8 Q. Did you review columns 27 through 29 of the
9 '802 patent before rendering your opinion?

10 A. I generally looked at them.

11 Q. You did not look at them specifically, though,
12 correct?

13 MR. CHAN: Objection. Form.

14 THE WITNESS: But I still know the major
15 points of this patent.

16 BY MR. HA:

17 Q. Did you look at columns 27 through 29
18 specifically before rendering your opinion?

19 A. I generally looked at them.

20 Q. So the answer is, no, you did not look at it
21 specifically, is that correct?

22 MR. CHAN: Objection. Misstates testimony.

23 THE WITNESS: I had generally reviewed them.

24 BY MR. HA:

25 Q. My question is: Did you specifically look at

1 columns 27 through 29? Can you answer that with a "yes"
2 or a "no"?

3 MR. CHAN: Same objection.

4 THE WITNESS: It has been several months ago,
5 so I don't quite remember.

6 BY MR. HA:

7 Q. So you cannot answer my question with a "yes"
8 or "no"?

9 A. That's right. I was generally reviewing them.

10 Q. Okay. But you do not remember specifically
11 reviewing columns 27 through 29 of the '802 patent?

12 A. Because there are too many things I had -- I
13 need to look at, so I just can't remember.

14 Q. Similar question, '862 patent.

15 What is the major point of the '862 patent?

16 A. It defines the heights among tips.

17 Q. So you are looking at Figure 1 of the '862
18 patent, correct?

19 A. Yes.

20 Q. Similar question.

21 Did you specifically review columns 20 to 21
22 of the '862 patent before rendering your opinion?

23 A. I generally reviewed them.

24 Q. So let me summarize the testimony. Let me
25 know if this is correct.

1 For the '270 patent, '270 patent, you noted,
2 "Figure 1 shows the major points of the '270 patent,"
3 correct?

4 MR. CHAN: Objection. Form.

5 THE WITNESS: It is covering quite a lot of
6 contents. Primarily, it defines the distances among
7 tips.

8 BY MR. HA:

9 Q. Right.

10 In your earlier testimony you were pointing to
11 Figure 1 of the '270 patent as covering the major
12 points, correct?

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

15 THE WITNESS: It has a lot of contents in this
16 patent, but this is one of the major points.

17 BY MR. HA:

18 Q. Okay. And then you just testified, in the
19 '862 patent, Figure 1 of the '862 patent covers its
20 major points, correct?

21 MR. CHAN: Objection. Form. Misstates
22 testimony.

23 THE WITNESS: Again, it covers a lot of
24 contents, but one of the major points of this patent is
25 the relationship between tips.

1 BY MR. HA:

2 Q. Is that shown in Figure 1 of the '862 patent?

3 A. This figure indicates the differences between
4 the high tips. High tips.

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

6 A. Actually, I don't have a full understanding of
7 the patent in terms of the major points, but I do
8 believe there are many major points. In principle, it
9 quantifies the distances among tips, and that is one of
10 the variable points.

11 MR. HA: Alex, I'm very close to calling the
12 Board because he's just refusing to answer my questions.

13 MR. CHAN: I'm going to disagree. I thought
14 he answered your question.

15 What is your question again that you're trying
16 to elicit an answer?

17 MR. HA: My question was -- two questions,
18 right?

19 "And then you just testified, in the '862
20 patent, Figure 1 of the '862 patent covers its major
21 points, correct?"

22 His answer: "Again, it covers a lot of
23 contents, but one of the major points of this patent is
24 the relationship between tips."

25 My next question: "Is that shown in Figure 1

1 of the '862 patent?"

2 Answer: "This figure indicates the
3 differences between the high tips. High tips."

4 Question: "So is the answer to my question
5 "yes" or "no"?"

6 "Actually, I don't have a full understanding
7 of the patent in terms of the major points, but I do
8 believe there are many major points. In principle, it
9 quantifies the distances among tips, and that is one of
10 the variable points."

11 He is not answering my questions repeatedly,
12 and this goes on over and over and over again, and it's
13 happening repeatedly today. I feel for Dr. Tsai. I'm
14 trying to get him out of here as quickly as possible,
15 but if he's refusing to answer my questions, I'm just
16 going to have to go to the Board and ask for more time.
17 And I can give the Board pages and pages of evasive
18 answers that's not answering my questions.

19 MR. CHAN: I don't know that he's evading your
20 answers. Maybe it's lost in translation. You're asking
21 him what the main point or major point is, and he
22 identified Figure 1, and even pointed it out, as far as
23 what it is.

24 For example, in this case, the tip -- the tip
25 variation is a major point.

1 If your question is what other major points
2 there are, then you can ask him that --

3 MR. HA: That is not my question. I just read
4 you what my question was.

5 MR. CHAN: But he already said it, though,
6 that there are many major points, and he pointed to one.
7 So are you asking him to point out all of
8 them?

9 Because even I get confused as far as what
10 you're soliciting here. So help me understand what you
11 are asking him --

12 MR. HA: All right. You're now being
13 obstructive. I am seriously considering reaching out to
14 the Board and asking for more time.

15 MR. CHAN: And you're entitled to do that, but
16 I'm also trying to understand, what are you asking that
17 he hasn't answered?

18 I'm not trying to be difficult. I'm generally
19 trying to find out what he hasn't answered.

20 MR. HA: Let me try one more time.

21 MR. CHAN: Let's do that.

22 BY MR. HA:

23 Q. Dr. Tsai, is the major point of the '270
24 patent found in Figure 1 of the '270 patent? Yes or no?

25 MR. CHAN: Objection. Form.

1 THE WITNESS: In terms of the content of this
2 patent, it covers probably many major points. I do not
3 know which one is the most important ones, but it does
4 define the distance of the tip heights. It's not an
5 easy thing. I think that is a major point.

6 THE CHECK INTERPRETER: Just a minor
7 correction: "But in my personal understanding, the
8 definition of the distance between -- in terms of the
9 heights of the tips, I think this is remarkable and this
10 is a very important point."

11 MR. CHAN: Does that answer your question?

12 MR. HA: No, it does not.

13 In your opinion, that answers my question,
14 Alex?

15 MR. CHAN: I think so. You asked him, what is
16 the major point --

17 MR. HA: I asked him: Is the major point of
18 the '270 patent found in Figure 1 of the '270 patent,
19 yes or no?

20 MR. CHAN: You can ask him then.

21 MR. HA: I did ask him that five times
22 already.

23 MR. CHAN: Maybe -- he did point out to Figure
24 1, so I thought he already responded.

25 Let's just ask one more time, and I would

1 verify the translation. I'm sure that's accurate.

2 So do you want to repeat the question so --

3 MR. HA: I'm going to try one last time. If
4 this doesn't work, we're going to go to the Board.

5 Q. Dr. Tsai, is the major point of the '270
6 patent found in Figure 1 of the '270 patent? Yes or no?

7 A. I still stress that, based on my profession
8 and my expertise, to quantify the distance between the
9 tip heights is a very important point, and Figure 1 does
10 point that out. I think that's a major point.

11 Q. Okay. Thank you for answering my question,
12 Dr. Tsai.

13 Can you please endeavor to answer the specific
14 question that I ask moving forward?

15 A. Well, actually, this is my first time -- this
16 is my first time doing this deposition. In terms of the
17 deposition process, you guys are the professionals. I
18 am not. So as I sit here, I don't think I am a
19 criminal, sitting in here and questioned like this. So
20 probably, we can have a better manner in doing this
21 going forward.

22 THE CHECK INTERPRETER: He also said that
23 "Please, be more polite and courteous."

24 MR. HA: Alex, do you have a response to that
25 one?

1 MR. CHAN: He's entirely correct. He just
2 wants more courtesy. If you want to ask a better
3 question -- again, sometimes I am not following you
4 entirely. If you ask a clear, precise question, and
5 he's not answering, you should ask again, and if he's
6 not, then I will jump in and hopefully I can help
7 clarify exactly what you're asking, because I can
8 honestly and genuinely tell you I thought he responded
9 to it.

10 Again, part of this is also lost in
11 translation, because on the Chinese end, I could
12 understand and felt like he had already responded, but I
13 think the translation sometimes is -- not everything is
14 perfect in terms of translation.

15 MR. HA: Quite frankly, I don't know what to
16 do about that because you guys are the ones who
17 requested the translations.

18 MR. CHAN: That's why we have a check
19 translator here, right?

20 But hopefully, we'll work together to make the
21 best that we can and --

22 MR. HA: We've already wasted probably about
23 30 minutes going over and over again. I will go to the
24 Board and ask for more time, and let's continue on.

25 Q. And, Dr. Tsai, I'm not treating you as a

1 criminal, I'm trying to just get answers to my
2 questions, and it has to be very specific questions and
3 very specific answers.

4 Do you understand that?

5 MR. CHAN: I think -- just for the record, I
6 assume that we will disagree with counsel for petitioner
7 that he's allowed more time, and I do believe the
8 witness is generally responding to the questions to the
9 best that he can.

10 That being said, again, for the purpose of
11 this record, to the extent any question is not clear,
12 Dr. Tsai, please simply ask for a clarification. That
13 will really help along the way, and you're entitled to
14 ask a question if something is not clear.

15 BY MR. HA:

16 Q. So you just testified that the major point of
17 the '270 patent is found in Figure 1, correct?

18 A. Figure 1 defines the distance of the tip
19 heights among tips. I think that is a major point.

20 Q. Thank you.

21 Turning to Figure 1 of the '862 patent, you
22 previously testified that the major point of the '862
23 patent is found in Figure 1 of the '862 patent, correct?

24 A. It also defines the distance of the tip
25 heights among tips.

1 Q. So the major point of the '862 patent is found
2 in Figure 1 of the '862 patent, correct?

3 A. The major points may not be entirely found in
4 this figure, but this figure shows the spirit of this
5 patent, where you can find, and it is clearly defined in
6 here, the distance of the tip heights among tips, and
7 that is a major point.

8 Q. So if I compare Figure 1 of the '862 patent
9 with the '270 patent -- sorry, with Figure 1 of the '270
10 patent -- withdrawn.

11 Can you compare Figure 1 of the '862 patent
12 with Figure 1 of the '270 patent?

13 A. My personal understanding is that this patent
14 only describes a phenomenon, and this patent does define
15 the differences of the tip heights -- the distance of
16 the tip heights, and in terms of the quantified numbers
17 or how to enable or implement this patent could be
18 another major points.

19 THE CHECK INTERPRETER: The second portion:

20 "In terms of the quantified data or how that was
21 achieved, I think that would be -- these will be the
22 aspect that would be the major points of this patent."

23 BY MR. HA:

24 Q. When you say "this patent," which patent, '862
25 or the '270?

1 A. Well, both '270 and '862 patents are -- have
2 the intention to indicate the quantified distance
3 between the tip heights, and in terms of how to
4 fabricate and how to implement the patents, each patent
5 has its own description.

6 Q. So both the '270 and the '862 patents are
7 directed to quantifying the distance between the tip
8 heights, is that correct?

9 A. Yes, it quantifies the distance of the tip
10 heights.

11 Q. So both the '270 and the '862 patents are
12 directed to a similar field of study, is that correct?

13 MR. CHAN: Objection. Form.

14 THE WITNESS: It's also probably the way of
15 manufacturing and experimentation and operation are
16 different. Therefore, they will get different results.
17 BY MR. HA:

18 Q. Can you try to listen to my question very
19 specifically?

20 Are the '270 patent and the '862 patent
21 directed to a similar or different field of study?

22 MR. CHAN: Objection. Form.

23 THE WITNESS: Can you clearly describe what do
24 you mean by "field of study"?
25

1 BY MR. HA:

2 Q. Well, let me ask you the question.

3 What field of study are the '270 and the '862
4 patents directed to?

5 A. That is a diamond disk.

6 Q. So both the '270 and the '862 patents are
7 directed to the field of diamond disks?

8 A. Yes.

9 Q. And it's only directed to diamond disks,
10 nothing more, correct?

11 A. That's right, they all study diamond disks.

12 Q. Is one at all related to integrated circuit
13 fabrication and processing? Is one of the patents
14 related to integrated circuit fabrication and
15 processing?

16 A. It is related to CMP.

17 Q. I understand that.

18 Is one of the patents related to integrated
19 circuit fabrication and processing?

20 MR. CHAN: Objection. Form.

21 THE WITNESS: It is related to CMP, and the
22 CMP is one of the manufacturing process of the
23 integrated circuit fabrication.

24 BY MR. HA:

25 Q. Okay. Can you turn to Claim 1 of the '862

1 patent.

2 Are you there? Claim 1?

3 Dr. Tsai, do you know where Claim 1 of the
4 '862 patent is?

5 Did the translator tell you where the Claim 1
6 was, or did you know where Claim 1 could be found?

7 A. There it is. I feel pretty faint now.

8 Q. Do you need a break?

9 A. I'm fine.

10 Q. If you need a break, please let me know.

11 MR. HA: Let's go off the record.

12 I think you need a break, right?

13 (A recess was taken from 5:58 p.m. to 6:08
14 p.m.)

15 BY MR. HA:

16 Q. Dr. Tsai, I hope you're feeling better.

17 A. Okay. Thank you.

18 Q. No problem continuing?

19 A. Uh-huh.

20 Q. Were you able to find Claim 1 of the '862
21 patent by yourself?

22 A. Although I'm not so familiar or understanding
23 about a patent, but I do know that, in general, it
24 should be somewhere in the back.

25 Q. Okay. Can you specifically point to the

1 column and line number of where Claim 1 of the '862
2 patent starts?

3 THE LEAD INTERPRETER: The witness is pointing
4 to page 18, column 20.

5 THE WITNESS: Actually, I would care more
6 about the portion where it starts from line 15 all the
7 way down to 20 and so on, where it says what is claimed.
8 The more important ones are stated in here.

9 BY MR. HA:

10 Q. But Claim 1 starts from line 15?

11 A. Also, I generally don't pay much attention
12 about what is Claim 1 and Claim 2, but my attorney will
13 tell me that these are the major points.

14 THE CHECK INTERPRETER: "My attorney would ask
15 me to review them."

16 BY MR. HA:

17 Q. Okay. So let's look at line 17 where it
18 starts with the No. 1.

19 Claim 1 begins with "A method of conditioning
20 a CMP pad," correct?

21 A. Yes.

22 Q. And we established that a method of
23 conditioning a CMP pad occurs during the processing and
24 fabrication of integrated circuits, correct?

25 MR. CHAN: Objection. Form. Asked and

1 answered.

2 THE WITNESS: I believe that was asked.

3 MR. CHAN: But you can still answer.

4 THE WITNESS: Well, CMP, of course, is
5 intended to polish silicon wafers, that's correct.

6 MR. HA: Okay. So I want to make one
7 observation for the record.

8 Mr. Chan, you just objected with "asked and
9 answered." The witness then responded saying "I believe
10 that was asked," and then you told Dr. Tsai that "you
11 can still answer."

12 Point No. 1, improper objection. Specifically
13 objection that the PTAB rules forbid. Another clear
14 evidence of coaching the witness that is happening. I
15 am making yet another note of this and cautioning
16 Mr. Chan to stop doing that.

17 MR. CHAN: Noted, and I'll obviously disagree
18 that the objection is improper in any way, shape or
19 form, but in this instance, I already instructed the
20 witness to answer.

21 MR. HA: Fair. Let's continue.

22 Q. So CMP is intended to polish silicon wafers,
23 correct?

24 MR. CHAN: Same objection.

25 THE WITNESS: It is not only polishing silicon

1 wafer alone, it can polish any material that you want to
2 be polished.

3 BY MR. HA:

4 Q. So CMP occurs as part of the fabrication and
5 processing of integrated circuits, correct?

6 MR. CHAN: Objection. Form. Argumentative.

7 THE WITNESS: CMP occurs during the
8 manufacturing process of integrated circuit, and, of
9 course, if you need to polish a plate or pad, then you
10 use the CMP to do so.

11 THE CHECK INTERPRETER: Check rendition:
12 "Typically, CMP is one of the IC manufacturing
13 processes, and if you need to polish a plate, typically,
14 it's done by using CMP."

15 BY MR. HA:

16 Q. And conditioning a CMP pad is also a part of
17 one of the IC manufacturing processes, correct?

18 MR. CHAN: Objection. Form. Argumentative.

19 THE WITNESS: If -- during the IC, or
20 integrated circuit, manufacturing process, if it is
21 required to polish or to level a pad, usually, CMP will
22 be used. And the composition of CMP has a diamond
23 dresser in general. So diamond dresser is utilized to
24 condition the pad. So, generally, this method is
25 adapted.

1 BY MR. HA:

2 Q. So conditioning a CMP pad occurs during IC
3 manufacturing and fabrication?

4 MR. CHAN: Objection. Form.

5 THE WITNESS: As I said, generally, in doing a
6 process of CMP process, normally, diamond dresser is
7 used to condition the pad. That generally is utilized
8 by people.

9 BY MR. HA:

10 Q. And in order to condition a CMP pad, you have
11 to first develop and design a CMP pad dresser, correct?

12 MR. CHAN: Objection to form. Argumentative.

13 THE WITNESS: My personal research is that if
14 you intend to remove the dirt on the surface of a pad,
15 then any applicable technology is okay to be utilized.

16 But, currently, it seems that diamond disk is
17 a pretty effective tool to be used.

18 THE CHECK INTERPRETER: "My personal research
19 is that if you intend to remove the filth on the surface
20 of a pad, then any applicable technology will do as long
21 as the filth can be removed, but it seems that diamond
22 disk is a very effective tool to be used."

23 BY MR. HA:

24 Q. Maybe you did not hear my question again. Let
25 me ask it one more time.

1 In order to condition a CMP pad, you have to
2 first design and develop a CMP pad dresser, correct?

3 MR. CHAN: Objection to form. Argumentative.

4 THE WITNESS: Well, I had answered that
5 already. That is, if there are other different and
6 effective approach to be used, then you may not
7 necessarily use this approach. But currently, it seems
8 that the diamond disk is largely being used by people.

9 BY MR. HA:

10 Q. So in order to use those diamond disks to
11 condition a CMP pad, you have to first design and
12 develop those diamond disks, correct?

13 MR. CHAN: Same objection. Form.

14 THE WITNESS: It's correct and it's not
15 correct because, like I said, diamond disk is an
16 effective tool currently to be used. That is why we
17 would like to design it.

18 BY MR. HA:

19 Q. Right.

20 And my question is being limited only to those
21 diamond tools that you just talked about.

22 In order to utilize those diamond disks to
23 condition a CMP pad, you have to first design and
24 develop those diamond disks, correct?

25 MR. CHAN: Same objection. Form.

1 THE WITNESS: Well, I would just like to give
2 you the answer all the time. I said that if it is an
3 effective method, then we will develop it.

4 BY MR. HA:

5 Q. So that you could use it to condition CMP
6 pads, right?

7 A. So you're talking about using the diamond disk
8 to condition that?

9 Q. Correct.

10 A. (In English) Yes.

11 Q. I think there were some clerical errors in
12 your declaration regarding the level of POSITA, so I
13 just want to make sure that we're all on the same page.

14 Can you turn to your '270 declaration.

15 Do you have the '270 declaration in front of
16 you?

17 A. Yes.

18 Q. Can you turn to paragraph 29? You state in
19 paragraph 29 your belief on what the level of a POSITA
20 should be, correct?

21 A. Yes.

22 Q. And you say, "For the purposes of the '270
23 patent, a POSITA would have had at least a bachelor's
24 degree in mechanical engineering or other relevant field
25 of engineering." Let me stop there.

1 Do you see that?

2 A. Yes, I see that.

3 Q. Okay. Do you still agree with this opinion,
4 that a POSITA would have had at least a bachelor's
5 degree in mechanical engineering or other relevant field
6 of engineering?

7 MR. CHAN: Objection. Form.

8 Counsel, I want to be clear. 29 is referring
9 to Dr. Shanfield's opinions on 28. That's not his
10 statements. But your question says this is his
11 statements.

12 So can you clarify for me exactly what you're
13 referring to as being his statement about POSITA before
14 I object properly?

15 MR. HA: Can you repeat what you just said.

16 MR. CHAN: Yeah. For paragraph 28, it says,
17 "I understand that Samsung's expert, Dr. Stanley
18 Shanfield, has provided -- definition," and then in 29,
19 it says, "I've been made aware that Dr. Shanfield has
20 failed to provide an explanation" --

21 MR. HA: Which declaration are you looking at?

22 MR. CHAN: I'm referring to his declaration
23 in -- this is '270.

24 MR. HA: IPR2024-00533, correct?

25 MR CHAN: Right.

1 MR. HA: Exhibit 2004?

2 MR. CHAN: Right.

3 MR. HA: I don't have that. I have -- on
4 paragraph 29, it says: "Accordingly, I believe a POSITA
5 for the purposes of the '270 patent would have had at
6 least a bachelor's degree."

7 MR. CHAN: Interesting. In that case, that
8 sounds like there may be a discrepancy, but I'll go with
9 your copy since this is your exhibit, but let me
10 double-check and make sure I have the right copy myself.

11 BY MR. HA:

12 Q. Dr. Tsai, you still believe that, for the
13 purposes of the '270 patent, a POSITA would have had at
14 least a bachelor's degree in mechanical engineering or
15 other relevant field of engineering, is that correct?

16 A. This part of the statement is correct. In
17 addition, it is even more so during the period of 2005.

18 Q. Okay. Can you next turn to your '862
19 declaration.

20 Actually, let's turn to your '802 declaration,
21 then. Can you turn to paragraph 16. I want you to
22 focus on the last sentence of your paragraph 16. It
23 says: "Accordingly, I believe a POSITA, for the
24 purposes of the '802 patent, would have had at least two
25 years of experience in developing CMP technology,

1 including experience with the design and development of
2 the CMP pad dressers."

3 Do you see that?

4 A. Yes.

5 Q. Now, if I compare that against what you stated
6 in paragraph 29 of the '270 patent, it does not talk
7 about having at least a bachelor's degree in mechanical
8 engineering or other relevant field of engineering.

9 Do you agree?

10 A. Although I believe it is a little bit vague in
11 this statement here, but I still feel that a person
12 still needs to have a degree of the mechanical
13 engineering or other related field of engineering in
14 order to implement this patent.

15 Q. So paragraph 16 of the '802 declaration just
16 accidentally omitted the level of education, is that
17 right?

18 A. Well, my personal opinion is that, actually,
19 in order to do the quantified definition, it is required
20 that a person needs to have a lot of practical
21 experience in designing and manufacturing diamond disks,
22 and in addition, this person should be very familiar
23 with the material science, and plus, this person should
24 understand about the practical implementation of the CMP
25 dressers and also have a very detailed -- many detailed

1 study to the diamond disks in order to do the quantified
2 definition and implementation.

3 Therefore, that I think that this person may
4 need to have a lot of professions and expertise to do --
5 to do this. Probably, I would say they need at least
6 a -- the education level up to master or Ph.D. in order
7 to do so.

8 THE CHECK INTERPRETER: One minor correction
9 in the beginning.

10 The witness begins by saying that "You may say
11 so, but here, I just want to stress," and then the
12 following portion is the same.

13 BY MR. HA:

14 Q. There was a lot there. Let me try to break it
15 down.

16 When you say "you may say so," you mean you
17 omitted the level of education required, correct?

18 A. Well, I think that -- in here, I think this
19 person should possess the knowledges [sic] of a material
20 science, plus physical, chemical, strong knowledge in
21 order to implement this. So I do feel that a master or
22 Ph.D. degree is required.

23 Q. So a bachelor's is not enough?

24 A. Okay. As I said, this person should possess
25 the very strong knowledge in terms of the material

1 science, the theories of that, and a lot of practical
2 experiences in terms of physical and chemistry. So, to
3 my understanding, is that a college graduate, even if
4 this person has a lot of practical experience, but
5 still, this person may be lacking of the theoretical
6 knowledge or academic foundation background.

7 THE CHECK INTERPRETER: Check rendition: "I
8 believe that this person must be very good in terms of
9 the knowledge and also the understanding of the
10 knowledge, the theories and the practical experience of
11 material science. That's my idea.

12 "And for a person who has a college degree,
13 the person may be very strong in terms of
14 implementation, but he or she may be pretty weak in
15 terms of his theoretical understanding in the field of
16 physics or chemistry."

17 BY MR. HA:

18 Q. So is a bachelor in mechanical engineering
19 sufficient or not sufficient to meet the level of a
20 POSITA?

21 A. Well, personally, to my opinion, such a
22 professional technology, I think it would take at least
23 a master degree or Ph.D. degree. Then this person may
24 have a better chance, but still no guarantee of that,
25 but that would be my opinion.

1 Q. So going back to paragraph 29 of your '270
2 declaration -- you're at paragraph 29, sir?

3 A. Yes.

4 Q. Would you like to change the statement that
5 says, "For the purposes of the '270 patent, a POSITA
6 would have had at least a bachelor's degree in
7 mechanical engineering" to "at least a master's degree"?

8 A. Well, my opinion or rationale is that if a
9 person only possesses an undergraduate degree or college
10 degree, and this person is willing to learn by himself
11 further, still, I am not quite sure or guarantee that it
12 would be okay to do so. So that I think it's a common
13 sense that we should say at least should have a master
14 degree or Ph.D. degree.

15 Q. Okay. Do you want to, on your copy of
16 paragraph 29, cross out "bachelor's" and write
17 "master's"?

18 A. As I said, if a college graduate is willing to
19 work very hard to further do some learning, getting more
20 experience, and probably this person is capable. But
21 again, there are many, many college graduates, so that
22 such a person who is willing to work hard -- I believe
23 only very few of them. Therefore, that a better model
24 is that to have a higher educational degree because also
25 this person should possess the knowledge of the material

1 science. That would be much better.

2 Q. And I'm just trying to make sure that the
3 record is clear, so it's just a very simple question.

4 Do you want to change this from "at least a
5 bachelor's degree in mechanical engineering" to "at
6 least a master's degree in material science"?

7 A. (In English) I'm not sure. I'm not sure.
8 I'm not sure. I'm not sure.

9 Q. Okay. Let's go back to the '802 declaration,
10 last sentence of paragraph 16.

11 Do you want to add any statement about "a
12 POSITA would have had at least a master's in the field
13 of material science" to this sentence here?

14 A. (In English) I'm not sure. I'm not sure.

15 MR. HA: Let's also take a look at the '862
16 declaration, which we'll move into evidence as Exhibit
17 No. 1041.

18 (Tsai Deposition Exhibit 1041 was marked for
19 identification and is attached to the transcript.)

20 BY MR. HA:

21 Q. Can you go to paragraph 29 of the '862
22 declaration, please.

23 Again, the last sentence says: "Accordingly,
24 I believe a POSITA, for the purposes of the '862 patent,
25 would have at least two years of experience developing

1 CMP technology, including experience with design and
2 development of the CMP pad dressers."

3 Correct?

4 A. I see that.

5 Q. Similar question to the '802 patent
6 declaration here.

7 Do you want to add any statement about "a
8 POSITA would have had at least a master's in the field
9 of material science" to this sentence here?

10 A. I had answered this earlier. I said that I'm
11 not quite sure about this.

12 Q. Okay. I'm going to change gears a little bit.
13 Do you need a break?

14 A. Continue.

15 Q. Continue, okay.

16 Can you turn to Claim 1 of the '270 patent.
17 Are you there, Dr. Tsai?

18 A. Yes.

19 Q. Yes? Okay.

20 Claim 1 of the '270 patent begins at column
21 17, line 35, and it continues all the way down to column
22 18, line 10 or 11, I don't know.

23 Do you see that?

24 In the entirety of Claim 1, do you see any
25 mention of the word "working particles"?

1 This is not a trick question.

2 A. No.

3 Q. How about in Claim 2? Do you see the words
4 "working particles"?

5 A. No.

6 Q. I'm going to ask the question for all of the
7 claims, 3 to 8.

8 Do you see the word "working particles" in any
9 of the remaining claims, 3 to 8?

10 A. It seems no.

11 Q. Okay. Now, can you turn to your declaration
12 for the '270 patent.

13 Do you have your declaration in front of you?

14 Can you go to paragraph 13 of your
15 declaration, please.

16 Are you there?

17 Paragraph 13 is directed to your legal -- your
18 understanding of the legal principles directed to patent
19 claims, correct?

20 A. Yes.

21 Q. Is it your understanding that the claims
22 define the scope and boundary of what the patent owner
23 intended to invent?

24 A. I don't have a good understanding to patents.
25 Therefore, I am not quite sure.

1 Q. So you're not sure if the claims cover the
2 invention, is that correct?

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

5 THE WITNESS: Well, because I'm not a legal
6 expert of the patents; therefore, I don't quite
7 understand about the use of these legal terms.

8 BY MR. HA:

9 Q. Okay. Let me ask it more open-ended.

10 What is your understanding of what claims of a
11 patent is supposed to cover?

12 A. Well, still, I don't have any patent-related
13 knowledge or expertise, so I really don't quite know
14 about this.

15 I also did not apply any U.S. patent in past.

16 Q. Okay. So you do not have an understanding
17 that a claim defines what the invention is, correct?

18 A. Well, I really do not have a clear
19 understanding or much understanding about it.

20 Q. Okay. Can you turn to paragraph 58 of your
21 declaration next.

22 Are you there, Dr. Tsai?

23 A. Okay.

24 Q. So, here, you're giving an opinion about Sung
25 '479, which is one of the prior art references that we

1 submitted in the petition.

2 And you distinguish Sung '479 from the '270
3 patent by stating "The '270 patent focuses only on the
4 working particles."

5 Do you see that?

6 A. Yes.

7 Q. What is your basis for the opinion that the
8 '270 patent focuses only on the working particles?

9 A. Well, my basis is that it is talking about the
10 distance of the tip heights, it's talking about the
11 highest tip versus the second highest tip in terms of
12 their height. And also, these tips are the ones that
13 can contact the pad, and they are the working particles.

14 Q. Is your basis based on anything of the claims
15 of the '270 patent?

16 A. This figure describes the difference of the
17 tip heights, and to us, when a diamond disk presses down
18 to a pad, obviously, those highest tips will be the
19 major working diamond particles that presses on the pad.

20 However, the entire spirit of the patent is
21 still maintained in there -- that is, the high is -- the
22 tips are the ones -- are the particles contacting the
23 pad, and those are the working particles.

24 Q. So your answer began with "This figure."

25 You're referring to Figure 1 of the '270

1 patent?

2 A. Well, like I said, that figure depicts the
3 distance of the tip heights, of those diamond tip
4 heights, and therefore, that if a person would like to
5 quantify the distance, it's not so easy. It takes a lot
6 of expertise in order to do so.

7 Q. I'm just trying to figure out which figure
8 you're looking at.

9 Is it Figure 1? 2? 3? Which figure?

10 A. Figure 1.

11 Q. Figure 1, okay.

12 So your opinion, that the '270 patent focuses
13 only on the working particles, is based on Figure 1 of
14 the '270 patent, not the claims, correct?

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

17 THE WITNESS: Well, I was just trying to
18 express the spirit of this patent, the major spirit I
19 just described. But for this patent, in order to
20 quickly learn about the major points, I was saying that
21 the Figure 1 was the place where you can refer to.

22 BY MR. HA:

23 Q. So your opinion was based on Figure 1, not the
24 claims, correct?

25 MR. CHAN: Objection to form.

1 THE WITNESS: No, no, no, that was not the
2 situation and that was not what I mean.

3 I said that the Figure 1 intends to show to
4 people to instinctly [sic] to understand what is in this
5 patent, and so that figure shows that the distance
6 between the tip heights. But, in addition, actually,
7 this patent covers a lot of other things.

8 BY MR. HA:

9 Q. Can you point me to a specific language in the
10 claims that forms the basis of your opinion that the
11 '270 patent focuses only on the working particles?

12 A. Okay, I'm pointing at the last page, the last
13 line of column 17 and starting from there where it says
14 "The highest protruding tip and the second highest
15 protruding tip," dot, dot, dot, dot.

16 Q. So there's two tips being discussed in that
17 claim language -- the highest protruding tip and the
18 second highest protruding tip? Are both of those tips
19 both working particles, or is only one of them working
20 particles?

21 A. (In English) I'm not sure. I'm not sure.

22 Q. You're not sure whether the --

23 A. (In English) I'm not sure. Maybe --

24 (In Chinese) It would be either one or two of
25 them because it also depends on the operational

1 parameters of the equipment, and it also depends on the
2 pad to be processed, and also depends on other
3 manufacturing processes and factors. So a lot of
4 factors involved.

5 Q. What are some of the operational parameters
6 that need to be known?

7 A. Actually, it includes, for instance, the
8 parameter of diamond dresser, the parameter of the pad
9 itself, and the parameter of slurry.

10 Q. Let's start with the parameter of the diamond
11 dresser.

12 What needs to be known?

13 A. The parameters such as the pressure, the
14 rotating speed.

15 Q. Anything else?

16 A. And also, probably the moving speed of the
17 diamond disk. I think these would be the parameters.

18 Q. How is that different from the rotating speed?

19 A. Well, a diamond disk rotates by itself.
20 Meanwhile, it also moves around.

21 Q. Okay. What about the pad parameters? What do
22 you need to know to determine whether the highest and
23 second highest protruding tips are working particles?

24 A. The most important parameter of it should be
25 the hardness.

1 Q. Is there any other parameter that needs to be
2 known?

3 A. There are others, but hardness is the most
4 important one.

5 Q. Okay. You also talked about slurry
6 parameters.

7 What do you need to know about that?

8 A. For slurry, it has the abrasive material and
9 the pH value.

10 Q. So depending on the pH, for example, a CMP pad
11 dresser could suddenly not become a working particle?

12 And I'm sorry, I think my question came out
13 wrong there, so let me re-ask that. One more time.

14 So depending on the pH, a CMP pad dresser
15 having the highest and second highest protruding tips,
16 those two tips suddenly could not become a working
17 particle?

18 A. No, it does not, because pH value does not
19 affect that.

20 Q. What about the abrasive material of the
21 slurry?

22 A. Generally, abrasive material will cause the
23 wearing of the diamond.

24 Q. Maybe I should ask my question more fully.

25 Depending on the abrasive material, can a CMP

1 pad dresser having the highest and second highest
2 protruding tips -- those two tips, can they suddenly not
3 become a working particle?

4 A. No.

5 Q. So let me just go through what you laid out in
6 terms of the parameters that are important to know
7 whether the highest protruding tip and the second
8 highest protruding tip becomes working particles, okay?

9 Let me just summarize --

10 A. It is not quite accurate, of what you just
11 said. It is not quite accurate.

12 Q. What part of my -- or statement was
13 inaccurate?

14 THE CHECK INTERPRETER: He also said "That's
15 not very accurate. I can restate my answer."

16 BY MR. HA:

17 Q. Let me try one more time.

18 We talked about four different parameters that
19 affect whether the highest protruding tip and the second
20 highest protruding tip become working particles or not.
21 Okay?

22 The first one was pressure. Second one was
23 rotating speed. The third was the moving speed. And
24 the fourth --

25 MR. HA: Can you tell him to turn off his

1 phone during the deposition. This is, like, the third
2 time.

3 MR. CHAN: Can you turn it off?

4 THE WITNESS: Okay.

5 BY MR. HA:

6 Q. Let me start the question so that it's fresh
7 again.

8 You talked about four different parameters
9 that affect whether the highest protruding tip and the
10 second highest protruding tip become working particles
11 or not. The first one was pressure, second one was
12 rotating speed, third one was moving speed, and the
13 fourth one was the hardness of the CMP pad, correct?

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

16 THE WITNESS: That is not quite correct
17 because those parameters, such as the pH value of the
18 slurry, pressure, hardness, will affect the wearing
19 level of diamonds, and they will not affect whether the
20 highest and second highest protruding tips will become
21 working particles or not. They only affect the wearing
22 of diamonds.

23 BY MR. HA:

24 Q. I did not talk about pH value, I did not talk
25 about slurry, so I don't know why you're bringing in pH

1 value and slurry.

2 MR. CHAN: Objection.

3 Is there a pending question?

4 MR. HA: I'm about to ask my question.

5 Q. I don't know why you're bringing those in
6 because you said they do not affect whether you can
7 determine the highest protruding tip, and the second
8 highest protruding tip will become working particles or
9 not, correct?

10 MR. CHAN: Same objection.

11 THE WITNESS: Should I answer?

12 BY MR. HA:

13 Q. Yeah.

14 A. Well, what I mean was these parameters -- let
15 me rephrase that again.

16 What I mean is the highest protruding tip
17 always is working, and these parameters -- I mentioned
18 about the pad hardness, or the pressure of the pad --
19 will affect the level of working force or pressing
20 force. If you press more, of course, the level of
21 working is harder. Likewise, the hardness of a pad, if
22 it is not so hard or it's a little bit soft, it does
23 affect the level of working.

24 Q. Understood now. Thank you for that
25 clarification.

1 So let's take this scenario.

2 Claim 1 talks about the highest protruding tip
3 and the second highest protruding tip is less than or
4 equal to about 50 microns.

5 Do you see that?

6 So let's assume we've got the highest
7 protruding tip and the second highest protruding tip
8 that are 50 microns apart.

9 Are you with me?

10 A. Okay, yes.

11 Q. And these are diamond particles, okay?

12 A. Okay.

13 Q. And they are on a CMP pad dresser, which is
14 getting pressed against a polyurethane CMP pad.

15 Are you with me?

16 A. All right.

17 Q. And now, let's assume that the pressure is
18 about three kilograms.

19 Are you with me?

20 A. Okay.

21 Q. And let's say that the rotating speed is about
22 10 rpm, okay?

23 A. Okay.

24 Q. And let's say that the moving speed is about
25 five millimeters per second.

1 In that specific example, are both the highest
2 protruding tip and the second highest protruding tip --
3 are they working particles?

4 MR. CHAN: Objection. Form. Hypothetical.

5 THE WITNESS: Well, because I did not do any
6 experiments regarding these settings; therefore, I don't
7 know how to answer.

8 BY MR. HA:

9 Q. But you are sure that the '270 patent focuses
10 only on working particles based on this claim language,
11 correct?

12 MR. CHAN: Objection to form. Misstates
13 testimony.

14 THE WITNESS: Well, I still would like to say
15 that for this patent, it describes the distance of the
16 tip heights, it quantified the value of the distance,
17 and for that, in order to do the quantification, it
18 needs a very special professional knowledge.

19 BY MR. HA:

20 Q. Let me re-ask my question. Please focus on
21 it.

22 You are sure that the '270 patent focuses only
23 on working particles based on this claim language
24 regarding the highest and second highest protruding tips
25 being less than or equal to about 50 microns, correct?

1 A. Well, I personally believe that that's a major
2 point. But personally, I do believe that there are
3 other major points in this patent. Based on my personal
4 technical expertise, I do believe there are other major
5 points in this patent, and those are important.

6 THE CHECK INTERPRETER: Check rendition: "I
7 personally believe that this point is very important,
8 but there may be other important points which are also
9 very important with respect to the entirety of the
10 patent. But for my technical knowledge personally, I
11 feel that this point is important, but there may be
12 other points that are very important, perhaps important
13 points such as the way the entire patent is drafted."

14 MR. HA: We are regressing again, Alex. He's
15 evading my questions yet again.

16 Any thoughts on this? Any positions on this
17 on the record, Alex?

18 MR. CHAN: I can't interject as to his
19 testimony.

20 MR. HA: I'm asking for your opinion
21 whether --

22 MR. CHAN: I don't have an opinion. I'm not
23 the witness. I'm not being deposed. If you want to
24 break it down into chunks, I think that would be easier
25 to understand --

1 MR. HA: I really do wish I could break it
2 down in chunks and do it in English, but you're
3 insisting that we cannot do that. But I'm asking for
4 your co-operation to have him answer my questions again.

5 MR. CHAN: I'm not sure what you are referring
6 to, that I'm not cooperating. I'm helping you to try to
7 decipher a way to ask a question that is easier for him
8 to understand, and I'm not resistant to any ideas of you
9 trying to break down your question into different
10 chunks. If you're not getting the answer you're looking
11 for, maybe you just have to rephrase the question and
12 ask it in a different way, but I don't think the witness
13 is trying to refuse answering your question.

14 MR. HA: He should interpret, Alex. Don't
15 stop him interpreting.

16 MR. CHAN: No, no, I was going to say, fine,
17 interpret.

18 MR. HA: So I'm going to try to ask my short
19 question one more time.

20 Q. You're sure that the '270 patent focuses only
21 on working particles based on the claim language that
22 the difference in protrusion between the highest
23 protruding tip and the second highest protruding tip is
24 less than or equal to 50 microns, correct?

25 A. Well, regarding this patent, the specialty

1 about this patent is that it quantifies the distance of
2 the tip heights and, of course, there are other issues
3 and matters included, such as manufacturing process in
4 terms of fabrication or some other parameters. And
5 also, probably, you would describe a different way of
6 manufacturing. But the important thing is that it
7 defines the tip -- the issues of the distance of the tip
8 heights among tips. So that is an important point.

9 THE CHECK INTERPRETER: The last sentence:
10 "That is quite unique."

11 MR. HA: I'm going to move to go to the Board,
12 Alex. Let's send an email to the Board together. Let's
13 keep this deposition open. I want to try to be as
14 efficient as possible, but I'm going to ask for more
15 time. I'm going to move on to my next set of questions,
16 but I will definitely move the Board for more time based
17 on this stonewalling.

18 MR. CHAN: I'm not sure what you're
19 stonewalling about. You're referring the witness to
20 this language. The '270 patent focuses only on working
21 particles. His declaration does not say that this is in
22 reference to claims. You're trying to get him to
23 recognize and admit on the record that this is in
24 reference to the claims, and so he's not answering --
25 well, he is answering it in a way that he sees fit. But

1 I don't think he's rejecting or refusing to answer your
2 questions in any way, shape or form.

3 MR. HA: Your position is noted. We will go
4 to the Board. We are going to ask for more time. Once
5 the seven hours on the clock is over, we're going to
6 keep this deposition open and we're going to ask the
7 Board for more time. Simple as it is.

8 BY MR. HA:

9 Q. Can you next turn to paragraph 63 to 68 of
10 your declaration.

11 Are you there, sir?

12 A. Yes.

13 Q. Let's jump directly to paragraph 68 of your
14 declaration. Your conclusion here is: "Sung '479 does
15 not include an enabling disclosure of the difference in
16 protrusion distance between the highest protruding tip
17 and the second highest protruding tip of the monolayer
18 of the superabrasive particles."

19 Do you see that?

20 A. Okay. Yes, I do.

21 Q. Let's turn back to paragraph 63.

22 You state it's your opinion that "The
23 disclosure of Sung '479 lacks crucial details for
24 implementing the described leveling process to align
25 particle tips along its so-called designated profile."

1 Do you see that?

2 A. Yes, I do.

3 Q. Then you say, "For example, it provides no
4 description for the composition or properties of the
5 leveling surface used to level the particle tips such
6 that it allows for the plurality of superabrasive
7 particles to have RA values of less than about 40
8 microns."

9 Do you see that?

10 A. Yes.

11 Q. What's RA value?

12 A. (In English) I'm not sure. I need to check.

13 (In Chinese) I need to check that '479
14 patent.

15 Q. So you have no recollection as of now what the
16 term "RA values" means, correct?

17 A. I don't quite remember.

18 Q. I'm handing you Exhibit 1005, which is a copy
19 of Sung '479.

20 Sir, are you reading the first page of Sung
21 '479?

22 A. Yes.

23 Q. And you're trying to locate what RA value
24 means in the first page of Sung '479?

25 Will you answer my question, Dr. Tsai?

1 A. I don't quite remember this RA value.

2 Q. Okay. And you have a copy of the Sung '479 in
3 front of you, correct?

4 A. Yes.

5 Q. Whatever that means, let's go, for the sake of
6 time, to Claim 1 of Sung '479.

7 Do you see the limitation "arranging the
8 plurality of superabrasive particles on a leveling
9 surface" in Claim 1?

10 A. Where is the limitation?

11 Q. It begins with "Arranging." It's on -- it's
12 under Claim 1.

13 Do you see that limitation, Dr. Tsai?

14 A. I don't find the limitation.

15 Q. You don't find the limitation that reads
16 "Arranging the plurality of superabrasive particles on a
17 leveling surface," in Claim 1, Dr. Tsai?

18 Will you answer my question, Dr. Tsai? You
19 need the help of the interpreter to locate the
20 limitation "Arranging the plurality of superabrasive
21 particles on a leveling surface"?

22 A. Because the words are too small to see.

23 Q. I see. Understood.

24 So you can't read patent documents on your
25 own?

1 A. I see it.

2 Q. You see it now? Okay.

3 So that limitation in Claim 1 talks about
4 arranging the plurality of superabrasive particles on a
5 leveling surface, correct?

6 A. Yes.

7 Q. And Claim 2 talks about "Where, upon formation
8 of the superabrasive tool, the plurality of
9 superabrasive particles have been leveled by the
10 leveling surface to an RA value of less than about 40
11 microns."

12 Do you see that?

13 A. Yes.

14 Q. And that's the same language that you talked
15 about in paragraph 63 of your declaration, right?

16 MR. CHAN: Objection. Form.

17 THE WITNESS: It seems that it's not quite the
18 same.

19 THE CHECK INTERPRETER: "They are not entirely
20 the same."

21 BY MR. HA:

22 Q. Are they directed to generally the same
23 concepts?

24 MR. CHAN: Objection. Form.

25 THE WITNESS: I'm not sure.

1 BY MR. HA:

2 Q. You can't tell me if the topic you're talking
3 about in paragraph 63 of your declaration is directed to
4 the same subject matter as Claims 1 and 2 of Sung '479?

5 MR. CHAN: Objection. Form.

6 THE WITNESS: The paragraph 63 of the
7 declaration indicates the leveling surface, where, in
8 the patent, it does not indicate leveling surface.

9 BY MR. HA:

10 Q. So it's your opinion that what you're talking
11 about in paragraph 63 is not related to Claims 1 and 2
12 of the Sung '479?

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

15 THE WITNESS: It's not that they are not
16 related. There are [sic] some relationship.

17 BY MR. HA:

18 Q. So there's some relationship between what you
19 talk about in paragraph 63 to Claims 1 and 2 of Sung
20 '479, correct?

21 A. Yeah. Yes, there is some relationship.

22 Q. Okay. Then let's go to Claim 28 -- Claim 28
23 of Sung '479.

24 Claim 28 says: "The method of Claim 2 wherein
25 the superabrasive particles are leveled to a

1 predetermined height that is along a designated
2 profile."

3 Correct?

4 A. Yes.

5 Q. So is the subject matter that you're
6 discussing in paragraph 63 of your declaration related
7 to Claim 28 of Sung '479?

8 That's the fourth time that your phone has
9 gone off.

10 MR. HA: I want to state for the record,
11 Dr. Tsai has walked out of the deposition room to answer
12 a phone call.

13 Let's go off the record.

14 MR. CHAN: Let's not go off the record. He's
15 not stepping outside the room, he's only putting the
16 phone away.

17 I want to be also mindful that Dr. Sung [sic]
18 cannot fully turn off his phone probably because he does
19 have someone he needs to care for. So in case of an
20 emergency, he needs to attend to those calls.

21 MR. HA: Dr. Tsai.

22 MR. CHAN: Dr. Tsai. Thank you.

23 So I understand your instructions for him to
24 turn off the phone, but because of emergency purposes --
25 and now that he's taking the phone away, hopefully that

1 strikes the balance.

2 BY MR. HA:

3 Q. Let's proceed. Completely broke my flow, but
4 let's try to pick up where I was.

5 So the question is still pending: Is the
6 subject matter that you're discussing in paragraph 63 of
7 your declaration related to Claim 28 of Sung '479?

8 A. Yes, they are related.

9 Q. Okay. In paragraph 63, you said, "The
10 disclosure of Sung '479 is not enabled," correct?

11 A. Yes.

12 Q. And you previously told me you do not have a
13 good understanding of U.S. patent law, correct?

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

16 THE WITNESS: This is not my profession so I
17 would not focus on it.

18 BY MR. HA:

19 Q. Are you aware of a key requirement under U.S.
20 patent law that in order for you to have a patent claim,
21 the patent claim has to be enabled?

22 MR. CHAN: Objection. Form. Calling for a
23 legal conclusion.

24 THE WITNESS: I'm not sure.

25

1 BY MR. HA:

2 Q. You are not aware of that requirement,
3 correct?

4 A. I don't know.

5 Q. Are you also aware that in order for you to --
6 in order for an inventor to apply for a patent, the
7 inventor has to submit something called an "oath" or
8 "declaration" to the patent office?

9 A. I don't know.

10 Q. Would it surprise you that Dr. Sung submitted
11 an oath to the patent office saying he believes he is
12 the original, first and sole inventor of the subject
13 matter which is claimed?

14 MR. CHAN: Objection to form. Relevance.

15 THE WITNESS: (In English) I don't know. I'm
16 not sure. I don't know.

17 (In Chinese) I don't know, I'm not sure.

18 BY MR. HA:

19 Q. That's fair.

20 So Dr. Sung believed that he's entitled to a
21 patent on Sung '479, correct?

22 MR. CHAN: Objection to form. Argumentative.

23 THE WITNESS: I don't know.

24 BY MR. HA:

25 Q. So who is more right? Is Dr. Sung correct

1 that he believes this claim -- that Claim 28 is enabled
2 or your opinion that Claim 28 is not enabled?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: (In English) I don't know.

5 BY MR. HA:

6 Q. You're not sure of your opinion?

7 A. Can you repeat your previous question?

8 Q. Who is more right, Dr. Sung or you, that Claim
9 28 is either enabled or not enabled?

10 MR. CHAN: Objection. Form.

11 THE WITNESS: For patent '479, in terms of the
12 viewpoints that it was talking about, if it would like
13 to quantify the distance of the tip heights, then,
14 probably, it would take more experiments in order to
15 reach that.

16 THE CHECK INTERPRETER: Correction to the last
17 sentence: "Then perhaps it will be necessary to conduct
18 some experiments in order to do that."

19 BY MR. HA:

20 Q. So Dr. Sung was incorrect when he believed
21 he's entitled to a patent because Claim 28, in your
22 opinion, is not enabled, is that right?

23 MR. CHAN: Objection. Form. Hearsay. Lack
24 of foundation.

25 THE WITNESS: It's not that I said that it is

1 not enabled, because when doing researches, we must
2 perform many experiments in order to verify and to get
3 the final results. Therefore, a researcher has to go
4 through very strict or stringent experiments in order to
5 reach conclusions.

6 And in terms of Dr. Sung, how he reached that
7 conclusion, which I'm not sure.

8 BY MR. HA:

9 Q. So it's your opinion that the subject matter
10 discussed in paragraph 63 is enabled now, based on some
11 more experiments?

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

14 THE WITNESS: Well, in doing the researches, I
15 would say that there are opportunities to reach the
16 result, but I cannot guarantee that it will reach that
17 result.

18 BY MR. HA:

19 Q. So you just don't know one way or the other if
20 it is enabled or not enabled, is that right?

21 MR. CHAN: Objection. Form. Misstates
22 testimony.

23 THE WITNESS: Personally, I still like to
24 stress that as a researcher, we must do experiments to
25 do the verification in order to reach the results.

1 Whether Dr. Sung can enable that or not, which I don't
2 want to make any comment. But for me, if I do the
3 experiments, I would say that probably I have chances to
4 get the results I want, but it may not be necessarily
5 so. So I only want to say it's possible there are
6 chances.

7 BY MR. HA:

8 Q. What about from the perspective of a POSITA?
9 Would a POSITA, with some experiments, be able to
10 practice what's claimed in Claim 28 of Sung '479?

11 MR. CHAN: Objection. Form.

12 THE WITNESS: First of all, a person is
13 required to do a lot of experiments. Plus, he or she
14 needs to have sufficient material science knowledge.
15 And in addition, I also feel this person should have a
16 lot of CMP experiences so that this person is able to
17 define the distance of the tip heights.

18 BY MR. HA:

19 Q. That's not an answer, sir.

20 Would a POSITA, with some experiments, be able
21 to practice what is claimed in Claim 28 of Sung '479?

22 A. I'm not sure.

23 Q. So you're just not sure one way or the other
24 if a POSITA, with some experiments, would be able to
25 practice what's claimed in Claim 28 of Sung '479,

1 correct?

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

4 THE WITNESS: Well, doing researches, a person
5 should be able to think of a very good point. Like me,
6 I have been doing the diamond disks for many years. I
7 still cannot think of defining the distance of the tip
8 heights, meaning that I did not think of that point. So
9 a person should be very agile and keen in order to
10 observe and to think of that very good, remarkable
11 point. That's important.

12 BY MR. HA:

13 Q. You defined what qualifies as a POSITA,
14 correct?

15 A. Yes.

16 Q. And with that definition in your mind, I'm
17 going to ask the question one more time.

18 Not anybody, not some random person, a POSITA.
19 Okay?

20 Would a POSITA be able to practice what's
21 claimed in Claim 28 of Sung '479 with some experiments?

22 MR. CHAN: Objection. Form.

23 THE WITNESS: (In English) Maybe yes, maybe
24 not.

25 (In Chinese) Maybe yes, maybe no.

1 MR. HA: Okay. Let's take a little break. I
2 need to go to -- let's go off the record.

3 (A recess was taken from 8:26 p.m. to 8:46
4 p.m.)

5 BY MR. HA:

6 Q. Sir, remember when we were talking about the
7 claims of the '270 patent inherently discussing working
8 particles because the highest protruding particles must
9 necessarily function as the working particle?

10 Do you remember that testimony?

11 MR. CHAN: Object to form. Misstates the
12 testimony.

13 THE WITNESS: It seems that I did not mention
14 about this term, "working particle."

15 THE CHECK INTERPRETER: Correction: "It seems
16 that '270 does not mention working particle."

17 BY MR. HA:

18 Q. Let's go back to paragraph 58 of your '270
19 declaration.

20 Do you remember when we were talking about
21 paragraph 58, Dr. Tsai?

22 A. I'm not sure.

23 Q. Okay. Well, paragraph 58, you stated this is
24 your opinion: "The '270 patent focuses only on the
25 working particles."

1 That's your opinion, correct?

2 A. Yes.

3 Q. And you also just testified, as the check
4 interpreter interpreted, "It seems that the '270 patent
5 does not mention working particle."

6 Correct?

7 A. In the claims of '270 patent, they did not
8 mention about this term.

9 Q. Okay. And earlier, you said the '270 patent
10 focuses only on the working particles, because you said
11 the highest protruding tip always functions as the
12 working particles, correct?

13 A. Yes.

14 Q. I want to take you to a hypothetical.

15 Let's say you're able to make a CMP pad
16 dresser on a completely flat substrate where all of the
17 diamond particles are identical to one another and they
18 are protruding exactly the same amount from the
19 substrate, and you mount that CMP pad dresser onto the
20 CMP pad conditioning system, apply a three-kilogram
21 pressure on to a polyurethane CMP pad.

22 In that hypothetical, are all the diamond
23 particles working as -- sorry -- are all the diamond
24 particles functioning as a working particle?

25 MR. CHAN: Objection. Form. Hypothetical.

1 THE WITNESS: I did not perform any experiment
2 like this, so I'm not sure.

3 BY MR. HA:

4 Q. I'm not asking for your past experience, I'm
5 asking for your expert opinion, whether, in this
6 particular hypothetical that I gave you -- what your
7 opinion is, whether all of those particles are working
8 particles or nonworking particles.

9 MR. CHAN: Objection. Form.

10 THE WITNESS: It is not possible to make all
11 these diamond particles with the same identical height.

12 BY MR. HA:

13 Q. I understand. That's why it's a hypothetical.

14 In this hypothetical system, when you make all
15 of the diamond particles protrude identically from the
16 substrate and you apply a three-kilogram load onto a
17 polyurethane CMP pad, would all of those particles
18 function as a working particle?

19 MR. CHAN: Objection. Form.

20 THE WITNESS: Because it's not possible to
21 make the identical height for those particles, so I'm
22 not sure.

23 BY MR. HA:

24 Q. So you can't provide an opinion whether, in
25 this particular hypothetical -- how many of those

1 diamond particles would be functioning as a working
2 particle?

3 MR. CHAN: Objection. Form.

4 THE WITNESS: From that, I need to perform
5 experiments in order to make that determination.

6 BY MR. HA:

7 Q. So without experiments, you cannot provide an
8 opinion whether identically protruding particles applied
9 at three kilograms onto a polyurethane CMP pad would
10 function as working particles, correct?

11 MR. CHAN: Objection. Form.

12 THE WITNESS: Because a pad is not entirely
13 flat or rigid. Therefore, I cannot determine that.

14 BY MR. HA:

15 Q. Okay. Then let me give you a different
16 hypothetical, okay?

17 You make a CMP pad dresser with only two
18 diamond particles, okay?

19 And those two particles protrude identical
20 distances away from the substrate.

21 If you applied that CMP pad dresser onto a
22 polyurethane CMP pad at a three-kilogram applied load,
23 would both of those particles function as working
24 particles?

25 MR. CHAN: Objection. Form. Hypothetical.

1 THE WITNESS: As I said, if a pad is a rigid
2 one, then it's possible.

3 BY MR. HA:

4 Q. Okay. Then let's change the hypothetical.

5 If you applied a CMP pad dresser with two
6 identically protruding diamond tips onto a rigid CMP pad
7 at a three-kilogram applied load, would both of those
8 particles function as working particles?

9 MR. CHAN: Objection. Form. Hypothetical.

10 THE WITNESS: Maybe, yes.

11 BY MR. HA:

12 Q. Okay. At what rigidity does -- strike that.

13 At what rigidity of the CMP pad allows you to
14 provide your opinion whether these particles function as
15 working particles or not?

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

18 THE WITNESS: I'm not sure. I'm not able to
19 provide the accurate data.

20 BY MR. HA:

21 Q. Okay. Then let's go back to the rigid CMP pad
22 example.

23 If you make a CMP pad dresser with a thousand
24 diamond particles that protrude identically from the
25 substrate, and you applied that CMP pad dresser onto a

1 rigid CMP pad, would all thousand diamond particles
2 function as a working particle?

3 MR. CHAN: Objection. Form. Hypothetical.

4 THE WITNESS: Maybe yes, maybe no.

5 BY MR. HA:

6 Q. Now, what happens if you make -- new
7 hypothetical. Sorry.

8 Now, what happens if you make a CMP pad
9 dresser with two diamond tips that have protrusion
10 difference between the two at one micron?

11 Are you with me?

12 A. Yes.

13 Q. And you applied that CMP pad dresser onto a
14 rigid CMP pad, how many of those particles function as
15 working particles?

16 MR. CHAN: Objection. Form. Hypothetical.

17 I would caution that this question is veering
18 towards an infringement question, and I'll give the
19 witness some latitude to respond, but if we have more
20 questions regarding noninfringement or infringement, I'm
21 going to ask the witness to stop responding.

22 With that said, you may answer, if you know
23 the answer to his question.

24 THE WITNESS: I'm not sure.

25

1 BY MR. HA:

2 Q. Same hypothetical except two diamond tips have
3 a protrusion difference between the two of 15 microns.

4 If you apply that CMP pad dresser with
5 15-micron difference in protrusion distance between the
6 two diamond particles and applied it at three kilograms
7 onto a rigid CMP pad, how many of those particles
8 function as a working particle?

9 MR. CHAN: Same objection. Form. And same
10 caution.

11 THE WITNESS: I'm not sure.

12 BY MR. HA:

13 Q. What happens if -- same hypothetical.
14 What happens if the CMP pad is able to deform
15 such that the highest protruding tip is able to
16 penetrate 15 microns into the CMP pad? How many of
17 those particles function as working particles?

18 MR. CHAN: Same objection. Form.
19 Hypothetical. And same caution.

20 THE WITNESS: If you are sure that it
21 penetrates 15 microns into the pad, then, of course, the
22 second particle will touch the pad.

23 BY MR. HA:

24 Q. So both the highest protruding tip and the
25 second highest protruding tip function as working

1 particles?

2 MR. CHAN: Same objection. Form.

3 THE WITNESS: So if you're sure that the
4 difference of the distance is exactly 15 micron and
5 penetrating into the pad exactly 15 micron, of course,
6 the second particle touches the pad, and it is a working
7 particle.

8 THE CHECK INTERPRETER: The witness said "Yes"
9 in the beginning.

10 BY MR. HA:

11 Q. Okay. So both particles are working particles
12 in that hypothetical, correct?

13 A. Of course, they are, but however, the workload
14 or level of work would be different between the two.

15 Q. Based on your years of experience in the field
16 of CMP pad conditioning, approximately how many microns
17 does the diamond particles penetrate into a CMP pad made
18 of polyurethane when you apply a three-kilogram load?

19 MR. CHAN: Objection. Form. Relevance.
20 Beyond the scope.

21 THE WITNESS: (In English) I'm not sure.

22 BY MR. HA:

23 Q. Do you need any more information to be able to
24 answer that question?

25 A. Well, if it's me personally, I need to do some

1 experiments.

2 Q. What experiments?

3 A. I need to think about it. It is my Ph.D.
4 thesis. Of course, I would do my best.

5 Q. So you'd need about Ph.D. level of work to be
6 able to determine how much diamond particles penetrate
7 into a CMP pad made of polyurethane when you apply a
8 three-kilogram load?

9 MR. CHAN: Same objection. Form.
10 Hypothetical. Beyond the scope.

11 THE WITNESS: I was just talking about that.
12 If -- for this kind of a research, if a person is given
13 the pressure, of course, he may have the motivation to
14 try to figure out how to do it.

15 BY MR. HA:

16 Q. You never figured out how much diamond
17 particles penetrate into a CMP pad made of polyurethane
18 when you apply a three-kilogram load?

19 MR. CHAN: Same objection. Form. Relevance.
20 Beyond the scope.

21 THE WITNESS: I'm exhausted, but my answer is
22 that for this kind of experiment, I think that we think
23 that it's worse for us to think about it, and probably,
24 we would think of do it, do this experiment.

25

1 BY MR. HA:

2 Q. I'm not sure if I understood your answer.

3 You've never figured out how much diamond
4 particles penetrate into a CMP pad made of polyurethane
5 when you apply a three-kilogram load?

6 MR. CHAN: Same objection. Form. Relevance.
7 Beyond the scope.

8 THE WITNESS: Actually, we were thinking of
9 doing this experiment, but we have not yet done that.

10 BY MR. HA:

11 Q. Understood.

12 A. Let me rephrase the answer.

13 Actually, I was thinking of doing this
14 experiment, but I have not yet done that.

15 Q. So you personally do not know?

16 A. Yes.

17 Q. Okay. We've got 30 minutes, so let's start
18 going through those.

19 Do you remember earlier, we were asking about
20 your coauthored papers with Dr. Sung?

21 A. Yes.

22 MR. HA: This will be just very quick. We are
23 going to mark this as Exhibit 1042.

24 (Tsai Deposition Exhibit 1042 was marked for
25 identification and is attached to the transcript.)

1 BY MR. HA:

2 Q. Dr. Tsai, do you recognize this paper?

3 MR. CHAN: Counsel, this is not one of the
4 exhibits already of record, am I right?

5 MS. AVENA: This is not.

6 MR. CHAN: Okay, thank you.

7 THE WITNESS: Yes.

8 BY MR. HA:

9 Q. This is a paper you published in 2008 with
10 Dr. Sung?

11 A. Yes.

12 Q. Okay.

13 MR. HA: Also marking another document as
14 Exhibit 1043.

15 (Tsai Deposition Exhibit 1043 was marked for
16 identification and is attached to the transcript.)

17 MR. HA: And I'll give you this right after I
18 read it, okay?

19 MR. CHAN: Yes.

20 MS. AVENA: It's also 203, 862, if you have
21 those. 203 and 862.

22 BY MR. HA:

23 Q. Do you recognize this paper?

24 A. Yes.

25 Q. This is also another paper that you published

1 with Dr. Sung in 2009, correct?

2 A. Yes.

3 MR. HA: Next one, marking another document as
4 Exhibit 1044.

5 (Tsai Deposition Exhibit 1044 was marked for
6 identification and is attached to the transcript.)

7 BY MR. HA:

8 Q. Do you recognize a copy of this paper,
9 Dr. Tsai?

10 A. Yep.

11 Q. This is another paper that you published in
12 2009 with Dr. Sung, correct?

13 A. Yes.

14 MR. CHAN: This one is 1043, right?

15 MS. AVENA: 1044.

16 MR. HA: Marking yet another document as
17 Exhibit 1045.

18 (Tsai Deposition Exhibit 1045 was marked for
19 identification and is attached to the transcript.)

20 BY MR. HA:

21 Q. Do you recognize this paper?

22 A. Yes.

23 Q. This is yet another paper you published in
24 2010 with Dr. Sung, correct?

25 A. Yes.

1 MR. HA: Marking another document as Exhibit
2 1046.

3 (Tsai Deposition Exhibit 1046 was marked for
4 identification and is attached to the transcript.)

5 BY MR. HA:

6 Q. Do you recognize this document?

7 A. Yes.

8 Q. And this is yet another paper that you
9 published with Dr. Sung in 2010, correct?

10 A. Yes.

11 MR. HA: Marking the next document as Exhibit
12 1047.

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

15 BY MR. HA:

16 Q. Do you recognize this document?

17 A. Yes.

18 Q. And this is another paper that you published
19 in 2010 with Dr. Sung, correct?

20 A. Yes.

21 MR. HA: Marking another document Exhibit
22 1048.

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

25 BY MR. HA:

1 Q. Do you recognize this document?

2 A. Yes.

3 Q. This is yet another document -- sorry, this is
4 yet another paper that you published with Dr. Sung in
5 2012, correct?

6 A. Yes.

7 MR. HA: And I think this is the next one.

8 Finally, marking another document as Exhibit
9 1049.

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

12 BY MR. HA:

13 Q. Do you recognize this document, Dr. Tsai?

14 A. My name is on it.

15 Q. And you published this paper in 2015 with
16 Dr. Sung, again, correct?

17 A. This was a thesis authored by a student.
18 It's -- the name is Jihng Kuo Ho.

19 He should be a student of Taipei University.
20 He came here to borrow the instruments to do
21 experiments. He should also worked with Kinik. Because
22 he borrowed the instruments from me. Therefore, he also
23 put my name on it.

24 Make a correction of the university. It is
25 Taipei University of Technology -- National Taipei

1 University of Technology, and there was a number of
2 students from that university at the time that worked
3 with Kinik, and because of that, they also put
4 Dr. Sung's name on this paper.

5 Q. So this paper has both your name and
6 Dr. Sung's name, and was published in 2015, correct?

7 A. Yes.

8 Q. Okay.

9 MR. HA: And per agreement among all the
10 parties when we were off the record, I think we agreed,
11 for scheduling purposes, to keep this deposition open
12 and resume on Wednesday.

13 Are you in agreement, Counsel?

14 MR. CHAN: Yes, with the proviso that I need
15 to know how much time we have left.

16 Can the court reporter give us an estimate of
17 the time remaining?

18 THE COURT REPORTER: Twenty minutes.

19 MR. CHAN: Twenty minutes.

20 Just for the record, the time, as estimated,
21 calculated, does not include the translation time.

22 Is this accurate?

23 THE COURT REPORTER: Do you want to go off the
24 record?

25 MR. CHAN: I want this to be on the record.

1 So it sounds like it is correct, but unless
2 counsel for petitioner disagrees, then -- it sounds like
3 the record time does not reflect translation time.

4 MR. HA: We can figure out exactly how much
5 time we spent and resume and come to an agreement on
6 Wednesday. The other thing is, as I noted to you
7 earlier, Counsel, I'm going to reach out to the Board
8 for additional time, given how long this has taken for
9 not only the '270, but as well as the '862 and the '802,
10 just in case we need it, and we will be conferring about
11 that.

12 So I just wanted to put that on the record as
13 well.

14 MR. CHAN: Okay. We'll disagree, but we will
15 confer and discuss the next step.

16 MR. HA: Okay. Off the record.

17

18 (Off the record at 9:29 p.m.)

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ACKNOWLEDGMENT OF DEPONENT

I, MING-YI TSAI, do hereby acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct and complete transcription of the testimony given by me and any corrections appear on the attached Errata sheet signed by me.

(DATE)

(SIGNATURE)

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CERTIFICATE OF SHORTHAND REPORTER

I, Mark McClure, Certified Reporter within and
for the State of California, do hereby certify:

That MING-YI TSAI, the witness whose
deposition is hereinbefore set forth, was duly sworn by
me before the commencement of such deposition and that
such deposition was taken before me and is a true record
of the testimony given by such witness.

I further certify that the adverse party,
Chien-Min Sung, was represented by counsel at the deposition.

I further certify that the deposition of
MING-YI TSAI occurred at National Chin-Yi University of
Technology, No. 57, Section 2, Zhongshan Road, Taiping
District, Taichung City 411030, Taiwan, on Monday,
February 17, 2025, commencing at 12:59 p.m. to 9:29
p.m., Taipei Standard Time.

I further certify that I am not related to any
of the parties to this action by blood or marriage, I am
not employed by or an attorney to any of the parties to
this action, and that I am in no way interested,

1 financially or otherwise, in the outcome of this matter.

2

3 IN WITNESS WHEREOF, I have hereunto set my

4 hand this 27th day of February, 2025.

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A handwritten signature in blue ink, appearing to read "J. M. Tsai", is written over a horizontal line.

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9:13, 13:23,	28:4	9:19	36:19, 84:4
51:25, 96:20,	achieved	admit	agree
136:9, 136:16,	93:21	125:23	13:4, 103:3,
136:20, 136:24,	acknowledge	admitted	105:9
137:5, 137:20,	154:2	65:1	agreed
139:15, 142:18,	acknowledgment	adverse	152:10
144:14, 144:15,	59:2, 154:1	155:12	agreement
145:23, 146:6	acquaintance	advisor	152:9, 152:13,
above	48:7, 48:17	42:4	153:5
59:3	acquainted	advisor-professor	alex
abrasive	48:2	45:22, 47:8	3:4, 48:5,
117:8, 117:20,	action	affect	67:2, 81:11,
117:22, 117:25	155:23, 155:25	41:12, 117:19,	86:11, 89:14,
absolutely	actual	118:19, 119:9,	90:24, 123:14,
15:24, 29:15	31:23, 66:20	119:18, 119:19,	123:17, 124:14,
academic	actually	119:21, 120:6,	125:12
59:21, 59:23,	14:18, 15:18,	120:19, 120:23	aliases
107:6	16:19, 22:12,	after	64:13
accent	28:12, 30:24,	12:1, 45:25,	align
13:1	40:12, 43:1,	47:16, 49:10,	126:24
access	43:12, 45:8,	50:12, 52:23,	all
58:18	45:11, 46:8,	52:25, 53:1,	11:22, 12:19,
accidentally	47:6, 47:14,	55:25, 148:17	12:23, 17:23,
105:16	50:17, 52:14,	again	22:18, 24:10,
according	52:15, 53:9,	17:1, 17:15,	29:12, 37:16,
39:9	59:21, 70:18,	21:23, 36:25,	37:19, 50:23,
accordingly	70:22, 73:19,	40:9, 44:16,	51:2, 51:21,
104:4, 104:23,	81:23, 86:6,	47:23, 52:19,	54:16, 58:25,
109:23	87:6, 90:15,	69:10, 80:10,	68:3, 73:10,
accuracy	97:5, 104:20,	80:25, 85:23,	74:14, 77:24,
23:22	105:18, 115:6,	86:15, 86:22,	79:10, 80:7,
accurate	116:7, 147:8,	87:12, 91:3,	88:7, 88:12,
10:16, 10:25,	147:13	91:5, 91:10,	95:11, 95:12,
13:3, 16:7,	adapt	91:23, 92:10,	97:6, 102:2,
19:20, 20:5,	22:6, 27:16	100:24, 108:21,	102:13, 110:21,
21:19, 23:2,	adapted	109:23, 119:7,	111:6, 121:16,
24:5, 25:11,	99:25	120:15, 123:14,	136:12, 139:16,
25:25, 26:1,	add	123:15, 124:4,	139:22, 139:23,
26:10, 90:1,	24:16, 109:11,	151:16	140:7, 140:10,
118:10, 118:11,	110:7	against	140:14, 140:17,
118:15, 142:19,	addition	30:20, 30:25,	143:1, 152:9
152:22	14:10, 23:17,	33:8, 33:25,	allow
accurately	32:3, 104:17,	105:5, 121:14	27:13
10:8, 10:12,	105:22, 115:6,	agencies	allowed
12:13	136:15	42:7	12:4, 27:9,
	additional	agile	92:7
	55:4, 153:8	137:9	allows
			127:6, 142:13

almost 31:19 alone 99:1 along 17:14, 25:19, 92:13, 126:25, 131:1 already 24:4, 34:9, 47:9, 68:24, 77:2, 88:5, 89:22, 89:24, 91:12, 91:22, 98:19, 101:5, 148:4 also 4:8, 11:12, 11:25, 14:18, 14:20, 14:24, 16:2, 19:5, 22:20, 26:4, 30:16, 32:8, 48:9, 51:4, 52:3, 57:23, 64:12, 64:20, 64:24, 66:25, 67:15, 70:7, 72:12, 88:16, 90:22, 91:10, 92:24, 94:14, 97:11, 99:16, 105:25, 107:9, 108:24, 109:15, 112:15, 113:12, 115:25, 116:1, 116:2, 116:16, 116:20, 117:5, 118:14, 123:8, 125:5, 131:17, 133:5, 136:15, 139:3, 148:13, 148:20, 148:25, 151:21, 151:22, 152:3 although 29:14, 96:22, 105:10	always 120:17, 139:11 america 1:5, 3:11 among 84:16, 85:6, 86:9, 87:9, 92:19, 92:25, 93:6, 125:8, 152:9 amount 139:18 angle 57:1, 57:2 another 55:19, 93:18, 98:13, 98:15, 139:17, 148:13, 148:25, 149:3, 149:11, 149:16, 149:23, 150:1, 150:8, 150:18, 150:21, 151:3, 151:4, 151:8 answer 7:12, 10:7, 12:18, 12:19, 13:23, 15:22, 16:23, 17:1, 17:9, 17:12, 17:15, 18:3, 21:21, 21:25, 22:1, 22:15, 23:22, 24:25, 32:23, 32:25, 63:11, 64:21, 65:14, 68:4, 68:14, 68:17, 68:25, 69:4, 69:9, 70:20, 76:23, 77:13, 77:18, 77:23, 78:18, 78:20, 79:9, 80:2, 80:7, 80:14, 80:20, 81:10, 82:12, 83:20, 84:1, 84:7,	86:5, 86:12, 86:16, 86:22, 87:2, 87:4, 87:15, 89:11, 90:13, 98:3, 98:11, 98:20, 102:2, 113:24, 118:15, 120:11, 122:7, 124:4, 124:10, 126:1, 127:25, 128:18, 131:11, 136:19, 143:22, 143:23, 145:24, 146:21, 147:2, 147:12 answered 15:15, 16:9, 16:14, 16:15, 17:6, 17:7, 17:13, 25:2, 65:15, 77:2, 83:6, 86:14, 88:17, 88:19, 98:1, 98:9, 101:4, 110:10 answering 79:7, 80:8, 87:11, 87:18, 90:11, 91:5, 124:13, 125:24, 125:25 answers 8:21, 12:13, 87:18, 87:20, 89:13, 92:1, 92:3 any 9:25, 10:2, 10:7, 10:10, 13:15, 13:22, 13:24, 15:9, 19:2, 24:5, 27:9, 32:21, 38:1, 39:15, 41:25, 46:11, 50:3, 53:12, 55:10, 56:12, 56:15, 57:1,	58:4, 61:12, 61:15, 62:12, 63:3, 63:15, 63:16, 65:8, 65:22, 75:21, 75:24, 80:22, 83:3, 92:11, 98:18, 99:1, 100:15, 100:20, 109:11, 110:7, 110:24, 111:8, 112:12, 112:15, 117:1, 122:5, 123:16, 124:8, 126:2, 136:2, 140:1, 145:23, 154:5, 155:22, 155:24 anybody 30:5, 137:18 anymore 13:14, 34:8 anyone 59:22 anything 11:5, 21:9, 21:11, 22:8, 36:11, 36:17, 45:18, 113:14, 116:15 anyway 38:25, 49:20 apart 121:8 appeal 1:2 appear 154:5 appearances 3:25 appearing 3:3, 3:13, 4:1, 4:9, 4:12 appended 34:12 applicable 100:15, 100:20 application 68:12, 69:13,
---	--	--	---

69:18, 70:8, 70:21, 70:24, 71:11, 71:12, 71:15, 71:16, 72:10, 72:12, 72:20, 72:21, 78:6, 78:7 applications 25:15, 72:9, 72:11, 72:23, 74:16 applied 21:14, 141:8, 141:21, 141:22, 142:5, 142:7, 142:25, 143:13, 144:6 apply 25:15, 74:6, 112:15, 133:6, 139:20, 140:16, 144:4, 145:18, 146:7, 146:18, 147:5 approach 22:2, 22:4, 22:7, 101:6, 101:7 approaches 27:17 appropriate 24:24 approximate 18:23, 49:14, 55:22, 55:23 approximately 145:16 area 41:5 argued 64:5 argumentative 15:21, 18:2, 18:16, 21:20, 28:14, 29:8, 44:14, 48:4, 48:5, 51:10, 52:2, 52:13,	53:6, 56:24, 76:8, 99:6, 99:18, 100:12, 101:3, 133:22 around 116:20 arranging 128:7, 128:11, 128:16, 128:20, 129:4 arrow 31:12 art 112:25 article 64:4, 64:12, 64:24 arts 34:19 aside 20:1 asked 10:20, 16:1, 16:9, 16:10, 16:14, 17:6, 19:13, 25:2, 40:13, 89:15, 89:17, 97:25, 98:2, 98:8, 98:10 asking 8:20, 12:12, 18:20, 23:4, 23:20, 33:23, 44:3, 49:24, 62:21, 63:13, 69:2, 77:22, 79:1, 79:25, 80:8, 87:20, 88:7, 88:11, 88:14, 88:16, 91:7, 123:20, 124:3, 140:4, 140:5, 147:19 aspect 51:21, 93:22 asperities 25:21, 31:4,	31:14, 31:20, 32:1, 32:3, 32:10, 32:18 assign 45:22 assigned 49:2 assist 14:9 assistant 14:11, 37:7 assume 11:11, 23:4, 92:6, 121:6, 121:17 attached 5:9, 6:2, 7:3, 66:18, 67:19, 67:23, 71:25, 109:19, 147:25, 148:16, 149:6, 149:19, 150:4, 150:14, 150:24, 151:11, 154:6 attend 131:20 attention 45:11, 45:17, 45:23, 97:11 attorney 25:5, 97:12, 97:14, 155:24 attorney-client 13:22 attorneys 1:14 august 34:23, 37:2, 39:24, 64:4 austin 1:7, 3:12 author 59:5, 60:18 authored 151:17 authorized 24:14, 24:15 avena 4:2, 58:17,	148:5, 148:20, 149:15 avenue 3:6, 3:16, 4:4 aware 62:14, 63:22, 64:3, 64:12, 64:24, 103:19, 132:19, 133:2, 133:5 away 131:16, 131:25, 141:20 B bachelor 34:18, 107:18 bachelor's 34:25, 35:4, 35:10, 35:18, 36:2, 102:23, 103:4, 104:6, 104:14, 105:7, 106:23, 108:6, 108:16, 109:5 back 9:8, 17:2, 17:18, 18:20, 23:25, 25:8, 27:16, 30:6, 34:13, 40:9, 43:23, 45:7, 45:14, 49:23, 50:5, 50:10, 52:16, 54:20, 55:6, 66:20, 72:21, 81:18, 96:24, 108:1, 109:9, 126:21, 138:18, 142:21 background 20:20, 34:16, 107:6 bad 28:17 balance 132:1 based 35:20, 45:4,
---	--	--	--

61:23, 69:5, 73:6, 74:5, 90:7, 113:14, 114:13, 114:23, 122:10, 122:23, 123:3, 124:21, 125:16, 135:10, 145:15 basic 20:5 basis 63:6, 63:8, 63:9, 63:10, 80:22, 113:7, 113:9, 113:14, 115:10 bearing 23:22, 24:5 because 13:8, 23:4, 23:6, 24:7, 28:17, 32:20, 40:3, 40:12, 41:1, 45:7, 45:10, 48:6, 48:8, 49:6, 50:23, 51:16, 56:4, 58:12, 67:11, 80:21, 84:12, 86:12, 88:9, 91:7, 91:11, 91:16, 101:15, 108:24, 112:5, 115:25, 117:18, 119:17, 120:6, 122:5, 128:22, 131:18, 131:24, 134:21, 135:1, 138:8, 139:10, 140:20, 141:12, 151:21, 152:3 become 48:2, 68:21, 74:19, 117:11, 117:16, 118:3, 118:20, 119:10, 119:20, 120:8	becomes 118:8 been 8:8, 10:5, 13:13, 22:2, 26:21, 29:22, 36:19, 47:17, 51:25, 63:2, 64:6, 80:17, 84:4, 103:19, 129:9, 137:6 before 1:2, 2:19, 10:5, 13:20, 16:19, 43:9, 43:12, 43:16, 44:7, 44:10, 44:21, 46:10, 48:14, 56:8, 56:10, 75:22, 75:25, 76:21, 77:1, 83:4, 83:7, 83:9, 83:18, 84:22, 103:13, 155:8, 155:9 began 44:7, 44:11, 44:21, 45:19, 45:25, 113:24 begin 20:4 beginning 21:23, 106:9, 145:9 begins 69:17, 97:19, 106:10, 110:20, 128:11 behalf 3:2, 3:10, 68:17 behaviors 6:6 being 31:14, 31:20, 78:16, 78:17, 82:9, 88:12,	92:10, 101:8, 101:20, 103:13, 115:16, 122:25, 123:23 belief 102:19 believe 13:15, 13:17, 26:20, 29:9, 33:4, 36:16, 37:3, 38:8, 39:9, 43:5, 48:25, 55:15, 60:1, 66:10, 68:5, 86:8, 87:8, 92:7, 98:2, 98:9, 104:4, 104:12, 104:23, 105:10, 107:8, 108:22, 109:24, 123:1, 123:2, 123:4, 123:7 believed 133:20, 134:20 believes 9:4, 133:11, 134:1 below 21:1, 21:13 best 9:14, 80:20, 91:21, 92:9, 146:4 better 43:17, 47:3, 47:5, 47:10, 47:12, 81:8, 90:20, 91:2, 96:16, 107:24, 108:23, 109:1 between 16:20, 34:22, 37:4, 40:8, 42:4, 46:24, 51:22, 54:12, 54:22, 63:23, 75:12, 75:19,	78:1, 82:21, 82:23, 85:25, 86:3, 86:24, 87:3, 89:8, 90:8, 94:3, 94:7, 115:6, 124:22, 126:16, 130:18, 143:10, 144:3, 144:5, 145:14 beyond 15:10, 32:11, 63:7, 77:8, 77:19, 81:5, 145:20, 146:10, 146:20, 147:7 big 27:23, 42:8, 42:13 bit 34:7, 34:16, 105:10, 110:12, 120:22 black 6:12 blood 155:23 board 1:2, 62:19, 62:23, 78:21, 78:24, 79:24, 86:12, 87:16, 87:17, 88:14, 90:4, 91:24, 125:11, 125:12, 125:16, 126:4, 126:7, 153:7 bodd 6:15 borrow 151:20 borrowed 151:22 boss 47:8, 49:24, 51:12, 51:22 both 41:2, 54:2,
--	--	---	---

54:8, 66:10, 94:1, 94:6, 94:11, 95:6, 115:18, 115:19, 122:1, 141:23, 142:7, 144:24, 145:11, 152:5 bottom 25:20 boundary 111:22 break 29:23, 30:1, 31:17, 34:3, 65:25, 66:1, 66:3, 81:13, 96:8, 96:10, 96:12, 106:14, 110:13, 123:24, 124:1, 124:9, 138:1 bring 9:25, 10:2, 58:13 bringing 119:25, 120:5 broad 73:21 broke 132:3 C calculated 152:21 california 2:20, 155:4 call 14:16, 15:3, 131:12 called 20:22, 26:4, 48:6, 63:23, 69:18, 133:7 calling 86:11, 132:22 calls 131:20 came 16:2, 40:9,	117:12, 151:20 can't 32:25, 54:17, 56:4, 81:12, 84:13, 123:18, 128:24, 130:2, 140:24 cannot 9:12, 10:7, 17:22, 33:9, 47:18, 47:19, 55:23, 56:3, 56:6, 61:17, 61:18, 62:11, 80:21, 84:7, 124:3, 131:18, 135:16, 137:7, 141:7, 141:13 capability 13:6, 52:4 capable 108:20 care 9:9, 45:18, 52:20, 97:5, 131:19 careful 24:8 caring 45:8 carry 46:6 case 26:2, 60:10, 87:24, 104:7, 131:19, 153:10 cause 41:15, 117:22 caused 50:11 caution 13:21, 25:4, 143:17, 144:10, 144:19 cautioning 98:15 cease 55:14	center 52:11 certain 28:7 certainly 80:18 certificate 155:1 certified 2:20, 13:2, 155:3 certify 155:4, 155:12, 155:15, 155:22 chairman 52:15 challenge 13:1 chan's 23:24 chance 21:5, 48:9, 61:19, 107:24 chances 136:3, 136:6 change 34:7, 47:23, 52:4, 108:4, 109:4, 110:12, 142:4 characteristics 5:12, 28:7, 28:13, 53:22, 66:9, 66:13 characterization 13:5 charges 65:1 check 4:13, 10:19, 16:8, 26:16, 27:14, 27:25, 28:3, 35:20, 36:5, 36:8, 41:19, 43:15, 45:10, 50:9, 53:14, 56:1, 57:12, 70:2,	74:24, 89:6, 90:22, 91:18, 93:19, 97:14, 99:11, 100:18, 106:8, 107:7, 118:14, 123:6, 125:9, 127:12, 127:13, 129:19, 134:16, 138:15, 139:3, 145:8 checked 16:6, 18:6 checking 53:15 chemical 5:21, 20:22, 21:13, 38:17, 38:19, 106:20 chemistry 107:2, 107:16 chien-min 1:10, 3:2, 64:7, 155:13 chin-yi 2:5, 155:16 china 40:3, 42:14, 59:6 chinese 8:5, 8:25, 19:24, 20:3, 23:12, 23:25, 26:17, 36:15, 37:14, 37:18, 37:22, 38:19, 38:25, 40:1, 40:20, 42:13, 42:16, 44:18, 45:7, 48:8, 48:24, 60:1, 60:21, 91:11, 115:24, 127:13, 133:17, 137:25 chung 36:21 chunks 123:24, 124:2, 124:10
--	---	--	---

circle 17:2, 18:20, 55:6 circuit 36:18, 37:19, 37:23, 38:2, 39:7, 41:13, 43:10, 43:13, 43:17, 43:21, 44:4, 95:12, 95:14, 95:19, 95:23, 99:8, 99:20 circuits 26:14, 29:20, 97:24, 99:5 city 1:18, 2:9, 9:21, 155:18 claim 72:10, 72:12, 95:25, 96:2, 96:3, 96:5, 96:6, 96:20, 97:1, 97:10, 97:12, 97:19, 110:16, 110:20, 110:24, 111:3, 112:17, 115:17, 121:2, 122:10, 122:23, 124:21, 128:6, 128:9, 128:12, 128:17, 129:3, 129:7, 130:22, 130:24, 131:7, 132:7, 132:20, 132:21, 134:1, 134:2, 134:8, 134:21, 136:10, 136:21, 136:25, 137:21 claimed 97:7, 133:13, 136:10, 136:21, 136:25, 137:21 claiming 71:18 claims 72:20, 111:7,	111:9, 111:19, 111:21, 112:1, 112:10, 113:14, 114:14, 114:24, 115:10, 125:22, 125:24, 130:4, 130:11, 130:19, 138:7, 139:7 clarification 9:5, 22:22, 92:12, 120:25 clarify 11:6, 11:10, 17:17, 91:7, 103:12 class 13:9, 27:6 clean 32:4 clear 8:15, 8:22, 8:23, 9:6, 11:2, 11:3, 11:20, 12:15, 12:16, 12:21, 15:8, 29:14, 32:4, 35:25, 42:18, 46:16, 48:20, 60:24, 72:15, 80:4, 80:16, 82:12, 82:13, 91:4, 92:11, 92:14, 98:13, 103:8, 109:3, 112:18 clearer 72:16 clearly 23:15, 82:6, 93:5, 94:23 clerical 102:11 clock 126:5 close 86:11 cnc 37:9, 37:11,	37:16, 37:19, 38:1, 38:5 co-authors 54:3 co-operation 124:4 coaching 24:12, 25:5, 98:14 coauthor 61:2 coauthored 53:4, 53:9, 54:10, 147:20 colleague 55:4 collective 55:2 collectively 16:3, 57:21 college 107:3, 107:12, 108:9, 108:18, 108:21 column 75:15, 82:24, 97:1, 97:4, 110:20, 110:21, 115:13 columns 76:13, 76:16, 76:20, 76:25, 83:8, 83:17, 84:1, 84:11, 84:21 combing 26:6 come 29:12, 57:3, 153:5 coming 31:11 commencement 155:8 commencing 155:19 comment 59:14, 62:12,	136:2 commentary 9:4 comments 57:17, 57:22, 59:18, 61:6 common 108:12 communicating 8:16 communication 51:21 communications 13:22, 13:24 companies 42:23 company 51:22, 52:12, 55:19, 59:5, 59:9, 60:5, 60:22, 63:16, 63:23 compare 93:8, 93:11, 105:5 compiled 16:4 complete 51:25, 154:4 completed 16:3, 34:25, 35:4 completely 48:8, 132:3, 139:16 components 38:4 composed 41:2 composition 99:22, 127:4 computer 37:12, 37:14 concept 71:18 concepts 129:23 conclusion 126:14, 132:23,
--	---	--	---

135:7 conclusions 135:5 condition 26:15, 31:23, 99:24, 100:7, 100:10, 101:1, 101:11, 101:23, 102:5, 102:8 conditioner 26:5, 58:22 conditioners 5:20, 6:7, 6:9 conditioning 27:22, 97:19, 97:23, 99:16, 100:2, 139:20, 145:16 conditions 29:19 conduct 134:17 confer 153:15 conferred 39:25, 44:17 conferring 153:10 confidential 1:14 confused 11:18, 32:5, 88:9 consequences 11:1 consider 56:19 considering 88:13 consulting 64:14 contact 31:13, 32:9, 33:1, 41:5, 55:20, 113:13 contacted 60:4 contacting 41:8, 113:22	contacts 41:4 contained 16:13, 17:4, 17:11, 18:10 content 82:4, 89:1 contents 16:5, 17:23, 18:5, 18:6, 18:13, 68:14, 85:6, 85:15, 85:24, 86:23 continuation 70:24, 71:3, 71:11, 71:15, 72:9 continuation-in-- part 69:18, 69:24, 70:7, 70:13, 70:17, 70:21, 71:12, 71:16, 72:11, 78:6, 78:7 continue 25:7, 29:24, 62:21, 63:13, 70:6, 91:24, 98:21, 110:14, 110:15 continued 3:25, 52:22 continues 110:21 continuing 53:1, 71:7, 96:18 contribution 76:10 control 37:12, 37:14 conversation 8:19 conversations 61:12 conversion 56:2	convicted 62:15, 63:3, 65:8 cooling 6:18 cooperate 53:1 cooperated 57:13 cooperating 124:6 copy 14:12, 20:7, 34:9, 53:20, 58:10, 66:21, 66:25, 67:7, 67:8, 67:9, 67:14, 67:15, 71:21, 72:4, 104:9, 104:10, 108:15, 127:18, 128:2, 149:8 corporation 42:21 corporations 64:14 correction 16:9, 41:19, 89:7, 106:8, 134:16, 138:15, 151:24 corrections 154:5 correctly 26:13 could 13:1, 16:24, 39:10, 41:6, 42:7, 47:16, 49:19, 51:16, 52:4, 60:11, 70:23, 73:2, 91:11, 93:17, 96:6, 102:5, 117:11, 117:16, 124:1 council 39:18, 59:6	counsel 12:23, 13:19, 14:8, 15:7, 16:1, 16:4, 19:13, 22:12, 23:4, 24:20, 25:3, 30:5, 54:8, 65:24, 66:11, 68:16, 69:2, 77:21, 92:6, 103:8, 148:3, 152:13, 153:2, 153:7, 155:13 counsel's 13:4, 63:20 couple 31:18 course 11:15, 13:12, 16:4, 22:3, 33:13, 46:11, 47:7, 47:8, 57:21, 57:22, 60:16, 61:19, 70:22, 71:6, 74:14, 98:4, 99:9, 120:20, 125:2, 144:21, 145:5, 145:13, 146:4, 146:13 courses 37:9 court 13:1, 25:6, 30:4, 152:16, 152:18, 152:23 courteous 90:23 courtesy 91:2 cover 112:1, 112:11 covering 41:1, 85:5, 85:11 covers 73:20, 85:19,
---	---	--	---

85:23, 86:20, 86:22, 89:2, 115:7 covid 56:8 crime 62:15 crimes 63:3, 65:8, 65:11 criminal 64:25, 90:19, 92:1 critical 27:8, 27:12, 27:15 cross 108:16 crr 1:25 crucial 126:23 culture 60:1 current 9:19, 9:22, 9:23 currently 19:16, 22:16, 55:7, 100:16, 101:7, 101:16 cutting 26:6, 31:4 cv 34:12, 34:22	decided 17:19 decipher 124:7 declaration 5:16, 5:18, 14:13, 14:24, 15:18, 15:20, 17:5, 17:11, 18:1, 18:10, 20:12, 34:9, 34:13, 68:5, 71:22, 72:4, 72:8, 78:2, 78:11, 79:11, 79:16, 79:19, 79:21, 81:9, 81:24, 82:3, 82:5, 82:19, 102:12, 102:14, 102:15, 103:21, 103:22, 104:19, 104:20, 105:15, 108:2, 109:9, 109:16, 109:22, 110:6, 111:11, 111:13, 111:15, 112:21, 125:21, 126:10, 126:14, 129:15, 130:3, 130:7, 131:6, 132:7, 133:8, 138:19 declarations 13:20, 14:20, 15:13, 16:13, 17:3, 17:19, 17:21, 18:15 defendants 3:10 define 89:4, 93:14, 111:22, 136:17 defined 75:11, 93:5, 137:13 defines 84:16, 85:6,	92:18, 92:24, 112:17, 125:7 defining 137:7 definitely 125:16 definition 89:8, 103:18, 105:19, 106:2, 137:16 deform 32:17, 33:1, 144:14 deformation 33:13, 33:16, 33:19 deformations 33:10, 34:1 degree 13:9, 34:19, 35:1, 35:11, 35:19, 36:2, 38:6, 38:10, 38:21, 39:16, 45:21, 46:4, 46:23, 47:15, 49:2, 49:17, 102:24, 103:5, 104:6, 104:14, 105:7, 105:12, 106:22, 107:12, 107:23, 108:6, 108:7, 108:9, 108:10, 108:14, 108:24, 109:5, 109:6 delaware 3:7 department 40:13 depending 117:10, 117:14, 117:25 depends 58:1, 72:19, 115:25, 116:1, 116:2 depicts 114:2	deponent 154:1 deposed 10:5, 78:16, 78:17, 82:9, 123:23 deposition 1:16, 2:3, 5:10, 6:3, 7:4, 8:18, 11:14, 15:8, 16:17, 18:22, 18:24, 19:3, 21:24, 24:8, 25:7, 66:17, 67:18, 67:22, 71:24, 78:13, 90:16, 90:17, 109:18, 119:1, 125:13, 126:6, 131:11, 147:24, 148:15, 149:5, 149:18, 150:3, 150:13, 150:23, 151:10, 152:11, 155:7, 155:8, 155:9, 155:13, 155:15 depositions 11:15 describe 94:23, 125:5 described 81:23, 114:19, 126:24 describes 93:14, 113:16, 122:15 description 94:5, 127:4 design 39:2, 44:12, 44:23, 44:25, 45:3, 46:1, 46:18, 46:20, 46:25, 47:12, 47:15, 100:11, 101:2, 101:11, 101:17, 101:23,
D			
data 68:12, 69:3, 69:13, 93:20, 142:19 date 47:11, 72:24, 154:11 day 156:4 decide 49:6, 49:13			

105:1, 110:1 designated 126:25, 131:1 designed 26:21, 27:1, 28:10, 29:13 designing 27:4, 27:12, 28:6, 29:3, 45:19, 46:12, 105:21 desirable 28:7, 28:12 desired 28:23, 29:4 desmarais 3:15, 4:3 detail 42:9, 47:18, 75:4, 77:5 detailed 73:20, 105:25 details 126:23 determination 141:5 determine 29:5, 116:22, 120:7, 141:13, 146:6 develop 44:13, 44:23, 45:1, 46:1, 46:20, 46:25, 47:13, 62:22, 100:11, 101:2, 101:12, 101:24, 102:3 developed 26:21, 27:1, 27:19, 28:11, 29:17, 64:15 developing 27:4, 104:25, 109:25 development 6:18, 28:16, 39:2, 105:1,	110:2 device 14:9 devlin 3:5 diagram 6:15, 31:6, 31:7, 31:10, 32:6 diamond 5:11, 6:9, 6:16, 26:4, 26:7, 27:8, 27:12, 27:13, 27:17, 27:18, 27:21, 27:24, 30:16, 30:19, 30:24, 31:4, 31:13, 32:8, 32:16, 33:1, 33:8, 33:24, 40:21, 40:22, 41:1, 41:2, 41:3, 41:4, 41:8, 41:12, 41:15, 41:17, 41:20, 41:22, 43:8, 45:8, 45:12, 45:18, 45:24, 46:9, 46:12, 46:18, 47:4, 47:15, 49:25, 50:6, 50:12, 52:11, 53:21, 56:5, 58:22, 66:9, 66:12, 74:15, 95:5, 95:7, 95:9, 95:11, 99:22, 99:23, 100:6, 100:16, 100:21, 101:8, 101:10, 101:12, 101:15, 101:21, 101:22, 101:24, 102:7, 105:21, 106:1, 113:17, 113:19, 114:3,	116:8, 116:10, 116:17, 116:19, 117:23, 121:11, 137:6, 139:17, 139:22, 139:23, 140:11, 140:15, 141:1, 141:18, 142:6, 142:24, 143:1, 143:9, 144:2, 144:6, 145:17, 146:6, 146:16, 147:3 diamonds 64:16, 119:19, 119:22 difference 113:16, 124:22, 126:15, 143:10, 144:3, 144:5, 145:4 differences 82:23, 86:3, 87:3, 93:15 different 12:5, 25:14, 25:15, 25:16, 26:20, 26:25, 27:5, 28:6, 29:11, 29:17, 32:15, 32:21, 33:17, 40:4, 41:8, 42:7, 48:8, 48:17, 55:5, 58:12, 71:11, 71:15, 73:24, 74:5, 74:12, 74:16, 74:17, 74:18, 77:22, 80:6, 94:16, 94:21, 101:5, 116:18, 118:18, 119:8, 124:9, 124:12, 125:5, 141:15, 145:14 difficult 32:12, 49:6, 88:18	diploma 35:7 direct 12:24, 74:14 directed 14:14, 14:21, 14:25, 20:8, 73:24, 74:11, 74:17, 94:7, 94:12, 94:21, 95:4, 95:7, 95:9, 111:17, 111:18, 129:22, 130:3 direction 28:24, 41:17, 51:7 directions 51:8 directly 126:13 dirt 32:4, 100:14 disagree 24:19, 63:12, 86:13, 92:6, 98:17, 153:14 disagrees 153:2 disclose 13:22 disclosure 126:15, 126:23, 132:10 discrepancy 104:8 discuss 50:8, 50:13, 50:18, 51:3, 153:15 discussed 50:25, 115:16, 135:10 discussing 15:16, 16:1, 131:6, 132:6, 138:7 discussion 16:3, 16:4,
---	--	---	---

42:3, 51:7, 81:13, 81:15 discussions 13:19, 14:1, 14:4, 14:5, 14:7, 14:8, 56:12, 56:15, 82:23 disk 27:8, 27:12, 27:18, 27:21, 40:21, 43:8, 45:8, 46:12, 46:18, 47:4, 47:16, 95:5, 100:16, 100:22, 101:8, 101:15, 102:7, 113:17, 116:17, 116:19 disks 40:22, 45:12, 45:18, 45:24, 46:9, 49:25, 56:5, 74:15, 95:7, 95:9, 95:11, 101:10, 101:12, 101:22, 101:24, 105:21, 106:1, 137:6 distance 75:12, 75:19, 89:4, 89:8, 90:8, 92:18, 92:24, 93:6, 93:15, 94:2, 94:7, 94:9, 113:10, 114:3, 114:5, 115:5, 122:15, 122:16, 125:1, 125:7, 126:16, 134:13, 136:17, 137:7, 144:5, 145:4 distances 85:6, 86:9, 87:9, 141:20 distinguish 113:2	district 2:8, 9:21, 155:18 divulging 13:24 doctor 8:18 document 11:20, 11:22, 20:9, 33:22, 58:17, 58:21, 72:2, 148:13, 149:3, 149:16, 150:1, 150:6, 150:11, 150:16, 150:21, 151:1, 151:3, 151:8, 151:13 documents 10:2, 19:2, 58:18, 128:24 doing 14:11, 27:21, 28:15, 39:10, 40:22, 50:5, 52:5, 52:8, 56:1, 60:15, 74:2, 90:16, 90:20, 98:16, 100:5, 135:1, 135:14, 137:4, 137:6, 147:9, 147:13 done 31:19, 66:7, 99:14, 147:9, 147:14 dot 115:15 double-check 104:10 down 31:11, 33:14, 33:15, 33:25, 97:7, 106:15, 110:21, 113:17, 123:24, 124:2, 124:9	drafted 123:13 drafting 13:20, 20:12 dressed 6:15 dresser 26:3, 26:4, 26:13, 30:16, 30:20, 31:11, 41:12, 44:11, 45:4, 99:23, 100:6, 100:11, 101:2, 116:8, 116:11, 117:11, 117:14, 118:1, 121:13, 139:16, 139:19, 141:17, 141:21, 142:5, 142:23, 142:25, 143:9, 143:13, 144:4 dressers 26:21, 27:1, 27:5, 28:7, 28:11, 28:12, 29:4, 29:12, 29:18, 36:12, 37:16, 39:3, 43:4, 44:8, 44:13, 44:22, 44:23, 45:1, 45:20, 46:2, 46:21, 47:1, 47:13, 56:20, 105:2, 105:25, 110:2 dressings 5:11, 6:6, 53:21, 66:9, 66:13 drop 27:9, 27:13 due 68:3 duly 155:7 during 26:13, 28:17,	29:19, 41:12, 43:21, 43:24, 49:1, 49:16, 49:21, 51:7, 61:18, 97:23, 99:7, 99:19, 100:2, 104:17, 119:1 E each 15:13, 16:12, 17:4, 17:10, 17:25, 18:9, 30:20, 54:16, 55:20, 94:4 earlier 9:13, 15:15, 16:24, 16:25, 18:21, 45:4, 61:8, 66:8, 72:10, 72:12, 83:6, 85:10, 110:10, 139:9, 147:19, 153:7 early 64:6 easier 42:15, 123:24, 124:7 easy 89:5, 114:5 edited 16:5 education 36:21, 105:16, 106:6, 106:17 educational 35:5, 108:24 effect 41:11, 46:16, 58:21 effective 100:17, 100:22, 101:6, 101:16, 102:3 efficient 9:10, 125:14
---	---	--	--

eight 41:2 either 10:2, 28:17, 41:16, 42:8, 46:22, 47:2, 49:9, 49:19, 115:24, 134:9 electronic 67:9 electronics 1:4, 1:5, 3:10, 3:11 elicit 86:16 else 30:3, 42:10, 116:15 email 125:12 emergency 131:20, 131:24 employed 155:24 employees 64:7 enable 93:17, 136:1 enabled 132:10, 132:21, 134:1, 134:2, 134:9, 134:22, 135:1, 135:10, 135:20 enabling 126:15 end 29:11, 60:18, 91:11 endeavor 90:13 engineering 34:19, 36:9, 36:25, 38:7, 39:22, 102:24, 102:25, 103:5, 103:6, 104:14, 104:15, 105:8,	105:13, 107:18, 108:7, 109:5 engineers 60:5 english 8:25, 10:6, 10:9, 12:25, 13:5, 13:6, 13:10, 13:11, 13:12, 13:16, 14:7, 14:9, 14:23, 15:2, 18:25, 34:2, 36:13, 37:12, 37:17, 37:21, 38:13, 38:17, 38:23, 40:19, 45:6, 48:23, 64:1, 64:10, 65:16, 71:13, 102:10, 109:7, 109:14, 115:21, 115:23, 124:2, 127:12, 133:15, 134:4, 137:23, 145:21 enough 106:23 ensure 13:3, 27:17 enter 54:14, 54:15 entered 54:25, 55:1 enterprise 42:13 enterprises 42:8, 60:16 entire 46:17, 64:18, 113:20, 123:13 entirely 91:1, 91:4, 93:3, 129:19, 141:12 entirety 37:23, 75:2, 76:16, 110:24,	123:9 entities 42:20 entitled 88:15, 92:13, 133:20, 134:21 equal 121:4, 122:25, 124:24 equipment 43:25, 116:1 errata 154:6 errors 102:11 esquire 3:4, 3:14, 4:2 established 64:13, 97:22 estimate 152:16 estimated 152:20 ethic 59:21 evading 87:19, 123:15 evasive 87:17 even 11:1, 12:19, 16:24, 43:14, 52:22, 73:19, 74:15, 79:10, 80:1, 87:22, 88:9, 104:17, 107:3 eventually 64:25 ever 10:5, 29:23, 61:12, 63:2, 65:7 every 16:12, 17:4, 17:10, 17:25, 18:1, 18:9, 23:5, 29:15,	54:16, 74:18, 77:16 everyone 22:18, 30:3, 42:16 everything 91:13 evidence 54:25, 55:1, 66:16, 67:3, 67:6, 67:13, 67:16, 67:21, 71:23, 98:14, 109:16 evident 68:21 exactly 29:12, 70:25, 91:7, 103:12, 139:18, 145:4, 145:5, 153:4 examination 5:2, 8:11 examined 8:8, 154:3 example 87:24, 117:10, 122:1, 127:3, 142:22 examples 24:17, 24:22, 24:23 except 144:2 exhausted 146:21 exhibit 5:11, 5:14, 5:15, 5:16, 5:18, 5:20, 6:4, 6:6, 6:9, 6:12, 6:14, 6:16, 6:18, 7:5, 7:6, 7:7, 7:8, 7:9, 11:16, 58:7, 58:8, 58:16, 66:16, 66:17, 67:12, 67:17,
--	--	---	---

67:18, 67:21, 67:22, 71:23, 71:24, 104:1, 104:9, 109:16, 109:18, 127:18, 147:23, 147:24, 148:14, 148:15, 149:4, 149:5, 149:17, 149:18, 150:1, 150:3, 150:11, 150:13, 150:21, 150:23, 151:8, 151:10 exhibits 5:10, 6:3, 7:4, 55:4, 148:4 experience 43:10, 44:8, 45:4, 104:25, 105:1, 105:21, 107:4, 107:10, 108:20, 109:25, 110:1, 140:4, 145:15 experiences 107:2, 136:16 experiment 39:12, 140:1, 146:22, 146:24, 147:9, 147:14 experimentation 94:15 experiments 32:22, 33:5, 39:11, 51:4, 122:6, 134:14, 134:18, 135:2, 135:4, 135:11, 135:24, 136:3, 136:9, 136:13, 136:20, 136:24, 137:21, 141:5, 141:7, 146:1, 146:2, 151:21 expert 103:17, 112:6, 140:5 expertise 90:8, 106:4,	112:13, 114:6, 123:4 explain 24:3, 72:13 explained 21:23, 24:4, 61:8, 68:24 explaining 26:25 explanation 103:20 explicitly 24:14, 25:2 express 114:18 extent 13:23, 15:9, 24:19, 58:15, 80:3, 80:5, 92:11 eyes 1:14 F fabricate 94:4 fabrication 26:14, 29:19, 36:18, 37:20, 38:2, 39:7, 41:13, 43:10, 43:21, 44:4, 46:18, 47:4, 95:13, 95:14, 95:19, 95:23, 97:24, 99:4, 100:3, 125:4 face 83:2 faces 41:2, 41:3 facilitate 8:25 fact 26:24, 51:24, 53:4, 54:11 factors 116:3, 116:4	fail 10:24 failed 103:20 faint 96:7 fair 11:8, 11:12, 98:21, 133:19 fall 27:14, 27:18, 27:25, 28:1 familiar 23:17, 43:13, 43:14, 69:25, 70:2, 70:3, 70:14, 70:15, 70:19, 96:22, 105:22 family 69:3, 72:24, 73:1, 78:8 family-related 79:22 far 87:22, 88:9 father 9:9, 24:1, 54:20 february 1:19, 155:19, 156:4 federal 64:25, 65:11 feel 87:13, 96:7, 105:11, 106:21, 123:11, 136:15 feeling 96:16 feels 24:12 felt 91:12 few 108:23 field 56:20, 73:10,	73:16, 73:20, 73:25, 74:12, 94:12, 94:21, 94:24, 95:3, 95:7, 102:24, 103:5, 104:15, 105:8, 105:13, 107:15, 109:12, 110:8, 145:15 fields 73:6 figure 31:3, 40:3, 75:17, 76:6, 82:24, 83:2, 83:4, 84:17, 85:2, 85:11, 85:19, 86:2, 86:3, 86:20, 86:25, 87:2, 87:22, 88:24, 89:18, 89:23, 90:6, 90:9, 92:17, 92:18, 92:21, 92:23, 93:2, 93:4, 93:8, 93:9, 93:11, 93:12, 113:16, 113:24, 113:25, 114:2, 114:7, 114:9, 114:10, 114:11, 114:13, 114:21, 114:23, 115:3, 115:5, 146:14, 153:4 figured 146:16, 147:3 file 74:6 filed 20:8, 69:19, 70:8, 74:19 films 25:16 filth 100:19, 100:21 final 135:3
--	--	--	---

finally 16:6, 17:19, 151:8 financial 51:20, 60:8, 60:14 financially 59:7, 59:9, 156:1 find 28:24, 88:19, 93:5, 96:20, 128:14, 128:15 fine 54:18, 68:7, 96:9, 124:16 fines 11:1 finish 9:13 finished 15:16, 21:7 firm 3:5 firms 64:14 first 8:15, 8:17, 11:14, 20:14, 20:16, 22:24, 24:7, 25:20, 27:7, 27:8, 27:11, 40:25, 43:3, 46:4, 46:24, 48:2, 48:16, 48:22, 48:25, 49:5, 49:7, 49:12, 66:21, 67:25, 69:11, 72:20, 79:8, 90:15, 90:16, 100:11, 101:2, 101:11, 101:23, 118:22, 119:11, 127:20, 127:24, 133:12, 136:12 fit 125:25	five 89:21, 121:25 flat 139:16, 141:13 floor 3:16, 4:4 flow 132:3 focus 74:3, 104:22, 122:20, 132:17 focused 11:22, 12:12, 77:15 focuses 113:3, 113:8, 114:12, 115:11, 122:9, 122:22, 124:20, 125:20, 138:24, 139:10 focusing 43:8, 51:6, 56:5, 68:15 follow 63:20, 63:21 following 59:21, 64:5, 91:3, 106:12 follows 8:9 forbid 98:13 force 27:22, 120:19, 120:20 foregoing 154:3 foremost 8:17 form 12:6, 32:10, 33:3, 41:3, 48:13, 57:18, 59:19, 61:7, 61:16, 62:1, 62:9, 62:16, 63:25, 64:8, 64:17, 65:3,	65:12, 73:12, 73:18, 74:1, 74:13, 76:1, 77:9, 77:19, 78:9, 78:19, 81:5, 83:13, 85:4, 85:13, 85:21, 88:25, 94:13, 94:22, 95:20, 97:25, 98:19, 99:6, 99:18, 100:4, 100:12, 101:3, 101:13, 101:25, 103:7, 112:3, 114:15, 114:25, 119:14, 122:4, 122:12, 126:2, 129:16, 129:24, 130:5, 130:13, 132:14, 132:22, 133:14, 133:22, 134:3, 134:10, 134:23, 135:12, 135:21, 136:11, 137:2, 137:22, 138:11, 139:25, 140:9, 140:19, 141:3, 141:11, 141:25, 142:9, 142:16, 143:3, 143:16, 144:9, 144:18, 145:2, 145:19, 146:9, 146:19, 147:6 formalities 9:15 formation 129:7 former 64:6 forming 32:17 forms 115:10 forth 17:18, 155:7 forward 19:13, 90:14,	90:21 found 75:8, 75:14, 75:16, 77:7, 81:4, 81:22, 82:17, 82:24, 88:24, 89:18, 90:6, 92:17, 92:23, 93:1, 93:3, 96:6 foundation 12:7, 62:2, 62:10, 64:9, 64:18, 65:4, 65:13, 107:6, 134:24 four 12:5, 12:20, 24:13, 24:17, 24:18, 24:23, 39:11, 118:18, 119:8 fourth 46:22, 118:24, 119:13, 131:8 frankly 12:8, 91:15 fresh 119:6 friction 30:20, 30:23 front 68:8, 83:4, 102:15, 111:13, 128:3 full 9:16, 86:6, 87:6 fully 10:14, 11:11, 17:25, 18:9, 117:24, 131:18 function 138:9, 140:18, 141:10, 141:23, 142:8, 142:14, 143:2, 143:14, 144:8, 144:17,
---	--	---	---

144:25 functioning 139:24, 141:1 functions 139:11 fundamental 46:14 funding 39:15, 41:25, 42:3, 42:6 further 9:5, 25:19, 35:7, 48:15, 59:12, 60:3, 60:17, 60:22, 72:10, 108:11, 108:19, 155:12, 155:15, 155:22 future 59:25, 60:3, 60:8, 60:14, 60:17, 60:23, 62:4	46:3, 60:17, 71:7, 74:24, 75:3, 75:5, 75:6, 75:23, 76:17, 76:22, 77:5, 83:6, 83:10, 83:19, 83:23, 84:9, 84:23, 88:18, 92:8, 97:11, 99:24, 100:5, 100:7, 117:22, 129:22 generate 32:2 generated 30:21, 31:14, 31:21 generation 32:1 genuinely 91:8 germane 23:20 gesture 60:20 getting 76:18, 108:19, 121:14, 124:10 gilpin 3:6 gip 6:14 give 14:18, 19:18, 21:5, 60:22, 66:25, 77:21, 80:17, 87:17, 102:1, 141:15, 143:18, 148:17, 152:16 given 9:12, 146:12, 153:8, 154:5, 155:10 giving 112:24 go 25:6, 30:6,	34:15, 39:20, 48:14, 49:2, 49:24, 62:19, 62:23, 68:11, 69:11, 72:22, 78:21, 78:24, 79:24, 81:14, 87:16, 90:4, 91:23, 96:11, 104:8, 109:9, 109:21, 111:14, 118:5, 125:11, 126:3, 128:5, 130:22, 131:13, 131:14, 135:3, 138:2, 138:18, 142:21, 152:23 goes 30:3, 31:12, 87:12 going 11:15, 17:1, 20:1, 28:18, 29:22, 35:25, 48:12, 53:20, 54:8, 54:19, 55:5, 58:8, 62:21, 62:25, 63:13, 66:15, 66:21, 66:25, 68:19, 77:23, 78:23, 79:23, 80:15, 81:10, 81:19, 82:8, 82:14, 86:13, 87:16, 90:3, 90:4, 90:21, 91:23, 108:1, 110:12, 111:6, 124:16, 124:18, 125:11, 125:14, 125:15, 126:4, 126:5, 126:6, 137:17, 143:21, 147:18, 147:23, 153:7 gone 131:9	good 13:8, 13:12, 13:16, 23:13, 24:2, 28:17, 28:24, 46:17, 60:20, 61:9, 67:3, 107:8, 111:24, 132:13, 137:5, 137:10 government 39:17, 42:8, 42:20 grabbing 14:15 graduate 47:7, 107:3, 108:18 graduated 34:17, 47:17 graduates 108:21 graduation 47:15 graphite 6:12 great 11:4 group 72:23 guarantee 9:13, 107:24, 108:11, 135:16 guess 54:24 guide 24:17, 24:21 guilty 64:25, 65:11 guy 40:13 guys 48:14, 90:17, 91:16
G			H
gained 46:25 gaining 47:20 gave 34:9, 47:5, 47:10, 51:7, 51:8, 66:8, 66:10, 140:6 ge 63:23, 64:5, 64:15 gears 34:7, 43:1, 47:23, 110:12 general 13:7, 13:16, 52:11, 52:15, 59:13, 71:6, 96:23, 99:23 generally 26:1, 26:11, 38:16, 43:16,			hand 20:7, 53:20, 58:8, 66:21,

71:21, 156:4 handing 67:15, 127:18 handwritten 19:4, 19:7 happen 14:7, 33:24 happened 35:21 happening 87:13, 98:14 happens 143:6, 143:8, 144:13, 144:14 hard 33:7, 54:24, 108:19, 108:22, 120:22 harder 120:21 hardness 116:25, 117:3, 119:13, 119:18, 120:18, 120:21 hear 11:16, 100:24 heard 42:11, 71:18 hearing 48:16 hearsay 12:6, 23:6, 64:17, 65:4, 65:13, 134:23 height 113:12, 131:1, 140:11, 140:21 heights 76:11, 84:16, 89:4, 89:9, 90:9, 92:19, 92:25, 93:6, 93:15, 93:16, 94:3, 94:8, 94:10, 113:10, 113:17, 114:3, 114:4, 115:6, 122:16, 125:2,	125:8, 134:13, 136:17, 137:8 held 2:3 hello 8:13 help 17:14, 68:19, 78:23, 79:23, 88:10, 91:6, 92:13, 128:19 helped 59:22 helping 14:11, 124:6 here 8:14, 8:24, 9:2, 11:25, 21:13, 24:11, 37:5, 53:16, 55:4, 58:11, 68:19, 82:9, 83:1, 87:14, 88:10, 90:18, 90:19, 91:19, 93:6, 97:8, 105:11, 106:11, 106:18, 109:13, 110:6, 110:9, 112:24, 126:14, 151:20 hereby 154:2, 155:4 hereinbefore 155:7 hereunto 156:3 high 64:15, 86:4, 87:3, 113:21 higher 108:24 highest 75:20, 113:11, 113:18, 115:14, 115:17, 115:18, 116:22, 116:23, 117:15, 118:1,	118:7, 118:8, 118:19, 118:20, 119:9, 119:10, 119:20, 120:7, 120:8, 120:16, 121:2, 121:3, 121:6, 121:7, 122:1, 122:2, 122:24, 124:22, 124:23, 126:16, 126:17, 138:8, 139:11, 144:15, 144:24, 144:25 highly 1:14 himself 108:10 hit 56:8 ho 151:18 honest 19:20, 60:4, 61:24, 62:8 honestly 91:8 hope 24:21, 27:22, 59:24, 60:2, 60:16, 60:22, 96:16 hoped 32:2 hopefully 91:6, 91:20, 131:25 hopes 60:7 hoping 60:10, 60:13 hour 29:23, 65:24 hours 9:14, 18:23, 126:5 housekeeping 66:6 however 43:13, 113:20,	145:13 hsing 36:22 hypothetical 122:4, 139:14, 139:22, 139:25, 140:6, 140:13, 140:14, 140:25, 141:16, 141:25, 142:4, 142:9, 143:3, 143:7, 143:16, 144:2, 144:13, 144:19, 145:12, 146:10 I ic 37:23, 99:12, 99:17, 99:19, 100:2 idea 45:3, 107:11 ideas 124:8 identical 29:15, 139:17, 140:11, 140:21, 141:19 identically 140:15, 141:8, 142:6, 142:24 identification 66:18, 67:19, 67:23, 71:25, 109:19, 147:25, 148:16, 149:6, 149:19, 150:4, 150:14, 150:24, 151:11 identified 87:22 identify 81:8 iljin 63:23 ill 9:9 illness 10:11
--	--	---	--

illustration 31:22	includes 51:20, 116:7	integrated 26:14, 29:20,	44:17, 45:10,
implement 93:17, 94:4,	including 105:1, 110:1	36:18, 37:19,	48:18, 50:9,
105:14, 106:21	incorrect 134:20	37:23, 38:2,	56:1, 57:12,
implementation 105:24, 106:2,	indeed 18:17	39:7, 41:13,	65:15, 70:2,
107:14	indicate 94:2, 130:8	43:10, 43:13,	74:24, 89:6,
implementing 126:24	indicates 78:14, 86:3,	43:17, 43:21,	90:22, 93:19,
important 12:11, 27:11,	87:2, 130:7	44:4, 95:12,	97:3, 97:14,
52:19, 75:11,	industrial 64:16	95:14, 95:18,	99:11, 100:18,
76:3, 76:9,	information 53:16, 145:23	95:23, 97:24,	106:8, 107:7,
82:19, 89:3,	infringement 143:18, 143:20	99:5, 99:8,	118:14, 123:6,
89:10, 90:9,	inherently 138:7	99:20	125:9, 128:19,
97:8, 116:24,	inject 81:12	intend 100:14, 100:19	129:19, 134:16,
117:4, 118:6,	input 50:3	intended 98:5, 98:22,	138:15, 139:4,
123:5, 123:7,	insisting 124:3	111:23	145:8
123:8, 123:9,	instance 98:19, 116:7	intends 115:3	interpreters 8:24, 30:4,
123:11, 123:12,	instinctly 115:4	intention 47:7, 94:2	39:25
125:6, 125:8,	institute 35:6	interactions 61:21, 61:23	interpreting 124:15
137:11	institutes 42:7	interest 54:7, 55:3	introducing 58:15
impregnation 6:13	instruct 62:17, 63:4,	interested 155:25	invent 111:23
imprisonment 11:1	63:17	interesting 104:7	invention 76:3, 112:2,
improper 98:12, 98:18	instructed 7:12, 12:18,	interject 123:18	112:17
improved 6:10	98:19	international 6:4	inventor 47:25, 133:6,
improvement 6:20	instruction 51:11, 63:6,	interpret 8:4, 124:14,	133:7, 133:12
improvements 28:21, 29:6	63:11, 63:20,	124:17	involve 36:11, 36:17
in-depth 74:3	63:21, 80:17	interpreted 139:4	involved 43:10, 63:24,
inaccurate 21:10, 22:9,	instructions 131:23	interpreter 4:10, 4:13,	116:4
118:13	instruments 151:20, 151:22	10:19, 16:8,	ipr 1:8, 14:13,
inc 1:5, 1:6, 3:11,		19:23, 26:16,	14:21, 14:25,
3:12		27:14, 27:25,	24:16, 58:12,
inches 39:12		28:1, 28:3,	58:14, 66:16,
include 126:15, 152:21		35:5, 35:10,	66:22, 67:12,
included 82:4, 125:3		35:20, 36:5,	67:17, 67:21,
		36:8, 40:2,	71:23, 80:6,
		41:19, 43:15,	103:24
			iprs 56:13
			issue 9:12
			issues 57:1, 125:2,

125:7 itself 116:9, 116:19	59:5, 59:9, 60:11, 60:14, 61:19, 151:21, 152:3	107:9, 107:10, 108:25, 112:13, 122:18, 123:10, 136:14	125:9, 134:16 later 56:4
J	kinik's 42:16	knowledges 74:16, 106:19	latitude 77:21, 143:19
jihng 151:18	knew 49:7, 49:10, 65:7, 65:10	known 72:24, 116:6, 116:12, 117:2	laura 4:2
job 1:23	know 12:2, 12:3, 21:6, 28:19, 29:22, 29:24, 33:22, 42:2, 42:9, 47:24, 49:8, 50:2, 52:17, 52:18, 54:7, 54:20, 58:11, 62:4, 62:14, 63:2, 63:15, 64:1, 64:10, 64:22, 65:5, 65:9, 65:16, 65:21, 69:4, 69:25, 70:3, 70:20, 70:25, 71:9, 71:20, 76:3, 76:18, 77:23, 79:10, 79:25, 82:1, 83:14, 84:25, 87:19, 89:3, 91:15, 96:3, 96:6, 96:10, 96:23, 110:22, 112:13, 116:22, 117:7, 118:6, 119:25, 120:5, 122:7, 133:4, 133:9, 133:15, 133:16, 133:17, 133:23, 134:4, 135:19, 143:22, 147:15, 152:15	kuo 151:18	law 3:5, 10:24, 70:3, 70:14, 71:8, 132:13, 132:20
joseph 4:13, 8:3		L	lawyer 12:8
journal 6:4		lab 37:9	lawyers 15:16, 16:21
july 34:23		labeled 26:3	lead 4:10, 28:1, 35:5, 35:10, 40:2, 44:17, 48:18, 65:15, 97:3
jump 91:6, 126:13		lack 62:10, 64:8, 64:17, 65:4, 65:13, 134:23	learn 108:10, 114:20
K		lacking 107:5	learning 108:19
keen 137:9		lacks 126:23	least 30:24, 32:17, 53:4, 102:23, 103:4, 104:6, 104:14, 104:24, 105:7, 106:5, 107:22, 108:6, 108:7, 108:13, 109:4, 109:6, 109:12, 109:25, 110:8
keep 25:5, 25:19, 125:13, 126:6, 152:11		laid 118:5	lecturer 40:10
key 8:17, 27:7, 79:3, 82:16, 82:18, 132:19		lane 9:20	lecturing 40:11
kilograms 121:18, 141:9, 144:6		language 8:5, 115:9, 115:17, 122:10, 122:23, 124:21, 125:20, 129:14	lee 4:10, 8:3, 9:2, 80:25
kind 10:21, 33:21, 57:2, 62:5, 146:12, 146:22		languages 70:18	left 31:10, 55:15, 55:18, 152:15
kinik 42:11, 42:12, 42:13, 42:21, 42:24, 49:2, 49:4, 49:24, 51:6, 51:12, 51:15, 51:16, 51:17, 51:24, 52:7, 52:12, 53:2, 55:15, 55:18, 57:10, 57:12, 57:13,	knowledge 46:11, 106:20, 106:25, 107:6,	large 42:21	legal 17:20, 18:11,
		largely 101:8	
		largest 58:2	
		last 16:21, 21:12, 59:3, 72:22, 81:19, 90:3, 104:22, 109:10, 109:23, 115:12,	

18:14, 23:17, 111:17, 111:18, 112:5, 112:7, 132:23 legally 70:24, 71:8 less 121:3, 122:25, 124:24, 127:7, 129:10 let's 9:15, 20:4, 21:12, 22:23, 25:8, 30:6, 34:3, 34:7, 39:20, 47:23, 48:20, 66:3, 66:20, 70:6, 81:14, 88:21, 89:25, 91:24, 96:11, 97:17, 98:21, 104:20, 109:9, 109:15, 116:10, 121:1, 121:6, 121:17, 121:21, 121:24, 125:12, 126:13, 126:21, 128:5, 130:22, 131:13, 131:14, 132:3, 132:4, 138:1, 138:2, 138:18, 139:15, 142:4, 142:21, 147:17 level 52:19, 99:21, 102:12, 102:19, 105:16, 106:6, 106:17, 107:19, 119:19, 120:19, 120:20, 120:23, 127:5, 145:14, 146:5 leveled 129:9, 130:25 leveling 126:24, 127:5, 128:8, 128:17,	128:21, 129:5, 129:10, 130:7, 130:8 likewise 120:21 limit 24:13 limitation 128:7, 128:10, 128:13, 128:14, 128:15, 128:20, 129:3 limited 15:8, 24:18, 24:23, 101:20 line 7:13, 31:19, 41:4, 55:5, 64:18, 75:15, 82:25, 97:1, 97:6, 97:10, 97:17, 110:21, 110:22, 115:13 listed 54:2, 61:2 listen 20:2, 94:18 listening 13:8 literally 80:13 litigation 19:13, 24:16, 24:21, 63:23 little 29:22, 34:7, 34:16, 44:1, 62:22, 105:10, 110:12, 120:22, 138:1 live 20:2 llc 1:7, 3:12 llp 3:15, 4:3 load 140:16, 141:22,	142:7, 145:18, 146:8, 146:18, 147:5 locate 127:23, 128:19 lodge 15:6, 21:24, 23:3 lodged 25:1 lodges 12:20 lodging 11:25, 23:9, 48:10 long 16:17, 16:18, 17:18, 18:24, 36:19, 47:17, 100:20, 153:8 look 57:1, 57:3, 67:25, 82:2, 82:15, 83:11, 83:17, 83:20, 83:25, 84:13, 97:17, 109:15 looked 75:23, 76:22, 79:20, 83:10, 83:19 looking 11:21, 34:8, 55:4, 58:11, 70:23, 77:4, 77:5, 84:17, 103:21, 114:8, 124:10 lost 87:20, 91:10 lot 8:14, 16:1, 16:2, 16:9, 16:10, 17:20, 23:4, 40:12, 73:20, 85:5, 85:15, 85:23, 86:22, 105:20,	106:4, 106:14, 107:1, 107:4, 114:5, 115:7, 116:3, 136:13, 136:16 low 5:20 lowest 75:20 lubrication 6:20 M machine 6:4, 37:13, 37:15, 38:5 made 16:6, 16:7, 22:25, 25:9, 28:11, 72:20, 80:22, 103:19, 145:17, 146:7, 146:17, 147:4 main 87:21 mainly 11:17, 41:1 maintained 113:21 major 75:7, 75:8, 75:13, 75:15, 77:7, 77:17, 81:3, 81:21, 82:18, 83:14, 84:15, 85:2, 85:11, 85:16, 85:20, 85:24, 86:7, 86:8, 86:20, 86:23, 87:7, 87:8, 87:21, 87:25, 88:1, 88:6, 88:23, 89:2, 89:5, 89:16, 89:17, 90:5, 90:10, 92:16, 92:19, 92:22,
---	---	--	--

93:1, 93:3, 93:7, 93:18, 93:22, 97:13, 113:19, 114:18, 114:20, 123:1, 123:3, 123:4 majored 35:15 make 8:15, 10:14, 11:20, 24:11, 28:21, 29:4, 31:13, 32:9, 32:13, 42:15, 42:18, 57:21, 62:11, 67:14, 72:16, 91:20, 98:6, 102:13, 104:10, 109:2, 136:2, 139:15, 140:10, 140:14, 140:21, 141:5, 141:17, 142:23, 143:6, 143:8, 151:24 making 20:4, 29:11, 98:15 management 52:19 manager 52:11, 52:15, 59:13 mandarin 8:5, 36:6 manner 60:20, 61:9, 90:20 manufacture 6:5 manufacturing 35:15, 35:16, 35:17, 94:15, 95:22, 99:8, 99:12, 99:17, 99:20, 100:3, 105:21, 116:3, 125:3, 125:6	many 15:25, 17:17, 22:4, 25:14, 26:20, 32:20, 33:13, 33:17, 35:19, 42:6, 50:17, 53:8, 57:20, 57:25, 74:5, 74:15, 84:12, 86:8, 87:8, 88:6, 89:2, 105:25, 108:21, 135:2, 137:6, 140:25, 143:14, 144:7, 144:16, 145:16 march 69:19 mark 1:25, 2:19, 147:23, 155:3 marked 7:2, 66:17, 67:18, 67:22, 71:24, 109:18, 147:24, 148:15, 149:5, 149:18, 150:3, 150:13, 150:23, 151:10 marking 148:13, 149:3, 149:16, 150:1, 150:11, 150:21, 151:8 marks 50:11 marriage 155:23 master 106:6, 106:21, 107:23, 108:13 master's 36:24, 38:6, 38:10, 38:12, 38:21, 39:16, 45:17, 108:7, 108:17, 109:6, 109:12, 110:8	material 23:1, 24:5, 25:10, 25:14, 33:9, 33:14, 33:15, 99:1, 105:23, 106:19, 106:25, 107:11, 108:25, 109:6, 109:13, 110:9, 117:8, 117:20, 117:22, 117:25, 136:14 materials 6:16 matter 38:16, 51:24, 66:6, 130:4, 131:5, 132:6, 133:13, 135:9, 156:1 matters 125:3 maybe 38:4, 39:17, 40:5, 40:7, 42:23, 44:1, 46:22, 47:3, 49:8, 87:20, 89:23, 100:24, 115:23, 117:24, 124:11, 137:23, 137:25, 142:10, 143:4 mcclure 1:25, 2:19, 155:3 mean 12:9, 19:7, 45:15, 72:25, 73:2, 74:23, 75:5, 75:6, 79:13, 94:24, 106:16, 115:2, 120:14, 120:16 meaning 19:8, 137:8 means 30:23, 50:2,	54:16, 70:1, 70:4, 70:17, 70:21, 71:1, 71:3, 71:9, 72:19, 80:7, 127:16, 127:24, 128:5 meant 45:16 meanwhile 116:20 measure 29:5 mechanical 5:21, 20:23, 34:19, 36:7, 36:8, 36:24, 38:7, 38:17, 38:19, 39:21, 102:24, 103:5, 104:14, 105:7, 105:12, 107:18, 108:7, 109:5 mechanically 21:15 medication 10:10 meet 48:22, 49:5, 107:19 meeting 48:17, 49:12, 50:18, 50:24, 51:2, 57:21 meetings 15:25, 17:17, 49:10, 50:7, 57:25, 58:4 mention 110:25, 138:13, 138:16, 139:5, 139:8 mentioned 81:24, 120:17 met 48:25, 49:15, 50:13 method 6:20, 97:19,
---	---	--	--

97:22, 99:24, 102:3, 130:24 micron 143:10, 144:5, 145:4, 145:5 microns 121:4, 121:8, 122:25, 124:24, 127:8, 129:11, 144:3, 144:16, 144:21, 145:16 might 11:25, 21:24, 50:7, 61:19 millimeters 121:25 milling 6:21 mimic 29:19 mind 137:16 mindful 131:17 ming-yi 1:16, 2:3, 5:2, 5:16, 5:19, 8:7, 9:18, 154:2, 155:6, 155:16 minimum 6:19, 36:15 minor 16:8, 89:6, 106:8 minutes 91:23, 147:17, 152:18, 152:19 misheard 16:25 misstates 60:9, 83:22, 85:13, 85:21, 112:3, 114:15, 119:14, 122:12, 130:13, 132:14, 135:12, 135:21, 137:2, 138:11, 142:16	misunderstand 57:8 misunderstood 35:22 model 108:23 moment 55:19 monday 1:19, 155:18 monolayer 126:17 months 84:4 more 23:23, 31:18, 32:2, 32:5, 35:8, 36:1, 39:6, 43:7, 43:14, 54:12, 57:19, 59:25, 60:14, 62:23, 62:25, 73:5, 74:9, 78:24, 79:12, 81:19, 82:8, 82:14, 87:16, 88:14, 88:20, 89:25, 90:23, 91:2, 91:24, 92:7, 95:10, 97:5, 97:8, 100:25, 104:17, 108:19, 112:9, 117:13, 117:24, 118:17, 120:20, 124:19, 125:14, 125:16, 126:4, 126:7, 133:25, 134:8, 134:14, 135:11, 137:17, 143:19, 145:23 mosaic 6:9 most 9:2, 12:11, 22:2, 22:6, 22:16, 43:23,	60:4, 75:11, 76:3, 76:9, 82:18, 89:3, 116:24, 117:3 motivation 146:13 mount 139:19 move 17:14, 64:18, 66:15, 67:3, 67:6, 67:13, 67:16, 67:20, 71:22, 109:16, 125:11, 125:15, 125:16 moves 116:20 moving 90:14, 116:16, 118:23, 119:12, 121:24 much 18:12, 18:18, 18:21, 56:5, 97:11, 109:1, 112:19, 146:6, 146:16, 147:3, 152:15, 153:4 must 25:21, 82:11, 107:8, 135:1, 135:24, 138:8 myself 104:10 N name 9:16, 9:18, 42:13, 42:16, 49:8, 151:14, 151:18, 151:23, 152:4, 152:5, 152:6 named 47:24 national 2:5, 34:17,	35:13, 36:3, 36:21, 39:20, 39:23, 59:5, 151:25, 155:16 necessarily 32:10, 101:7, 136:4, 138:9 necessary 22:4, 134:17 need 11:21, 11:22, 13:10, 17:20, 19:25, 24:8, 24:9, 29:23, 30:1, 42:10, 53:14, 57:19, 59:21, 59:23, 80:25, 84:13, 96:8, 96:10, 96:12, 99:9, 99:13, 106:4, 106:5, 110:13, 116:6, 116:22, 117:7, 127:12, 127:13, 128:19, 138:2, 141:4, 145:23, 145:25, 146:3, 146:5, 152:14, 153:10 needed 13:2, 40:14 needs 68:25, 105:12, 105:20, 116:12, 117:1, 122:18, 131:19, 131:20, 136:14 never 57:11, 57:16, 65:7, 65:10, 146:16, 147:3 new 3:17, 4:5, 16:19, 29:3, 29:17, 31:4, 31:20, 32:1, 40:13, 51:4, 64:3, 143:6
--	--	---	--

newspaper 64:3 next 26:3, 28:21, 31:2, 36:21, 46:6, 46:10, 86:25, 104:18, 112:21, 125:15, 126:9, 149:3, 150:11, 151:7, 153:15 none 36:16 noninfringement 143:20 nonworking 140:8 normally 100:6 note 98:15 noted 85:1, 98:17, 126:3, 153:6 notes 9:25 nothing 95:10 notice 2:19 noticed 19:15 novel 6:18 november-december 16:20 number 18:23, 26:24, 82:25, 97:1, 152:1 numbers 11:16, 15:3, 75:15, 93:16 numerical 37:12, 37:14 O oath 10:15, 133:7,	133:11 object 12:5, 23:5, 103:14, 138:11 objected 98:8 objecting 68:22, 80:1, 80:8 objection 12:2, 12:6, 12:7, 13:21, 15:6, 15:21, 16:14, 17:6, 18:2, 18:16, 21:20, 22:10, 23:3, 24:11, 25:12, 28:14, 29:8, 32:11, 32:19, 33:3, 33:11, 44:14, 48:4, 48:10, 48:13, 51:10, 52:2, 52:13, 52:24, 53:6, 53:7, 54:14, 56:24, 57:18, 59:19, 60:9, 61:7, 61:16, 62:1, 62:9, 62:16, 63:4, 63:17, 63:25, 64:8, 64:17, 64:20, 65:3, 65:12, 73:12, 73:18, 74:1, 74:13, 76:1, 76:8, 77:8, 77:19, 78:9, 78:19, 80:22, 81:5, 83:13, 83:22, 84:3, 85:4, 85:13, 85:21, 88:25, 94:13, 94:22, 95:20, 97:25, 98:12, 98:13, 98:18, 98:24,	99:6, 99:18, 100:4, 100:12, 101:3, 101:13, 101:25, 103:7, 112:3, 114:15, 114:25, 119:14, 120:2, 120:10, 122:4, 122:12, 129:16, 129:24, 130:5, 130:13, 132:14, 132:22, 133:14, 133:22, 134:3, 134:10, 134:23, 135:12, 135:21, 136:11, 137:2, 137:22, 139:25, 140:9, 140:19, 141:3, 141:11, 141:25, 142:9, 142:16, 143:3, 143:16, 144:9, 144:18, 145:2, 145:19, 146:9, 146:19, 147:6 objections 12:1, 12:20, 21:24, 23:9, 23:12, 23:19, 23:21, 23:25, 24:4, 24:13, 24:14, 24:17, 24:18, 24:22, 24:24, 25:1, 77:24 observation 98:7 observe 137:10 obstructive 88:13 obviously 98:17, 113:18 occupation 9:22, 9:23 occur 33:10, 33:19, 34:1	occurred 155:16 occurs 97:23, 99:4, 99:7, 100:2 offer 59:24, 60:19 offering 60:2 office 1:1, 133:8, 133:11 often 26:4 oh 51:21, 80:25 omitted 105:16, 106:17 once 28:10, 29:17, 126:4 one 16:8, 23:5, 23:23, 25:1, 25:17, 31:8, 35:1, 36:1, 43:20, 45:25, 53:17, 53:20, 54:8, 54:16, 57:19, 62:25, 64:6, 74:9, 81:19, 82:8, 82:14, 83:1, 85:16, 85:24, 86:9, 86:23, 87:9, 88:6, 88:20, 89:3, 89:25, 90:3, 90:25, 95:12, 95:13, 95:18, 95:22, 98:6, 99:12, 99:17, 100:25, 106:8, 112:25, 115:19, 115:24, 117:4, 117:13, 118:17, 118:22, 119:11, 119:12, 119:13,
---	---	--	---

124:19, 135:19, 136:23, 137:17, 139:17, 142:2, 143:10, 148:3, 149:3, 149:14, 151:7 ones 89:3, 91:16, 97:8, 113:12, 113:22 online 14:2, 14:4, 15:25, 17:17 only 1:14, 12:5, 22:19, 24:18, 34:22, 35:1, 42:24, 46:14, 47:16, 49:10, 51:22, 56:25, 57:4, 57:9, 68:5, 68:13, 75:3, 75:23, 76:22, 77:10, 77:14, 93:14, 95:9, 98:25, 101:20, 108:9, 108:23, 113:3, 113:8, 114:13, 115:11, 115:19, 119:21, 122:10, 122:22, 124:20, 125:20, 131:15, 136:5, 138:24, 139:10, 141:17, 153:9 open 125:13, 126:6, 152:11 open-ended 112:9 operation 43:24, 94:15 operational 115:25, 116:5 opine 33:9 opinion 23:15, 33:24,	61:24, 62:7, 62:12, 73:23, 74:10, 75:22, 75:25, 76:21, 77:1, 83:5, 83:9, 83:18, 84:22, 89:13, 103:3, 105:18, 107:21, 107:25, 108:8, 112:24, 113:7, 114:12, 114:23, 115:10, 123:20, 123:22, 126:22, 130:10, 134:2, 134:6, 134:22, 135:9, 138:24, 139:1, 140:5, 140:7, 140:24, 141:8, 142:14 opinions 103:9 opportunities 135:15 opposing 30:4 optimal 25:22 option 19:22 options 19:18 order 30:17, 100:10, 101:1, 101:10, 101:22, 105:14, 105:19, 106:1, 106:6, 106:21, 114:6, 114:19, 122:17, 132:20, 133:5, 133:6, 134:14, 134:18, 135:2, 135:4, 135:25, 137:9, 141:5 orientations 41:23 original 9:4, 133:12	originally 29:13 other 10:10, 15:9, 22:5, 22:19, 30:20, 42:4, 42:5, 42:20, 42:23, 53:17, 55:20, 61:10, 70:24, 75:21, 75:24, 83:3, 83:4, 88:1, 101:5, 102:24, 103:5, 104:15, 105:8, 105:13, 115:7, 116:2, 117:1, 123:3, 123:4, 123:8, 123:12, 125:2, 125:4, 135:19, 136:23, 153:6 others 117:3 otherwise 156:1 out 29:12, 40:3, 68:19, 78:10, 78:23, 79:23, 82:6, 87:14, 87:22, 88:7, 88:13, 88:19, 89:23, 90:10, 108:16, 114:7, 117:12, 118:5, 131:11, 146:14, 146:16, 147:3, 153:4, 153:7 outcome 156:1 outlined 78:5 outside 131:15 over 14:5, 26:22, 29:23, 49:3, 87:12, 91:23,	126:5 own 15:13, 15:20, 19:2, 33:23, 52:4, 72:4, 94:5, 128:25 owner 1:11, 111:22 oxide 39:13, 58:23 P pads 6:8, 26:6, 26:15, 102:6 page 5:2, 5:10, 6:3, 7:4, 7:13, 20:17, 22:23, 25:8, 30:6, 30:7, 31:2, 31:3, 31:7, 59:4, 67:25, 69:11, 97:4, 102:13, 115:12, 127:20, 127:24 pages 1:24, 5:13, 5:14, 5:15, 5:17, 5:19, 5:23, 6:5, 6:8, 6:11, 6:13, 6:15, 6:17, 6:21, 87:17 pai 59:14 paper 53:23, 58:9, 60:18, 60:19, 60:24, 61:3, 66:8, 148:2, 148:9, 148:23, 148:25, 149:8, 149:11, 149:21, 149:23, 150:8, 150:18, 151:4, 151:15, 152:4, 152:5
---	--	--	--

papers 13:10, 13:15, 19:4, 19:7, 19:8, 26:25, 53:4, 53:8, 53:12, 53:21, 54:9, 54:12, 54:16, 54:21, 147:20 paragraph 21:1, 21:4, 21:5, 21:9, 24:21, 25:20, 72:7, 72:14, 72:18, 72:22, 102:18, 102:19, 103:16, 104:4, 104:21, 104:22, 105:6, 105:15, 108:1, 108:2, 108:16, 109:10, 109:21, 111:14, 111:17, 112:20, 126:9, 126:13, 126:21, 129:15, 130:3, 130:6, 130:11, 130:19, 131:6, 132:6, 132:9, 135:10, 138:18, 138:21, 138:23 parameter 116:8, 116:9, 116:10, 116:24, 117:1 parameters 116:1, 116:5, 116:13, 116:17, 116:21, 117:6, 118:6, 118:18, 119:8, 119:17, 120:14, 120:17, 125:4 parent 65:18 park 3:16, 4:4 part 31:7, 40:25,	43:4, 55:6, 70:23, 81:25, 82:6, 91:10, 99:4, 99:16, 104:16, 118:12 particle 33:8, 33:14, 117:11, 117:17, 118:3, 126:25, 127:5, 138:9, 138:14, 138:16, 139:5, 139:24, 140:18, 141:2, 143:2, 144:8, 144:22, 145:6, 145:7 particles 26:7, 27:9, 30:24, 31:4, 31:13, 32:9, 32:16, 33:1, 33:24, 41:12, 110:25, 111:4, 111:8, 113:4, 113:8, 113:13, 113:19, 113:22, 113:23, 114:13, 115:11, 115:19, 115:20, 116:23, 118:8, 118:20, 119:10, 119:21, 120:8, 121:11, 122:3, 122:10, 122:23, 124:21, 125:21, 126:18, 127:7, 128:8, 128:16, 128:21, 129:4, 129:9, 130:25, 138:8, 138:25, 139:10, 139:12, 139:17, 139:23, 139:24, 140:7, 140:8, 140:11, 140:15, 140:17, 140:21, 141:1, 141:8, 141:10, 141:18, 141:19, 141:23,	141:24, 142:8, 142:14, 142:15, 142:24, 143:1, 143:14, 143:15, 144:6, 144:7, 144:17, 145:1, 145:11, 145:17, 146:6, 146:17, 147:4 particular 74:3, 140:6, 140:25 parties 24:19, 152:10, 155:23, 155:24 parts 38:4 party 42:4, 42:5, 42:20, 155:12 pass 46:4 past 13:16, 17:17, 19:5, 112:15, 140:4 patent-related 112:12 patents 15:10, 19:6, 19:10, 19:12, 19:14, 47:25, 68:20, 69:25, 70:3, 72:23, 72:24, 73:1, 73:2, 73:24, 74:6, 77:22, 78:8, 79:22, 94:1, 94:4, 94:6, 94:11, 95:4, 95:6, 95:13, 95:18, 111:24, 112:6 pay 45:17, 97:11 paying 45:11, 45:23 pcd 5:20, 6:6	penalty 10:16, 10:22 pending 120:3, 132:5 penetrate 144:16, 145:17, 146:6, 146:17, 147:4 penetrates 144:21 penetrating 145:5 people 8:14, 22:3, 22:6, 57:20, 57:25, 60:15, 60:19, 100:8, 101:8, 115:4 perfect 91:14 perform 135:2, 140:1, 141:4 performance 6:10, 6:21, 25:22, 41:15 performances 58:23 perhaps 81:13, 123:12, 134:17 period 49:16, 49:20, 49:22, 61:14, 61:15, 104:17 perjury 10:16, 10:20 person 3:3, 3:13, 4:1, 4:9, 4:12, 8:17, 46:3, 46:4, 49:7, 56:20, 61:10, 61:25, 62:8, 105:11, 105:20, 105:22, 105:23, 106:3, 106:19, 106:24, 107:4, 107:5,
---	--	---	---

107:8, 107:12, 107:13, 107:23, 108:9, 108:10, 108:20, 108:22, 108:25, 114:4, 136:12, 136:15, 136:16, 137:4, 137:9, 137:18, 146:12 personal 55:7, 61:12, 89:7, 93:13, 100:13, 100:18, 105:18, 123:3 personally 47:24, 56:22, 57:6, 107:21, 123:1, 123:2, 123:7, 123:10, 135:23, 145:25, 147:15 perspective 136:8 petition 20:7, 20:11, 20:15, 20:18, 23:6, 23:7, 30:8, 34:8, 113:1 petitioner 1:8, 15:7, 69:2, 92:6, 153:2 ph 13:9, 27:6, 35:23, 39:21, 40:16, 40:18, 41:25, 43:4, 45:21, 45:25, 46:3, 46:23, 47:15, 49:1, 49:17, 50:4, 51:5, 51:8, 51:14, 51:17, 51:25, 52:8, 52:23, 53:1, 74:2, 106:6, 106:22, 107:23,	108:14, 117:9, 117:10, 117:14, 117:18, 119:17, 119:24, 119:25, 146:3, 146:5 phenomenon 28:19, 50:18, 93:14 phone 119:1, 131:8, 131:12, 131:16, 131:18, 131:24, 131:25 physical 10:11, 106:20, 107:2 physics 107:16 pick 132:4 piece 58:9 pink 30:10 place 114:21 plaintiff 3:2 planarization 5:22, 20:23, 22:21 planarize 21:16 plate 99:9, 99:13 platen 30:10, 30:14 pleaded 64:25, 65:10 please 9:16, 9:19, 9:22, 11:6, 20:3, 20:17, 21:6, 24:3, 24:9, 68:1, 77:18, 90:13, 90:23, 92:12, 96:10, 109:22,	111:15, 122:20 plurality 127:6, 128:8, 128:16, 128:20, 129:4, 129:8 plus 13:13, 105:23, 106:20, 136:13 point 27:8, 27:12, 33:21, 46:16, 47:22, 50:11, 50:12, 56:6, 74:3, 74:4, 75:11, 75:14, 75:20, 76:3, 76:9, 77:25, 78:10, 82:19, 82:24, 84:15, 87:21, 87:25, 88:7, 88:23, 89:5, 89:10, 89:16, 89:17, 89:23, 90:5, 90:9, 90:10, 92:16, 92:19, 92:22, 93:1, 93:7, 96:25, 98:12, 115:9, 123:2, 123:7, 123:11, 125:8, 137:5, 137:8, 137:11 pointed 87:22, 88:6 pointing 75:17, 76:15, 82:6, 85:10, 97:3, 115:12 points 27:16, 75:7, 75:8, 75:14, 75:15, 77:7, 77:17, 79:4, 79:10, 81:3, 81:21, 82:16, 82:18, 83:15, 85:2, 85:12,	85:16, 85:20, 85:24, 86:7, 86:8, 86:10, 86:21, 86:23, 87:7, 87:8, 87:10, 88:1, 88:6, 89:2, 93:3, 93:18, 93:22, 97:13, 114:20, 123:3, 123:5, 123:8, 123:12, 123:13 polish 98:5, 98:22, 99:1, 99:9, 99:13, 99:21 polished 99:2 polishing 6:7, 6:14, 22:20, 22:25, 25:9, 25:13, 30:10, 30:13, 30:19, 38:18, 38:20, 39:13, 98:25 polite 90:23 polymeric 22:25, 25:10 polyurethane 5:13, 23:1, 25:10, 25:16, 32:25, 33:2, 33:8, 33:10, 33:25, 53:22, 66:9, 121:14, 139:21, 140:17, 141:9, 141:22, 145:18, 146:7, 146:17, 147:4 poor 40:14 pores 31:11, 31:14, 32:9, 32:17, 33:2 portion 93:19, 97:6,
--	---	---	--

106:12 portions 75:21, 75:24, 83:3 pose 13:1 posita 102:12, 102:19, 102:23, 103:4, 103:13, 104:4, 104:13, 104:23, 107:20, 108:5, 109:12, 109:24, 110:8, 136:8, 136:9, 136:20, 136:24, 137:13, 137:18, 137:20 position 52:18, 126:3 positions 123:16 possess 106:19, 106:24, 108:25 possesses 108:9 possible 9:10, 12:14, 32:8, 32:16, 87:14, 125:14, 136:5, 140:10, 140:20, 142:2 practical 105:20, 105:24, 107:1, 107:4, 107:10 practice 136:10, 136:21, 136:25, 137:20 precise 91:4 predetermined 131:1 prefer 19:22, 19:23 prepare 16:17, 19:3 prepared 15:15, 16:5,	18:21, 18:24, 79:9, 79:12, 79:18, 80:5 preparer 69:5 preparing 28:20 prescribed 24:14 prescribes 24:17 present 4:8, 16:22, 22:3 preserve 23:21 president 59:13 press 120:20 pressed 21:15, 33:15, 33:25, 121:14 presses 33:14, 113:17, 113:19 pressing 27:22, 120:19 pressure 5:21, 116:13, 118:22, 119:11, 119:18, 120:18, 121:17, 139:21, 146:13 pretty 24:8, 96:7, 100:17, 107:14 prevent 10:11, 27:19 previous 35:22, 134:7 previously 7:2, 63:16, 92:22, 132:12 primarily 41:14, 41:20, 41:21, 85:6 principle 86:8, 87:8	principles 111:18 prior 20:11, 72:21, 112:25 priority 69:3, 71:19, 72:10, 72:12, 72:24 privilege 80:23 probably 16:19, 16:20, 27:24, 35:21, 39:11, 47:9, 50:23, 52:4, 57:22, 67:11, 73:8, 74:6, 74:18, 89:2, 90:20, 91:22, 94:14, 106:5, 108:20, 116:16, 125:5, 131:18, 134:14, 136:3, 146:23 problem 44:12, 44:22, 96:18 proceed 132:3 proceeding 34:10, 58:8 proceedings 8:1, 15:14, 17:3 process 28:18, 28:19, 28:23, 35:16, 35:17, 90:17, 95:22, 99:8, 99:20, 100:6, 125:3, 126:24 processed 38:5, 116:2 processes 99:13, 99:17, 116:3 processing 26:14, 29:20,	36:18, 37:10, 37:20, 38:3, 39:7, 43:11, 43:21, 44:5, 95:13, 95:15, 95:19, 97:23, 99:5 production 64:15 prof 5:16, 5:19 profession 70:15, 90:7, 132:16 professional 2:20, 18:6, 18:13, 33:23, 55:10, 107:22, 122:18 professionals 90:17 professions 106:4 professor 9:23, 13:14 proficient 12:25 profile 41:5, 41:9, 41:15, 41:21, 126:25, 131:2 prohibited 25:2 promised 9:14 promoted 13:14, 40:10 proper 63:8, 63:9, 63:10 properly 103:14 properties 29:4, 29:6, 127:4 protrude 140:15, 141:19, 142:24
--	---	--	--

protruding 115:14, 115:15, 115:17, 115:18, 116:23, 117:15, 118:2, 118:7, 118:8, 118:19, 118:20, 119:9, 119:10, 119:20, 120:7, 120:8, 120:16, 121:2, 121:3, 121:7, 122:2, 122:24, 124:23, 126:16, 126:17, 138:8, 139:11, 139:18, 141:8, 142:6, 144:15, 144:24, 144:25 protrusion 124:22, 126:16, 143:9, 144:3, 144:5 provide 9:2, 9:3, 10:16, 10:24, 12:13, 14:12, 18:23, 19:20, 23:15, 29:6, 49:14, 51:16, 55:22, 55:23, 59:17, 59:25, 60:14, 61:5, 103:20, 140:24, 141:7, 142:14, 142:19 provided 51:17, 57:16, 58:7, 103:18 provides 127:3 providing 8:21, 24:5, 50:3 proviso 80:24, 152:14 ptab 24:15, 24:21, 98:13	publications 54:10 publish 13:10, 13:15 published 19:8, 26:24, 53:10, 53:25, 54:12, 60:24, 64:4, 148:9, 148:25, 149:11, 149:23, 150:9, 150:18, 151:4, 151:15, 152:6 publishing 53:12, 54:21 purely 66:14 purpose 92:10 purposes 11:17, 58:19, 66:15, 102:22, 104:5, 104:13, 104:24, 108:5, 109:24, 131:24, 152:11 pursuant 2:19 put 20:1, 80:4, 151:23, 152:3, 153:12 putting 131:15 Q qualification 46:5 qualified 46:6 qualifies 137:13 quantification 122:17 quantified 76:10, 93:16, 93:20, 94:2, 105:19, 106:1,	122:16 quantifies 86:9, 87:9, 94:9, 125:1 quantify 90:8, 114:5, 134:13 quantifying 94:7 quantitative 82:20, 82:23 quantity 6:19 question 11:5, 11:10, 11:11, 13:24, 17:1, 17:9, 17:10, 18:8, 22:8, 22:11, 22:13, 23:16, 32:23, 35:22, 36:1, 44:1, 44:15, 48:11, 48:21, 50:20, 57:6, 57:8, 62:18, 62:25, 63:18, 68:23, 68:25, 69:10, 70:12, 72:13, 72:15, 72:25, 74:8, 75:13, 76:19, 76:23, 77:18, 78:18, 79:3, 80:2, 80:7, 80:9, 80:14, 80:20, 80:21, 81:19, 83:25, 84:7, 84:14, 84:20, 86:5, 86:14, 86:15, 86:17, 86:25, 87:4, 88:1, 88:3, 88:4, 89:11, 89:13, 90:2, 90:11, 90:14, 91:3, 91:4, 92:11, 92:14,	94:18, 95:2, 100:24, 101:20, 103:10, 109:3, 110:5, 111:1, 111:6, 117:12, 117:24, 119:6, 120:3, 120:4, 122:20, 124:7, 124:9, 124:11, 124:13, 124:19, 127:25, 128:18, 132:5, 134:7, 137:17, 143:17, 143:18, 143:23, 145:24 questioned 90:19 questioning 31:19, 64:19 questions 7:12, 8:20, 8:21, 12:1, 12:18, 12:19, 15:9, 16:2, 16:10, 16:21, 17:18, 19:24, 20:3, 22:1, 23:5, 23:6, 29:25, 31:18, 55:5, 62:22, 63:11, 63:14, 66:20, 68:4, 68:15, 69:9, 76:18, 77:14, 77:16, 77:22, 79:9, 82:10, 82:11, 86:12, 86:17, 87:11, 87:15, 87:18, 92:2, 92:8, 123:15, 124:4, 125:15, 126:2, 143:20 quick 147:22 quickly 24:1, 87:14, 114:20
--	--	--	---

quite 12:8, 16:18, 17:18, 29:14, 33:17, 36:19, 47:6, 47:17, 48:24, 65:23, 70:22, 72:15, 73:20, 73:21, 76:2, 84:5, 85:5, 91:15, 108:11, 110:11, 111:25, 112:6, 112:13, 118:10, 118:11, 119:16, 125:10, 127:17, 128:1, 129:17 quote 12:24 R ra 127:7, 127:11, 127:16, 127:23, 128:1, 129:10 random 137:18 rather 32:12 rationale 108:8 rd 70:8 re-ask 44:15, 69:10, 117:13, 122:20 reach 22:5, 28:22, 134:15, 135:5, 135:15, 135:16, 135:25, 153:7 reached 135:6 reaching 88:13 read 13:17, 16:12, 17:4, 17:10, 19:23, 20:11,	21:4, 21:5, 75:2, 88:3, 128:24, 148:18, 154:3 reading 12:25, 13:7, 19:15, 19:19, 25:19, 70:6, 127:20 reads 128:15 real-time 19:16, 19:19, 20:2 reality 60:4 really 11:17, 12:12, 24:13, 33:16, 42:9, 47:18, 49:6, 49:12, 52:17, 55:20, 55:23, 56:3, 56:4, 56:6, 61:17, 61:18, 62:4, 70:25, 71:9, 92:13, 112:13, 112:18, 124:1 reason 10:7 recall 14:22, 15:1, 16:19, 39:15, 42:5, 47:6, 52:7, 53:12, 54:21, 54:23, 61:17 receive 38:9, 41:25 received 34:25, 36:24, 38:6, 39:21, 40:16 receiving 39:15, 60:8 recess 34:4, 66:4,	96:13, 138:3 recognize 20:9, 53:23, 66:23, 72:2, 125:23, 148:2, 148:23, 149:8, 149:21, 150:6, 150:16, 151:1, 151:13 recollection 39:9, 127:15 reconditioned 25:21 record 9:17, 23:10, 23:21, 28:18, 35:25, 42:19, 48:16, 48:20, 54:16, 58:19, 62:22, 80:4, 80:19, 81:14, 81:15, 92:5, 92:11, 96:11, 98:7, 109:3, 123:17, 125:23, 131:10, 131:13, 131:14, 138:2, 148:4, 152:10, 152:20, 152:24, 152:25, 153:3, 153:12, 153:16, 153:18, 155:9 record-keeping 66:15 recordkeeping 11:17 refer 114:21 reference 125:22, 125:24 references 59:3, 112:25 referring 103:8, 103:13, 103:22, 113:25, 124:5, 125:19 refers 78:14	reflect 153:3 refrain 80:8 refuse 78:20, 80:21, 124:13 refusing 78:18, 80:13, 86:12, 87:15, 126:1 regarding 32:22, 42:3, 46:13, 52:17, 102:12, 122:6, 122:24, 124:25, 143:20 regenerate 25:21 registered 2:19 regressing 123:14 rejecting 126:1 relate 37:16, 37:19, 73:10 related 6:16, 15:9, 36:11, 36:17, 38:25, 39:2, 39:4, 39:5, 39:6, 39:10, 40:21, 65:22, 68:11, 68:20, 68:21, 69:12, 73:3, 73:4, 73:6, 73:16, 77:15, 77:22, 78:8, 95:12, 95:14, 95:16, 95:18, 95:21, 105:13, 130:11, 130:16, 131:6, 132:7, 132:8, 155:22 relating 18:5, 19:12,
---	--	---	--

68:14 relationship 38:2, 55:8, 55:10, 55:13, 78:1, 82:20, 85:25, 86:24, 130:16, 130:18, 130:21 relevance 12:7, 52:24, 53:7, 62:1, 62:9, 63:7, 63:9, 63:25, 64:8, 64:20, 65:3, 65:12, 133:14, 145:19, 146:19, 147:6 relevant 19:6, 19:10, 102:24, 103:5, 104:15, 105:8 remaining 111:9, 152:17 remarkable 89:9, 137:10 remember 18:25, 19:1, 24:21, 35:19, 36:13, 36:14, 38:13, 38:14, 38:23, 38:24, 39:11, 39:17, 39:19, 40:19, 40:20, 47:10, 47:11, 47:16, 47:18, 47:19, 47:20, 48:23, 48:24, 49:19, 52:9, 53:8, 53:14, 53:17, 53:19, 54:6, 55:17, 55:19, 55:21, 58:3, 58:6, 84:5, 84:10, 84:13, 127:17, 128:1, 138:6, 138:10, 138:20, 147:19	remembers 79:14 remove 100:14, 100:19 removed 100:21 ren 9:20 rendering 75:22, 75:25, 76:21, 77:1, 83:4, 83:9, 83:18, 84:22 rendition 26:16, 43:15, 50:9, 99:11, 107:7, 123:6 repeat 71:13, 90:2, 103:15, 134:7 repeatedly 87:11, 87:13 rephrase 120:15, 124:11, 147:12 reported 1:25 reporter 2:20, 2:21, 13:2, 30:4, 152:16, 152:18, 152:23, 155:1, 155:3 represent 23:19 represented 155:13 representing 32:1 republic 40:3, 59:6 reputable 56:19 requested 91:17 require 9:5, 19:19 required 12:19, 13:10,	13:14, 19:21, 38:4, 99:21, 105:19, 106:17, 106:22, 136:13 requirement 47:14, 132:19, 133:2 research 27:7, 28:15, 28:16, 28:17, 28:18, 28:21, 28:22, 29:5, 39:10, 40:23, 43:23, 43:24, 46:13, 46:14, 49:3, 50:4, 56:4, 57:1, 57:4, 57:17, 59:7, 59:10, 59:18, 59:20, 59:22, 59:23, 60:15, 60:17, 61:18, 74:4, 74:17, 74:18, 100:13, 100:18, 146:12 researcher 56:25, 57:4, 135:3, 135:24 researches 135:1, 135:14, 137:4 resistant 124:8 resources 51:16, 51:17, 51:20 respect 41:22, 68:3, 123:9 respectfully 77:13 respectively 15:4 respond 62:17, 63:5, 63:18, 69:1, 80:7, 143:19	responded 89:24, 91:8, 91:12, 98:9 responding 92:8, 143:21 response 90:24 restate 25:4, 118:15 result 22:5, 28:23, 50:8, 50:19, 50:22, 135:16, 135:17 results 50:13, 50:15, 50:21, 50:25, 94:16, 135:3, 135:25, 136:4 resume 152:12, 153:5 review 19:2, 19:14, 75:4, 75:6, 75:21, 75:24, 76:13, 76:20, 76:25, 83:3, 83:8, 84:21, 97:15 reviewed 16:6, 19:4, 74:21, 74:22, 74:23, 74:24, 75:3, 76:17, 83:6, 83:23, 84:23 reviewing 50:15, 50:21, 84:9, 84:11 revisions 16:6 revive 26:5, 30:17 right 12:23, 24:10, 28:13, 31:12, 38:8, 47:21, 51:19, 53:18,
---	---	---	--

58:23, 58:25, 59:3, 61:4, 65:9, 77:16, 78:22, 79:17, 79:23, 79:24, 84:9, 85:9, 86:18, 88:12, 91:19, 95:11, 96:12, 101:19, 102:6, 103:25, 104:2, 104:10, 105:17, 121:16, 129:15, 133:25, 134:8, 134:22, 135:20, 148:4, 148:17, 149:14 rigid 141:13, 142:1, 142:6, 142:21, 143:1, 143:14, 144:7 rigidity 142:12, 142:13 road 2:7, 9:20, 155:17 room 30:4, 51:2, 131:11, 131:15 rotates 116:19 rotating 21:15, 22:24, 25:9, 30:13, 30:16, 116:14, 116:18, 118:23, 119:12, 121:21 roughly 74:22, 74:23, 76:22 rpm 121:22 rubbed 30:20, 33:8, 33:25 rubbing 30:25 rules 12:4, 24:15,	25:3, 98:13 S s 64:6 said 15:25, 17:16, 27:15, 50:5, 50:10, 64:12, 64:13, 76:17, 80:13, 88:5, 90:22, 92:10, 100:5, 101:15, 102:2, 103:15, 106:24, 108:18, 110:10, 114:2, 115:3, 118:11, 118:14, 120:6, 132:9, 134:25, 139:9, 139:10, 142:1, 143:22, 145:8 sake 128:5 sam 3:14 same 22:5, 25:12, 29:8, 29:13, 30:3, 32:19, 33:11, 58:17, 63:4, 63:17, 65:12, 73:20, 74:11, 84:3, 98:24, 101:13, 101:25, 102:13, 106:12, 120:10, 129:14, 129:18, 129:20, 129:22, 130:4, 139:18, 140:11, 144:2, 144:9, 144:13, 144:18, 144:19, 145:2, 146:9, 146:19, 147:6, 154:4 samsung 1:4, 1:5, 1:6,	1:7, 3:10, 3:11, 3:12 samsung's 103:17 saving 54:7, 55:3 saw 49:7 say 17:20, 17:22, 19:9, 22:6, 33:16, 45:14, 49:5, 49:12, 50:1, 57:23, 77:14, 93:24, 102:22, 106:5, 106:10, 106:16, 108:13, 121:21, 121:24, 122:14, 124:16, 125:21, 127:3, 135:15, 136:3, 136:5, 139:15 saying 48:7, 48:11, 98:9, 106:10, 114:20, 133:11 says 20:19, 22:24, 24:22, 24:23, 25:8, 34:17, 34:22, 59:4, 68:11, 69:12, 70:7, 72:23, 78:14, 97:7, 103:10, 103:16, 103:19, 104:4, 104:23, 108:5, 109:23, 115:13, 130:24 scenario 121:1 scheduling 152:11 schematic 30:7, 31:20, 31:25 schematically 31:3	scholar 62:4 sci 13:10, 13:15, 19:8 science 34:18, 35:14, 36:3, 39:18, 59:6, 105:23, 106:20, 107:1, 107:11, 109:1, 109:6, 109:13, 110:9, 136:14 scope 15:10, 32:11, 63:7, 68:15, 77:8, 77:11, 77:20, 81:6, 111:22, 145:20, 146:10, 146:20, 147:7 scrap 27:9, 27:24 scrapping 50:6 scratch 50:11 second 5:18, 19:22, 93:19, 113:11, 115:14, 115:18, 116:23, 117:15, 118:1, 118:7, 118:19, 118:22, 119:10, 119:11, 119:20, 120:7, 121:3, 121:7, 121:25, 122:2, 122:24, 124:23, 126:17, 144:22, 144:25, 145:6 second-to-last 59:4 secondly 12:17 secret 63:22 secrets 63:16, 65:2
--	--	--	--

section 2:6, 20:19, 59:2, 68:11, 69:12, 155:17 sections 18:15 see 20:16, 20:19, 20:24, 25:23, 25:24, 26:8, 26:9, 30:7, 30:10, 30:11, 30:16, 31:5, 31:15, 33:21, 53:16, 59:8, 59:15, 69:17, 69:21, 70:10, 103:1, 103:2, 105:3, 110:4, 110:23, 110:24, 111:3, 111:8, 113:5, 121:5, 126:19, 127:1, 127:9, 128:7, 128:13, 128:22, 128:23, 129:1, 129:2, 129:12 seems 55:18, 100:16, 100:21, 101:7, 111:10, 129:17, 138:13, 138:15, 139:4 seen 20:14, 69:5 sees 125:25 sell 64:14 semiconductor 1:6, 1:7, 3:11, 3:12, 21:14, 21:16 semiconductors 5:22 send 125:12 sense 71:6, 108:13	sentence 21:12, 22:9, 22:24, 26:3, 26:8, 72:22, 104:22, 109:10, 109:13, 109:23, 110:9, 125:9, 134:17 series 8:20, 54:9, 64:13 seriously 77:4, 88:13 set 55:2, 68:20, 125:15, 155:7, 156:3 settings 122:6 seven 9:14, 126:5 several 14:1, 27:16, 27:17, 49:10, 84:4 severe 10:25 severely 9:9 sha 42:16 shanfield 103:18, 103:19 shanfield's 103:9 shape 58:22, 98:18, 126:2 shapes 41:8, 41:23 share 72:24 sheet 154:6 shell 64:14 short 12:1, 124:18	shorthand 2:20, 155:1 should 8:15, 11:21, 12:11, 15:22, 16:23, 18:3, 21:21, 24:13, 27:18, 27:23, 42:14, 42:22, 46:4, 52:18, 77:10, 77:14, 80:6, 80:19, 80:24, 91:5, 96:24, 102:20, 105:22, 105:23, 106:19, 106:24, 108:13, 108:25, 116:24, 117:24, 120:11, 124:14, 136:15, 137:5, 137:9, 151:19, 151:21 shouldn't 68:2 show 31:22, 32:5, 60:20, 61:10, 115:3 shown 21:13, 86:2, 86:25 shows 31:4, 31:10, 31:13, 31:20, 75:19, 85:2, 93:4, 115:5 sic 47:17, 106:19, 115:4, 130:16, 131:17 side 23:18, 61:10 signature 154:11 signature-mig2k 156:5 signed 154:6	silicon 98:5, 98:22, 98:25 similar 70:12, 73:6, 73:10, 73:16, 73:24, 84:14, 84:20, 94:12, 94:21, 110:5 simple 76:19, 109:3, 126:7 simply 92:12 since 11:14, 104:9 single 5:11, 41:7, 41:14, 41:20, 41:22, 46:16, 50:6, 50:11, 50:12, 53:21, 66:8, 66:12 sir 35:17, 57:6, 74:21, 77:13, 78:4, 78:13, 78:16, 108:2, 126:11, 127:20, 136:19, 138:6 sit 90:18 sitting 90:19 situation 31:23, 78:24, 115:2 six 39:12, 41:2 size 58:2 skills 13:5 slurry 21:14, 116:9, 117:5, 117:8, 117:21, 119:18, 119:25, 120:1
---	--	--	---

small 128:22 so-called 126:25 soft 22:25, 25:9, 32:25, 33:14, 120:22 sole 133:12 soliciting 88:10 some 9:3, 9:4, 9:5, 9:15, 11:16, 12:1, 16:6, 19:5, 19:9, 21:24, 27:19, 28:24, 30:24, 33:19, 38:4, 43:9, 49:3, 50:7, 51:7, 51:16, 52:4, 55:20, 57:22, 77:21, 102:11, 108:19, 116:5, 125:4, 130:16, 130:18, 130:21, 134:18, 135:10, 136:9, 136:20, 136:24, 137:18, 137:21, 143:19, 145:25 someone 42:10, 131:19 something 47:9, 48:7, 57:23, 69:4, 69:17, 71:8, 77:15, 92:14, 133:7 sometime 16:20 sometimes 91:3, 91:13 somewhere 96:24 sorry 16:25, 46:20,	55:23, 56:3, 58:10, 59:4, 61:22, 80:25, 93:9, 117:12, 139:23, 143:7, 151:3 sort 33:9 sounds 104:8, 153:1, 153:2 sources 42:6 south 9:20 speaking 13:8, 26:17, 36:5, 70:25, 71:9 special 122:18 specialty 124:25 specific 41:16, 75:13, 90:13, 92:2, 92:3, 115:9, 122:1 specifically 12:17, 21:25, 24:22, 47:21, 73:5, 79:2, 83:11, 83:18, 83:21, 83:25, 84:10, 84:21, 94:19, 96:25, 98:12 speed 116:14, 116:16, 116:18, 118:23, 119:12, 121:21, 121:24 spent 153:5 spirit 93:4, 113:20, 114:18 split 74:4	stand 81:11 standard 59:22, 155:20 stanley 103:17 start 9:15, 21:12, 116:10, 119:6, 147:17 started 16:21, 35:6, 37:2, 39:23, 43:3, 46:15, 47:3, 47:12, 47:20 starting 43:7, 45:23, 46:13, 47:2, 115:13 starts 97:2, 97:6, 97:10, 97:18 state 9:16, 9:19, 9:22, 59:12, 82:8, 102:18, 126:22, 131:10, 155:4 stated 21:13, 28:4, 64:5, 64:24, 72:9, 72:17, 82:18, 97:8, 105:5, 138:23 statement 21:19, 22:13, 23:2, 25:4, 25:11, 25:25, 26:10, 33:22, 69:21, 103:13, 104:16, 105:11, 108:4, 109:11, 110:7, 118:12 statements 103:10, 103:11 states 1:1, 25:20,	36:21, 81:9 stating 113:3 step 153:15 stepping 131:15 still 13:17, 19:25, 23:13, 24:2, 52:25, 55:7, 55:20, 70:14, 81:7, 83:14, 90:7, 98:3, 98:11, 103:3, 104:12, 105:11, 105:12, 107:5, 107:24, 108:11, 112:12, 113:21, 122:14, 132:5, 135:23, 137:7 stipulate 54:11, 54:17 stipulating 67:4 stipulation 54:15 stole 63:15 stolen 64:6, 65:1 stonewalling 125:17, 125:19 stop 98:16, 102:25, 124:15, 143:21 stress 57:19, 90:7, 106:11, 135:24 strict 135:4 strike 64:18, 142:12 strikes 132:1 stringent 135:4 strong 106:20, 106:25,
--	--	--	--

107:13 student 42:2, 51:22, 52:16, 52:20, 62:3, 151:17, 151:19 students 152:2 studies 35:23 study 35:6, 35:8, 35:13, 35:19, 36:2, 36:11, 36:17, 39:10, 41:1, 41:11, 46:15, 46:23, 49:24, 50:6, 52:5, 73:7, 73:10, 73:17, 73:25, 74:2, 74:12, 94:12, 94:21, 94:24, 95:3, 95:11, 106:1 studying 13:9, 27:6, 41:3, 45:21, 46:3, 49:1, 49:16, 50:10 subheading 21:2 subject 38:16, 130:4, 131:5, 132:6, 133:12, 135:9 submit 133:7 submitted 14:13, 14:20, 14:24, 79:11, 79:16, 113:1, 133:10 subsection 20:22 substrate 139:16, 139:19, 140:16, 141:20,	142:25 suddenly 117:11, 117:16, 118:2 sufficient 107:19, 136:14 suggest 24:25, 54:8 suggesting 51:4 suggestion 59:14, 59:17 suggestions 57:16, 61:5 summarize 84:24, 118:9 sung 1:10, 3:2, 47:24, 48:3, 48:22, 48:25, 49:4, 49:11, 49:15, 49:21, 50:1, 50:3, 50:15, 50:21, 51:1, 51:4, 51:8, 52:7, 52:22, 53:5, 54:2, 54:10, 54:12, 54:22, 55:8, 55:11, 55:13, 56:12, 56:15, 56:19, 56:22, 57:2, 57:7, 57:16, 57:22, 58:5, 59:13, 59:17, 60:7, 60:13, 61:2, 61:5, 61:13, 61:21, 61:23, 61:24, 62:7, 62:14, 63:2, 63:15, 63:24, 64:7, 64:13, 64:25, 65:7, 65:10, 112:24, 113:2, 126:14, 126:23, 127:19, 127:20,	127:24, 128:2, 128:6, 130:4, 130:12, 130:19, 130:23, 131:7, 131:17, 132:7, 132:10, 133:10, 133:20, 133:21, 133:25, 134:8, 134:20, 135:6, 136:1, 136:10, 136:21, 136:25, 137:21, 147:20, 148:10, 149:1, 149:12, 149:24, 150:9, 150:19, 151:4, 151:16, 155:13 sung's 152:4, 152:6 superabrasive 26:7, 126:18, 127:6, 128:8, 128:16, 128:20, 129:4, 129:8, 129:9, 130:25 support 59:25, 60:3, 60:8, 60:14, 60:16, 60:22 supported 59:9 supporting 59:7 supposed 112:11 sure 10:14, 15:7, 15:19, 16:7, 16:18, 17:20, 17:22, 20:4, 29:15, 32:13, 32:22, 34:2, 36:20, 37:21, 37:24, 42:18, 42:24, 44:20, 56:3, 56:4, 56:6, 57:2, 62:24, 65:20,	65:23, 67:14, 70:15, 70:22, 73:13, 73:15, 76:2, 90:1, 102:13, 104:10, 108:11, 109:2, 109:7, 109:8, 109:14, 110:11, 111:25, 112:1, 115:21, 115:22, 115:23, 122:9, 122:22, 124:5, 124:20, 125:18, 127:12, 129:25, 132:24, 133:16, 133:17, 134:6, 135:7, 136:22, 136:23, 138:22, 140:2, 140:22, 142:18, 143:24, 144:11, 144:20, 145:3, 145:21, 147:2 surface 26:5, 26:6, 30:17, 32:3, 32:4, 39:13, 41:6, 41:15, 41:21, 100:14, 100:19, 127:5, 128:9, 128:17, 128:21, 129:5, 129:10, 130:7, 130:8 surprise 133:10 surprised 52:10 survey 19:5, 19:9 sustain 77:23 switch 43:1 swore 10:15 sworn 8:4, 8:8, 155:7
--	---	--	--

system 35:5, 56:2, 139:20, 140:14 system-assisted 6:19	79:18, 80:5, 81:25, 105:6, 119:24, 130:19 talked 101:21, 117:5, 118:18, 119:8, 129:14 talking 13:6, 19:10, 33:12, 35:18, 37:22, 44:10, 68:6, 68:13, 79:15, 82:20, 102:7, 113:9, 113:10, 130:2, 130:10, 134:12, 138:6, 138:20, 146:11 talks 121:2, 129:3, 129:7 taught 40:12 teach 40:14 teacher 9:24, 49:2 teaching 37:7, 37:8, 37:9 technical 18:6, 22:6, 35:6, 123:4, 123:10 technique 44:3 techniques 43:20, 44:9, 45:5 technologies 22:16, 22:18, 22:19, 22:20, 27:19, 73:21, 74:5 technology 2:5, 20:5, 20:19, 22:17, 26:12, 34:18,	35:14, 36:4, 39:18, 52:11, 64:5, 64:15, 100:15, 100:20, 104:25, 107:22, 110:1, 151:25, 152:1, 155:17 tell 82:16, 91:8, 96:5, 97:13, 118:25, 130:2 tells 21:25 ten 54:21 tend 27:24 term 70:16, 70:21, 71:2, 127:16, 138:14, 139:8 terminologies 17:21, 18:11 terms 13:7, 18:11, 19:5, 19:9, 37:9, 47:4, 71:8, 77:21, 79:21, 86:7, 87:7, 89:1, 89:8, 90:16, 91:14, 93:16, 93:20, 94:3, 106:25, 107:2, 107:8, 107:13, 107:15, 112:7, 113:11, 118:6, 125:4, 134:11, 135:6 test 33:5, 46:5, 50:6, 50:15, 50:21, 50:22, 50:25 testified 8:9, 85:18, 86:19, 92:16, 92:22, 139:3	testify 69:6 testifying 10:11 testimony 10:17, 10:25, 13:3, 19:20, 24:6, 33:7, 33:20, 60:9, 83:22, 84:24, 85:10, 85:14, 85:22, 112:4, 114:16, 119:15, 122:13, 123:19, 130:14, 132:15, 135:13, 135:22, 137:3, 138:10, 138:12, 142:17, 154:3, 154:5, 155:10 testing 29:18, 50:10, 50:13 text 14:5 th 3:16, 4:4, 156:4 thank 13:18, 22:22, 28:2, 58:25, 59:5, 90:11, 92:20, 96:17, 120:24, 131:22, 148:6 thankful 59:12 thanking 60:7, 60:13 thanks 59:24, 60:2, 60:19 theoretical 107:5, 107:15 theories 107:1, 107:10 therefore 17:22, 50:6,
--	---	---	---

56:5, 59:24, 74:17, 94:16, 106:3, 108:23, 111:25, 112:6, 114:4, 122:6, 135:3, 141:13, 151:22 thesis 38:9, 38:12, 38:21, 40:18, 42:1, 43:4, 45:17, 46:13, 50:4, 51:5, 51:9, 51:14, 51:18, 52:1, 52:8, 52:23, 53:1, 146:4, 151:17 thin 25:16 thing 12:11, 46:15, 54:8, 89:5, 125:6, 153:6 things 17:14, 40:12, 57:3, 62:5, 74:18, 84:12, 115:7 think 21:11, 23:13, 23:14, 24:2, 32:12, 35:20, 35:21, 39:4, 39:5, 40:17, 40:24, 42:10, 44:1, 47:2, 48:24, 53:14, 55:17, 56:21, 61:18, 63:12, 67:2, 67:9, 68:13, 69:3, 72:19, 73:8, 75:11, 76:9, 78:21, 81:7, 82:19, 89:5, 89:9, 89:15, 90:10, 90:18,	91:13, 92:5, 92:19, 93:21, 96:12, 102:11, 106:3, 106:18, 107:22, 108:12, 116:17, 117:12, 123:24, 124:12, 126:1, 137:5, 137:7, 137:8, 137:10, 146:3, 146:22, 146:23, 146:24, 151:7, 152:10 thinking 147:8, 147:13 third 46:22, 118:23, 119:1, 119:12 thought 35:22, 86:13, 89:24, 91:8 thoughts 52:5, 123:16 thousand 142:23, 143:1 three 15:14, 17:3, 47:25, 121:18, 141:9, 144:6 three-kilogram 139:20, 140:16, 141:22, 142:7, 145:18, 146:8, 146:18, 147:5 through 13:13, 34:15, 83:8, 83:17, 84:1, 84:11, 118:5, 135:4, 147:18 throughout 8:18, 11:15 time 13:12, 16:20, 16:22, 17:18, 18:21, 20:14, 20:16, 22:3, 23:23, 24:7,	24:20, 27:16, 28:4, 29:16, 36:1, 36:19, 40:17, 43:5, 43:7, 43:23, 45:8, 45:11, 45:14, 45:17, 45:23, 46:8, 46:10, 46:12, 47:17, 47:22, 48:16, 48:25, 49:1, 49:4, 49:5, 49:7, 49:12, 49:20, 49:23, 50:5, 50:7, 50:10, 51:6, 51:12, 51:23, 54:7, 55:3, 55:15, 55:21, 56:6, 57:20, 61:14, 61:15, 63:1, 74:9, 78:25, 81:20, 82:8, 82:14, 87:16, 88:14, 88:20, 89:25, 90:3, 90:15, 90:16, 91:24, 92:7, 100:25, 102:2, 117:13, 118:17, 119:2, 124:19, 125:15, 125:16, 126:4, 126:7, 128:6, 131:8, 137:17, 152:2, 152:15, 152:17, 152:20, 152:21, 153:3, 153:5, 153:8, 155:20 times 64:3, 89:21 tip 41:4, 75:20, 76:11, 82:21, 87:24, 89:4, 90:9, 92:18, 92:24, 93:6,	93:15, 93:16, 94:3, 94:7, 94:9, 113:10, 113:11, 113:17, 114:3, 115:6, 115:14, 115:15, 115:17, 115:18, 118:7, 118:8, 118:19, 118:20, 119:9, 119:10, 120:7, 120:8, 120:16, 121:2, 121:3, 121:7, 122:2, 122:16, 124:23, 125:2, 125:7, 126:16, 126:17, 134:13, 136:17, 137:7, 139:11, 144:15, 144:24, 144:25 tips 75:12, 82:21, 82:24, 84:16, 85:7, 85:25, 86:4, 86:9, 86:24, 87:3, 87:9, 89:9, 92:19, 92:25, 93:6, 113:12, 113:18, 113:22, 115:16, 115:18, 116:23, 117:15, 117:16, 118:2, 119:20, 122:24, 125:8, 126:25, 127:5, 142:6, 143:9, 144:2 title 38:12, 40:18, 52:7, 52:10, 52:17, 58:21 titled 53:21, 66:8 today 8:14, 8:16, 8:24, 9:25, 10:8, 10:15, 68:2, 68:13,
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Transcript of Ming-Yi Tsai, Volume 1

Conducted on February 17, 2025

191

77:10, 78:13, 78:16, 79:14, 87:13 today's 15:8 together 15:17, 41:3, 50:17, 91:20, 125:12 told 98:10, 132:12 took 10:15 tool 37:13, 37:15, 100:17, 100:22, 101:16, 129:8 tools 6:5, 101:21 top 30:7, 31:3, 65:24 topic 130:2 topics 45:22 topmost 31:7 topography 58:22 total 47:18 totally 57:3 touch 46:9, 144:22 touches 145:6 touching 30:25 towards 31:11, 143:18 trace 72:21 trade 63:15, 63:22, 65:2 trademark 1:1	transcript 5:9, 6:2, 7:3, 19:16, 19:20, 19:23, 20:2, 64:19, 66:18, 67:19, 67:23, 71:25, 109:19, 147:25, 148:16, 149:6, 149:19, 150:4, 150:14, 150:24, 151:11 transcription 154:4 translate 23:11, 23:24, 48:14, 80:25 translating 19:24 translation 8:25, 9:5, 9:12, 14:9, 14:10, 14:11, 19:25, 23:13, 24:2, 24:9, 48:11, 87:20, 90:1, 91:11, 91:13, 91:14, 152:21, 153:3 translations 9:3, 91:17 translator 13:2, 91:19, 96:5 transporting 65:1 treating 91:25 trial 1:2 trick 111:1 true 22:17, 29:9, 154:4, 155:9 truthful 10:17, 10:25, 24:6 truthfully 10:8, 10:12,	12:13, 69:6 truthfulness 23:22 try 8:15, 9:10, 9:14, 27:19, 28:24, 47:7, 80:19, 88:20, 90:3, 94:18, 106:14, 118:17, 124:6, 124:18, 125:13, 132:4, 146:14 trying 23:21, 29:4, 40:2, 41:7, 41:11, 41:14, 41:20, 41:21, 86:15, 87:14, 88:16, 88:18, 88:19, 92:1, 109:2, 114:7, 114:17, 124:9, 124:13, 125:22, 127:23 tsai 1:16, 2:3, 5:2, 5:10, 5:16, 5:19, 6:3, 7:4, 8:7, 8:13, 9:18, 12:24, 19:15, 23:9, 42:11, 53:15, 54:19, 66:10, 66:17, 67:18, 67:22, 69:9, 71:24, 74:8, 81:18, 82:8, 87:13, 88:23, 90:5, 90:12, 91:25, 92:12, 96:3, 96:16, 98:10, 104:12, 109:18, 110:17, 112:22, 127:25, 128:13, 128:17, 128:18, 131:11, 131:21, 131:22, 138:21,	147:24, 148:2, 148:15, 149:5, 149:9, 149:18, 150:3, 150:13, 150:23, 151:10, 151:13, 154:2, 155:6, 155:16 tseng 4:13, 8:3, 9:3 turn 20:17, 22:23, 25:8, 31:2, 34:12, 59:2, 72:7, 78:7, 95:25, 102:14, 102:18, 104:18, 104:20, 104:21, 110:16, 111:11, 112:20, 118:25, 119:3, 126:9, 126:21, 131:18, 131:24 turning 92:21 twenty 152:18, 152:19 two 8:24, 14:20, 15:3, 19:18, 31:9, 35:2, 35:3, 35:4, 35:7, 35:8, 86:17, 104:24, 109:25, 115:16, 115:24, 117:16, 118:2, 141:17, 141:19, 142:5, 143:9, 143:10, 144:2, 144:3, 144:6, 145:14 two-years 35:7 type 33:19, 41:16 types 25:14, 26:20, 26:25, 27:5, 28:6, 29:3,
---	--	--	--

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

29:12, 29:18, 32:21, 33:13, 33:17, 74:16 typical 60:21 typically 22:25, 25:9, 99:12, 99:13	38:1, 43:16, 43:17, 44:12, 44:22, 46:1, 46:11, 46:17, 46:19, 46:25, 47:3, 47:5, 47:11, 47:12, 47:21, 48:8, 70:16, 71:2, 71:5, 71:7, 71:10, 71:14, 72:14, 72:17, 75:10, 86:6, 87:6, 89:7, 93:13, 96:22, 107:3, 107:9, 107:15, 111:18, 111:21, 111:24, 112:10, 112:16, 112:19, 132:13	use 99:10, 101:7, 101:10, 102:5, 112:7 using 14:8, 22:4, 22:17, 22:19, 26:6, 39:11, 43:24, 44:8, 99:14, 102:7 usually 74:3, 99:21 utilize 101:22 utilized 26:13, 43:20, 44:4, 99:23, 100:7, 100:15	vice 59:13 videotaped 1:16, 2:3 viewpoint 59:23 viewpoints 134:12 volume 1:17
U		V	W
uh-huh 34:14, 96:19 ultimate 28:22 unclear 44:2 under 10:10, 10:15, 10:24, 12:4, 24:15, 78:13, 128:12, 132:19 undergraduate 108:9 understand 9:8, 10:14, 10:18, 10:21, 10:22, 11:6, 12:23, 17:22, 17:25, 18:9, 18:14, 31:25, 33:17, 41:7, 41:14, 41:20, 41:21, 42:22, 44:24, 44:25, 71:17, 72:11, 74:8, 88:10, 88:16, 91:12, 92:4, 95:17, 103:17, 105:24, 112:7, 115:4, 123:25, 124:8, 131:23, 140:13 understandable 38:15 understanding 18:12, 18:15, 18:18, 20:5, 26:12, 27:7,	understands 81:1 understood 11:11, 29:2, 32:7, 35:9, 39:14, 40:15, 41:18, 42:25, 43:12, 120:24, 128:23, 147:2, 147:11 unique 13:1, 125:10 united 1:1 university 2:5, 34:18, 35:8, 35:14, 36:3, 36:22, 39:21, 39:23, 40:9, 151:19, 151:24, 151:25, 152:1, 152:2, 155:16 unless 12:8, 12:17, 21:25, 78:23, 153:1 until 16:22	vague 105:10 valuable 59:14, 59:17, 61:5 value 117:9, 117:18, 119:17, 119:24, 120:1, 122:16, 127:11, 127:23, 128:1, 129:10 values 127:7, 127:16 variable 86:10, 87:10 variation 87:25 veering 143:17 verbal 14:4, 14:6 verification 46:5, 135:25 verify 90:1, 135:2 versus 41:5, 42:4, 113:11	wafers 27:10, 98:5, 98:22 walked 131:11 want 10:14, 15:7, 24:20, 28:4, 34:15, 42:18, 54:15, 54:20, 62:19, 65:25, 66:1, 67:3, 81:12, 82:2, 90:2, 91:2, 98:6, 99:1, 102:13, 103:8, 104:21, 106:11, 108:15, 109:4, 109:11, 110:7, 123:23, 125:13, 131:10, 131:17, 136:2, 136:4, 136:5, 139:14, 152:23, 152:25 wanted 67:14, 153:12 wants 91:2 waste 24:20 wasted 91:22

way 29:13, 29:22, 32:15, 53:17, 54:24, 60:1, 60:21, 61:9, 65:22, 92:13, 94:14, 97:7, 98:18, 110:21, 123:13, 124:7, 124:12, 125:5, 125:25, 126:2, 135:19, 136:23, 155:25 ways 12:5, 22:5, 27:17 we'll 54:24, 55:2, 91:20, 109:16, 153:14 we're 14:15, 90:4, 102:13, 126:5, 126:6 we've 29:22, 54:9, 91:22, 121:6, 147:17 weak 107:14 wearing 117:23, 119:18, 119:21 wednesday 152:12, 153:6 welcome 81:18 went 55:18 western 40:4 whatever 40:13, 128:5 wherein 130:24 whereof 156:3 whether 29:6, 33:9,	42:24, 61:24, 62:7, 63:2, 64:12, 65:7, 115:22, 116:22, 118:7, 118:19, 119:9, 119:19, 120:6, 123:21, 136:1, 140:5, 140:7, 140:24, 141:8, 142:14 whole 28:19, 28:23 willing 108:10, 108:18, 108:22 wilmington 3:7 wish 124:1 withdraw 14:19 withdrawn 43:2, 61:22, 93:10 within 155:3 without 13:24, 19:23, 32:17, 51:24, 141:7 word 16:12, 17:4, 17:11, 18:1, 18:9, 42:11, 110:25, 111:8 wording 70:23 words 12:9, 111:3, 128:22 work 28:16, 37:6, 44:7, 44:11, 44:21, 49:3, 51:9, 51:12, 51:14, 52:22, 55:19, 57:9, 90:4, 91:20,	108:19, 108:22, 145:14, 146:5 worked 37:5, 56:22, 57:7, 57:9, 57:12, 63:16, 151:21, 152:2 working 43:3, 45:16, 45:19, 49:4, 49:21, 49:23, 50:1, 110:25, 111:4, 111:8, 113:4, 113:8, 113:13, 113:19, 113:23, 114:13, 115:11, 115:19, 116:23, 117:11, 117:16, 118:3, 118:8, 118:20, 119:10, 119:21, 120:8, 120:17, 120:19, 120:21, 120:23, 122:3, 122:10, 122:23, 124:21, 125:20, 138:7, 138:9, 138:14, 138:16, 138:25, 139:5, 139:10, 139:12, 139:23, 139:24, 140:7, 140:18, 141:1, 141:10, 141:23, 142:8, 142:15, 143:2, 143:15, 144:8, 144:17, 144:25, 145:6, 145:11 workload 145:13 worried 11:18 worry 12:9 worse 146:23 write 13:11, 13:17,	15:13, 15:20, 23:7, 38:9, 60:18, 108:16 writing 12:25, 13:7, 13:13 wrong 117:13 wrote 15:18 Y yeah 48:18, 79:13, 81:14, 103:16, 120:13, 130:21 year 16:19, 16:21, 35:1, 40:3, 40:4, 45:25, 46:4, 46:7, 46:10, 46:22, 49:14, 49:19, 55:22, 55:24, 56:2 years 13:13, 26:22, 35:2, 35:3, 35:4, 35:7, 35:8, 104:25, 109:25, 137:6, 145:15 yep 149:10 yield 64:15 york 3:17, 4:5, 64:3 yourself 96:21 yu 9:20 yung-hoon 3:14 Z zhong 42:16
--	---	---	---

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

Transcript of Ming-Yi Tsai, Volume 1

Conducted on February 17, 2025

194

zhongshan 2:7, 155:17 0 00533 1:8, 14:13, 66:22, 67:17, 67:21, 71:23, 103:24 00534 14:21 00535 14:25 03 66:4 04 81:15 05333 66:16 08 96:13 1 10 6:21, 9:20, 13:13, 53:4, 54:12, 72:7, 72:14, 72:18, 110:22, 121:22 1001 7:5 1005 7:6, 66:22, 127:18 1013 7:7, 58:16, 58:20 1014 7:8, 58:8 10169 3:17, 4:5 1037 5:11, 66:16, 66:17 1038 5:14, 67:17, 67:18 1039 5:15, 67:21,	67:22 104 7:9 1040 5:16, 71:23, 71:24 1041 5:18, 109:17, 109:18 1042 5:20, 147:23, 147:24 1043 6:4, 148:14, 148:15, 149:14 1044 6:6, 149:4, 149:5, 149:15 1045 6:9, 149:17, 149:18 1046 6:12, 150:2, 150:3 1047 6:14, 150:12, 150:13 1048 6:16, 150:22, 150:23 1049 6:18, 151:9, 151:10 109 5:18 11 54:9, 110:22 12 1:20, 155:19 12203 2:21 13 69:19, 111:14, 111:17 13,479,148 70:8 13,802,112 69:19	147 5:20 148 6:4 149 6:6, 6:9 15 97:6, 97:10, 144:3, 144:5, 144:16, 144:21, 145:4, 145:5 150 6:12, 6:14, 6:16 151 6:18 1526 3:6 156 1:24 16 104:21, 104:22, 105:15, 109:10 17 1:19, 7:14, 7:16, 76:13, 76:16, 76:20, 76:25, 97:17, 110:21, 115:13, 155:19 18 34:4, 76:13, 76:16, 76:20, 76:25, 97:4, 110:22 19 5:14, 81:16 19806 3:7 1991 65:1 1992 34:23 1993 34:19, 34:23, 37:4, 64:4 1997 37:2, 37:4	1999 38:7, 40:8 2 2 34:4 20 5:15, 69:19, 84:21, 97:4, 97:7 2000 46:24 2002 39:24, 40:8, 43:4, 44:8, 44:10, 44:12, 44:22, 45:1, 45:4, 45:20, 49:18, 49:20 2003 45:25, 46:9, 47:2, 47:21, 49:20 2004 7:9, 47:3, 104:1 2005 104:17 2006 46:24 2007 40:16, 53:13, 53:25, 54:12, 54:22 2008 54:5, 148:9 2009 149:1, 149:12 2010 149:24, 150:9, 150:19 2011 60:24 2012 70:8, 151:5 2013 69:19 2015 54:13, 54:22,
--	--	---	---

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

55:25, 151:15, 152:6 2020 56:8, 56:10 2024 1:8, 14:13, 14:21, 14:25, 66:16, 66:22, 67:17, 67:21, 71:23, 103:24 2025 1:19, 155:19, 156:4 203 148:20, 148:21 21 84:21 212 3:18, 4:6 22 66:4 23 70:8 230 3:16, 4:4 26 3:16, 4:4, 138:3 27 9:20, 83:8, 83:17, 84:1, 84:11, 156:4 270 14:16, 15:8, 20:8, 20:12, 20:14, 34:10, 56:16, 58:14, 65:18, 65:21, 66:21, 67:12, 68:2, 68:6, 68:21, 70:13, 73:9, 73:16, 73:24, 74:11, 74:21, 75:2, 75:8, 75:10, 75:14, 75:16, 75:17, 75:21, 75:25, 76:6,	76:10, 76:13, 76:20, 76:25, 77:16, 78:8, 79:21, 85:1, 85:2, 85:11, 88:23, 88:24, 89:18, 90:5, 90:6, 92:17, 93:9, 93:12, 93:25, 94:1, 94:6, 94:11, 94:20, 95:3, 95:6, 102:14, 102:15, 102:22, 103:23, 104:5, 104:13, 105:6, 108:1, 108:5, 110:16, 110:20, 111:12, 113:2, 113:3, 113:8, 113:15, 113:25, 114:12, 114:14, 115:11, 122:9, 122:22, 124:20, 125:20, 138:7, 138:16, 138:18, 138:24, 139:4, 139:7, 139:9, 153:9 28 103:9, 103:16, 130:22, 130:24, 131:7, 132:7, 134:1, 134:2, 134:9, 134:21, 136:10, 136:21, 136:25, 137:21 29 5:23, 83:8, 83:17, 84:1, 84:11, 102:18, 102:19, 103:8, 103:18, 104:4, 105:6, 108:1, 108:2, 108:16, 109:21, 153:18, 155:19 2963 4:6	3 30 91:23, 147:17 302 3:8 3411 3:18 35 34:4, 110:21 351 3:18 38 5:17 3rd 64:4 4 66:4 40 127:7, 129:10 411030 2:9, 155:18 449 3:8 46 138:3 479 112:25, 113:2, 126:14, 126:23, 127:13, 127:19, 127:21, 127:24, 128:2, 128:6, 130:4, 130:12, 130:20, 130:23, 131:7, 132:7, 132:10, 133:21, 134:11, 136:10, 136:21, 136:25, 137:21 5 5 81:15, 81:16, 96:13 50 121:4, 121:8,	122:25, 124:24 53 5:19 533 68:5, 68:14, 77:11, 78:1, 78:11, 81:9 535 81:24, 82:5, 82:19 57 2:6, 155:17 572612 1:23 58 7:7, 7:8, 96:13, 112:20, 138:18, 138:21, 138:23 59 1:20, 155:19 6 6 96:13 62 7:14 63 7:15, 7:16, 126:9, 126:21, 129:15, 130:3, 130:6, 130:11, 130:19, 131:6, 132:6, 132:9, 135:10 66 5:11, 7:6 67 5:14, 5:15 68 126:9, 126:13 69 7:5 7 71 5:16 8 8 138:3
---	---	--	--

8,974,270 1:9, 14:14, 70:9 80 64:6 802 15:4, 56:16, 65:19, 65:22, 67:15, 67:20, 68:1, 68:8, 69:11, 69:23, 71:22, 72:5, 73:9, 73:15, 73:23, 74:10, 77:6, 77:7, 77:17, 78:5, 78:15, 79:4, 81:3, 81:9, 81:21, 82:3, 82:4, 82:15, 82:16, 82:22, 83:3, 83:9, 84:11, 104:20, 104:24, 105:15, 109:9, 110:5, 153:9 808 4:6 862 15:3, 56:16, 58:8, 65:19, 65:21, 66:25, 67:5, 67:16, 69:24, 70:12, 73:9, 73:15, 73:23, 74:10, 78:6, 84:14, 84:15, 84:17, 84:22, 85:19, 86:2, 86:19, 86:20, 87:1, 92:21, 92:22, 92:23, 93:1, 93:2, 93:8, 93:11, 93:24, 94:1, 94:6, 94:11, 94:20, 95:3, 95:6,	95:25, 96:4, 96:20, 97:1, 104:18, 109:15, 109:21, 109:24, 148:20, 148:21, 153:9 9 9 153:18, 155:19 9,138,862 5:14, 14:21, 69:20 9,724,802 5:15, 14:25 9010 3:8	
--	--	--