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Transcript of Jack Lee, Ph.D., Volume 2

Date: June 13, 2025

Case: Micron Technology, Inc. -v- Yangtze Memory Technologies Company, LTD.
(PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 MICRON TECHNOLOGY, INC.,
6 Micron

7 Petitioner

8 v.

9 YANGTZE MEMORY TECHNOLOGIES COMPANY, LTD.,

10 Patent Owner

11
12 Case No. IPR2024-00791

13 U.S. Patent No. 10,937,806

14
15
16 VIDEOCONFERENCE DEPOSITION TESTIMONY OF

17 JACK C. LEE, Ph.D., VOLUME 2

18 TAKEN ON FRIDAY, JUNE 13, 2025

19 7:00 A.M.

20
21 REPORTED BY:
22 Rebecca Klanderud, RPR, CSR
Job No. 587939

1 VIDEOCONFERENCE DEPOSITION TESTIMONY OF
2 JACK C. LEE, Ph.D. was taken in the above-styled and
3 numbered cause on Friday, June 13, 2025, at 7:00 a.m.
4 PDT, via Zoom communication, before Rebecca Klanderud,
5 RPR, CSR and reported remotely by machine shorthand and
6 realtime technology, pursuant to the Federal Rules of
7 Civil Procedure for the United States District Court
8 pertaining to the taking of depositions and the
9 provisions stated on the record or attached hereto.

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15 * * *

16 (All parties present joined remotely.)

1 INDEX:

2 EXAMINATION: PAGE

3 By Mr. Cross. 69

4 * * *

5 EXHIBITS:

6 LEE EXHIBITS: PAGE MARKED

7 (No Exhibits Were Marked.)

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1 THE COURT REPORTER: Good morning, everyone.

2 This is Rebecca Klanderud, the court reporter
3 for today's deposition.

4 Do counsel stipulate and agree that I may
5 administer the oath remotely, and that the oath so given
6 is valid for purposes of this deposition, please?

7 Mr. Cross?

8 MR. CROSS: I do.

9 THE COURT REPORTER: Thank you, sir.

10 Mr. Sagdeo?

11 MR. SAGDEO: I do.

12 THE COURT REPORTER: Thank you, sir.

13 Dr. Lee, kindly raise your right hand, sir.

14 (The court reporter administered the oath
15 to JACK C. LEE, Ph.D.)

16 THE WITNESS: I do.

17 THE COURT REPORTER: Thank you, Doctor.

18 Counsel, the witness has been sworn, and you
19 may proceed.

20 MR. CROSS: Okay. This is Allen Cross with
21 Ropes & Gray on behalf of Yangtze Medical -- Yangtze
22 Memory Technologies.

1 MR. SAGDEO: This is Parth Sagdeo with Orrick
2 Herrington on behalf of Micron Technology.

3 JACK C. LEE, Ph.D.,
4 a witness in the above-entitled matter,
5 having been first duly sworn,
6 testified on his oath as follows:

7 EXAMINATION

8 BY MR. CROSS:

9 Q. Okay. Hi, Dr. Lee.

10 How are you doing this morning?

11 A. Good. Good morning.

12 Q. Yeah.

13 Can you provide your current location?

14 A. It's in Austin, Texas.

15 Q. Okay. And can you let us know what's in front
16 of you?

17 A. Just a laptop with the -- with the Zoom link.

18 THE COURT REPORTER: I'm sorry.

19 Could you repeat that answer?

20 I didn't hear it.

21 THE WITNESS: Just the laptop.

22 BY MR. CROSS:

1 Q. So you don't have any documents open on your
2 screen?

3 A. No.

4 Q. And you don't have any other paper documents in
5 front of you?

6 A. No.

7 Q. Okay. And do you have any other electronic
8 devices?

9 A. No.

10 Q. And you understand you're under oath today?

11 A. Yes.

12 Q. And that is before I'll be asking questions,
13 and you'll be answering them?

14 A. Yes.

15 Q. If you don't -- and you agree that you'll wait
16 for me to finish my questions, and I will wait for you?

17 A. Yes.

18 Q. Is there any reason why you cannot testify
19 truthfully and fully today?

20 A. No.

21 Q. And if I ask a question that you don't
22 understand, do you agree to ask for clarification?

1 Otherwise, I'll assume that you understand the
2 question.

3 Is that fair?

4 A. Yes.

5 Q. And how did you prepare for today's deposition?

6 A. I prepared my deposition today by reviewing my
7 declaration, specifically, the deposition -- so-called
8 the expert reply declaration for 806-1.

9 And I also review all the relevant references,
10 for example, the prior art reference, as well as the
11 asserted patent, the '806 patent. I also discussed with
12 counsel a few times in preparation for this deposition.

13 Q. And over what period of time did you discuss
14 with counsel?

15 A. We have -- within the last couple weeks, we
16 have two deposition prep sessions. Each one is of --
17 was of -- about two hours long.

18 Q. And did you review your opening declaration for
19 this matter?

20 A. I understand that today's deposition focuses on
21 my reply declaration, so I did not review my opening
22 deposi- -- declaration for this deposition.

1 Q. Do you cite your opening declaration in your
2 reply declaration?

3 A. I do not remember whether I cite my original
4 depo -- declaration.

5 So if I have missed that, can you point to
6 where -- where that is in my reply declaration?

7 Q. So you don't recall whether or not you referred
8 to your opening declaration?

9 A. My understanding is a deposition is not a
10 memory test, so if you can down- -- if I can download or
11 you can put it on the chat, the re- -- my reply
12 declaration, perhaps then I can look at it and -- to
13 answer your question accordingly.

14 Q. But it's fair to say that you didn't open your
15 opening declaration in order to prepare for this
16 deposition?

17 A. My understanding is that this deposition is
18 focused on my reply declaration, so I did not review my
19 original declaration in preparation for this deposition.

20 Q. So other than the prior art and the '806 patent
21 itself, did you review any other documents?

22 A. I don't recall that I have.

1 Q. Dr. Lee, can you tell me what a channel
2 structure is?

3 A. A channel structure.

4 Are you -- I don't know if I have provide a
5 claim construction in a -- in my reply declaration. So
6 if you can again provide me a copy of my reply
7 declaration, perhaps I can answer your question.

8 Q. Are you unable to answer my question without
9 looking at the reply declaration?

10 A. So, again, I believe the focus of my deposition
11 is on my reply declaration. And so I don't know if what
12 you're asking me is something that I address in my reply
13 declaration. So if you can point at where I -- where
14 that is in my declaration, that would be wonderful.

15 Q. Understood.

16 But can you answer my question without
17 referring to the reply declaration?

18 A. So if I recall correctly, I have not provide a
19 claim construction for the term "channel structure," um,
20 and in my reply declaration. I also don't recall that I
21 provide the claim construction of the term "channel
22 structure" in my opening declaration.

1 So to answer your question that if we put aside
2 -- putting aside the patent, the prior art, and my
3 opening declaration, as well as my reply declaration,
4 put all that aside, a person of ordinary skill in the
5 art would understand the term "channel structure" in a
6 3D NAND memory is referring to the vertical silicon
7 pillar to which the charge carrier flows, the "charge
8 carrier," meaning either electrons or holes during the
9 memory operation, memory operation such as read,
10 program, and erase. So the channel structure is a core
11 component of the memory stain, and it vertically
12 oriented.

13 Again, this is not by no means my claim
14 construction of the term "channel structure." This is a
15 channel -- understanding of the term "channel structure"
16 from a point of view of a person of ordinary skill in
17 the art at the time of the alleged invention.

18 Q. Is it your opinion that the '806 uses the term
19 "channel structure" differently than how you've just
20 described it?

21 A. I don't recall exactly how '806 patent describe
22 the term "channel structure," and so, therefore, I would

1 not know many -- you know, I don't recall how '806
2 described the term "channel structure."

3 If you can post a copy of the '806 patent,
4 along with my reply deposition, perhaps I can answer
5 your question more precisely.

6 Q. I put in the chat a document previously marked
7 as Exhibit 1001. This is the '806 patent.

8 Let me know once that's -- you've received
9 that.

10 A. Yes. I got that. Thank you.

11 Q. Okay. If you can open that up, and let me know
12 if you believe the '806 uses the term "channel
13 structures" differently than as you described, or if
14 it's consistent?

15 MR. SAGDEO: Objection, form.

16 THE WITNESS: So in column 2, line 35 -- all
17 right. Yeah.

18 In column 2, line 35, it says that "channel
19 structures and dielectric structure - each extending
20 vertically through the alternating dielectric stack -
21 are formed."

22 BY MR. CROSS:

1 Q. And so is that consistent with how you
2 described channel structures previously?

3 A. Well, there is simply -- I Googled -- you know,
4 I searched for the word "channel structure" in '806
5 patent, and unless I miss it, they did not describe the
6 orient -- the function of the channel structure, at
7 least from what I seen, unless I miss it. Please point
8 that out to me. It simply saying that it extend
9 vertically through the alternating dielectric stack. So
10 it tells you what the locations and the orientations of
11 the channel structure.

12 What I described earlier, I believe that I
13 described that knowing that is a vertical silicon
14 pillar, so it's all -- similarly at the '806 patent,
15 indicating that it is extending vertically and I did not
16 -- earlier, I did not say that it is through the
17 alternating dielectric stack. And a person of ordinary
18 skill in the art would understand that it is -- it is --
19 the channel structure is extending vertically through
20 the alternating -- to be more precise, alternating
21 conductor dielectric stack.

22 And earlier, I also say that the function of

1 the channel structure that is through which electrons or
2 holes, which is charge carrier, flow during the read,
3 write, or erase operation.

4 So in many ways that the '806 patent more or
5 less described the channel structure similar to what I
6 have said.

7 Again, this is not my -- I'm not offering the
8 claim construction of the term "channel structure." I
9 simply indicating what the understanding of the term
10 "channel structure" by a person of ordinary skill in the
11 art at the time of the alleged invention.

12 Q. In a memory device, how many channel structures
13 would you expect to have in a single device?

14 A. Well, it depends on the density of -- of the 3D
15 NAND memory chip.

16 Q. Can you give me a range of how many you would
17 expect in a single device?

18 A. Well, let me clar- -- let me try to clarify
19 your question.

20 When you say "device," what do you mean by
21 that?

22 Q. Okay. So to simplify, in a single memory

1 array, how many vertical channel structures would you
2 expect to see in that device?

3 MR. SAGDEO: Objection, form.

4 THE WITNESS: So let me ask you to clarify the
5 question.

6 Are you asking how many channel of channel
7 structure to be expected in a 3D NAND memory array?

8 BY MR. CROSS:

9 Q. Yes.

10 A. And what memory array size are you referring
11 to?

12 Q. What's the smallest memory array size you've
13 seen?

14 A. Well, it depends. I mean, for a research
15 oriented -- research type of memory device, it could be
16 just very, very small, 32 bit or even, like, 1 bit or,
17 you know, 24 bit or 10 bit.

18 I -- you know, that's such a vague question.
19 There's no such thing as the smallest memory array.

20 Q. Okay. How about in the -- something that would
21 be for sale to a consumer?

22 A. Okay. Let's say it's -- you know, let's say

1 128.

2 So -- so the -- to answer your question, in
3 general, again, outside of my -- outside of the patent,
4 the prior art or my reply declaration or the original
5 declaration, the understanding of the term "channel
6 structure" and the calculations of the number of channel
7 structure by a person of ordinary skill in the art at
8 the time of the alleged invention is that the number of
9 channel structure, which is usually dope policy silicon
10 pillar, is equal to the number of memory strain you have
11 in the memory array.

12 So the memory array, let's say, is 2400 -- 2048
13 bit, so 2000 -- basically 2048 bitlines. Let's say you
14 have four planes in the memory chip and each chip --
15 each plane has two sub-arrays. Then the number of
16 strings which is equal to the number of channel
17 structure as you go to -- can be calculated by the
18 product of those three numbers. That is, number of
19 channel structure is equal to number of memory string
20 which in turn is equal to the number of bitlines times
21 the number of planes times the number of sub-array.

22 So when you have 2048 bits, you have to

1 multiply it by four, multiply it by two, which is a very
2 large number. I believe it's -- let's see. I don't
3 know, over 16000 channel structure. And then when you
4 have these modern days 3D NAND dies that consist of 512
5 gigabit or 1 terabyte, it can easily contain millions of
6 vertical channel structure.

7 Does that make sense?

8 Q. You know, that makes sense.

9 So in your example, a single memory array would
10 have about 2000 channels?

11 MR. SAGDEO: Objection, form.

12 THE WITNESS: I didn't -- I didn't say that.

13 As I mentioned, it depends on how many bitlines
14 in the memory chip and how many planes and how many
15 sub-arrays. So that's just one example. There might be
16 other depending on how the architecture is formed. It
17 could be many, many other configurations, and that just
18 give you an example of a -- a simple textbook
19 calculation. By no means it covers all the different
20 variations of how a 3D memory chip is different from one
21 architecture to another.

22 BY MR. CROSS:

1 Q. Understood, but I qualified by question as "in
2 your example." So I just want to make sure that I
3 understand your example.

4 You said that it has 2000 bitlines?

5 A. Well, 2048.

6 Q. Okay. So in your example, you had 2048
7 bitlines.

8 Does that suggest that in a single array, there
9 are 2048 channel structures?

10 A. If you have -- in a memory chip, you only have
11 one one plane and one sub-array within the plane. Then
12 the number of string, the memory string in my example
13 would be 2048 channel structure.

14 Q. And previously you had discussed some of your
15 research maybe involved the very small memory devices
16 with 32 bit or 1 bit.

17 In those devices, did you have a staircase
18 structure?

19 A. I don't recall. I have worked with so many --
20 I have worked with so many students, researchers in
21 fabricating various memory devices, and I have over 600
22 research paper and conference proceedings. I don't

1 recall every single one of them.

2 Q. Okay.

3 A. And so I would not be able to answer your
4 question at this point.

5 Q. Okay. So you can't recall one way or another
6 whether or not these very, very small memory devices
7 have a staircase structure?

8 A. I don't recall whether with 32 -- 35 years of
9 my being a professor at UT, whether any experiment
10 include a staircase structure.

11 Q. So, Dr. Lee, you don't profess to be a
12 structural engineer, do you?

13 MR. SAGDEO: Objection, form.

14 THE WITNESS: The term structural --

15 BY MR. CROSS:

16 Q. Okay. Do you profess to be a structural
17 engineer?

18 MR. SAGDEO: Same objection.

19 THE WITNESS: Can you clarify your question by
20 explaining what you mean by "structural engineer"?

21 Because it's really a very general term.

22 BY MR. CROSS:

1 Q. In what ways have you heard the term
2 "structural engineer" being used?

3 A. Well, if you ask a professor or even a student
4 or even a high school student: What is a structural
5 engineer, they would think of it as a type of civil
6 engineering -- civil engineer who specialize the design
7 and analysis and ensuring the safety and reliability and
8 stability of structures that support or resist a load
9 (witness indicating). So this include buildings,
10 bridges, tunnels, towers, dams, or even an automobile
11 frame, and aircraft frames, or oil off-shore platforms.

12 So, in general, that's what the term
13 "structural engineering" or "structure engineer" would
14 be understand -- would be understood.

15 So if that is what you mean by "structural
16 engineer," I don't think I'm qualified to be a
17 structural engineer because I'm not a civil engineer.

18 Q. I've loaded in the chat a document previously
19 marked as Exhibit 1043. This is your reply declaration
20 in IPR2024-00791.

21 If you can let me know when you open that?

22 MR. SAGDEO: Allen, I haven't gotten it.

1 I don't know.

2 Is it still uploading?

3 Oh, there it is.

4 THE WITNESS: Okay.

5 BY MR. CROSS:

6 Q. Do you recognize this document?

7 A. Yes.

8 Q. Okay. And this is your reply declaration filed
9 in this matter?

10 A. This is my reply declaration for the U.S.
11 Patent, what we call '806 patent.

12 Q. Okay. If you can turn to page 14 of your
13 declaration?

14 A. Okay.

15 Q. What qualifications do you rely on to call the
16 lower figure a staircase structure?

17 A. So in paragraph 18, I basically says that -- I
18 state that a structure refers to "something arranged in
19 a definite pattern of organization."

20 And I also put in the footnote that in my
21 opening declaration, using the same Merriam-Webster
22 dictionary, it's also offer a definition, says

1 "something (as a building) that is constructed."

2 So I give additional definition because in
3 light of the parties' argument, as I mentioned in the
4 footnote, "it has become apparent that the earlier
5 definition alone does not fully resolve the dispute."

6 So -- and I stated in paragraph 18 that
7 consistent with the definition that a structure, such as
8 the wall pictured below or the staircase structure below
9 in page 14, is consistent with the definition provided
10 by the Merriam-Webster dictionary, that is the term
11 that's not required or is element to be contiguous,
12 rather that -- in other words, that its components -- in
13 paragraph 18, its components are not all touching each
14 other and would still be considered a structure.

15 Q. But, Dr. Lee, can you see behind that wall in
16 the lower figure?

17 A. Say that again?

18 Q. Can you see anything behind the wall in the
19 figure below -- strike that.

20 Can you see anything behind the wall in the
21 bottom figure on page 14 of your reply declaration?

22 A. Behind the wall.

1 Now, obviously, the wall is white, right?

2 That -- that it -- I don't think anyone looking
3 at the picture, the lower picture on page 14 would see
4 behind the wall.

5 Q. Okay. So you don't know whether or not those
6 wooden steps are connected together behind the wall, do
7 you?

8 A. Well, the picture clearly shows that the stairs
9 -- the -- each step of the stairs, staircase do not
10 touch each other, so --

11 Q. And even --

12 A. Sorry. May I finish?

13 But as I mentioned in paragraph 18 that even if
14 those stairs anchor embedded in the wall, that they
15 still did not touch each other, and this would still be
16 a staircase structure.

17 In other words, a person of ordinary skill in
18 the art would understand that the focus is on the
19 functional or organiza- -- organized arrangement of this
20 part, not a physical continuity.

21 Q. So what is the functional arrangement here?

22 A. Well, the function of the staircase is to allow

1 someone to walk from the -- from the -- from one floor
2 to another floor, from the lower floor to the upper
3 floor, and the arrangement would provide such function.

4 Q. So because each of these wooden steps provides
5 this function, they're part of the staircase structure,
6 correct?

7 Is that your opinion?

8 A. Can you repeat that question, please?

9 Q. Because each of the steps fulfills part of that
10 function, they are part of the staircase structure,
11 according to your opinion?

12 A. No. I did not exactly say that.

13 I'm saying that because each of these steps are
14 working together to provide a function that allow a
15 person to walk from a lower floor to the upper floor and
16 vice versa, and, therefore, collectively these steps
17 form a structure, even though they are not physically
18 continuous or physically contiguous.

19 I did not say, therefore, they are part of the
20 staircase structure. I'm saying that collectively they
21 form -- they form a staircase structure, to be more
22 precise.

1 Q. So if they did not collectively provide the
2 function of allowing a person to walk from a lower floor
3 to an upper floor, you would not consider it a staircase
4 structure, correct?

5 A. I don't know what you mean by that -- that. I
6 don't understand the scenario that you have number of
7 steps and do not collectively provide a function of
8 allowing a person to walk from lower floor to upper
9 floor and from the upper floor to lower floor. I just
10 cannot envision a scenario that you have number of step
11 and, but do not collectively provide such function.

12 Q. Sure.

13 Let's imagine that you're missing all the steps
14 between the first step and the last step. There would
15 be a plurality of steps, but they wouldn't provide the
16 functionality you're describing.

17 Would you consider that a staircase structure?

18 A. As I explained earlier, that paragraph 18
19 essentially saying that a structure that's not require
20 all the elements to be contiguous, rather its meaning
21 focus on the functional, right, and the arrangement and
22 the organized arrangement of its parts and not a

1 physical -- not on physical continuity.

2 So the example that you have that you only have
3 the lowers -- lower step and the upper -- and the lower
4 step and the higher step and all the step in between are
5 missing, then unless a person have a very long legs,
6 they can go from lower stair -- lower step to the upper
7 -- to the higher step and in that case, it still provide
8 a functional arrangement. So that would still be
9 considered a staircase structure.

10 But if the height of the -- of that floor -- if
11 the height of that building is very tall and no one can
12 go from one step to another with all of the steps
13 missing in between, then the staircase structure in your
14 hypothetical scenario would not be able to perform a
15 function that is intended.

16 So, hypothetically, that a staircase structure
17 of this strange arrangement that you provided would not
18 provide this functional arrangement, then I would -- I
19 would say that a person of ordinary skill in the art
20 would say that that's not a staircase structure because
21 it doesn't provide the function -- the intended function
22 of a staircase structure.

1 But, in general, in a more realistic
2 arrangement, it wouldn't be like that.

3 Q. Dr. Lee, do you agree that each of those steps
4 in the figure are anchored to the wall somehow?

5 A. As I mentioned in paragraph 18, even if those
6 steps are anchored and embedded within the wall, even if
7 that is the case, those anchoring structure did not
8 touch each other, this would still be a staircase
9 structure because it provide a functional arrangement.

10 I don't exactly know how the structures in the
11 photograph are made, but it appears -- it appears that
12 this anchor embedded within the wall, each steps, but --
13 but that's not the point.

14 The point remains that even if those anchor --
15 anchoring structure did not touch each other, this would
16 still be a staircase structure.

17 Q. Dr. Lee, do you agree that those wooden steps
18 are not floating?

19 MR. SAGDEO: Objection, form.

20 THE WITNESS: What do you mean by "floating"?

21 BY MR. CROSS:

22 Q. I mean, do you agree that they are not just

1 floating in space; that they are anchored to the wall?

2 A. Again, I do not know how exactly the staircase
3 are built, and so I wouldn't know whether it's indeed
4 anchored into the wall, or there might be another
5 supporting element that is transparent that we just
6 don't see it in this picture.

7 Q. So you're saying that there is another
8 possibility that a transparent structure is supporting
9 all of these staircases together?

10 A. I'm just saying that there is no description of
11 that picture, and, therefore, without a detailed
12 description, just looking at the photo, one would not be
13 able to determine how the staircase are built.

14 It does appear that the stairs -- steps are
15 anchors and embedded within the wall.

16 Q. Assuming that the stairs are anchored and
17 embedded into the wall, if you remove the wall and
18 everything behind it, would these steps still function
19 as a staircase structure?

20 A. Okay. That's a strange -- I don't know what
21 you mean by that, "remove the wall."

22 Q. Right.

1 If you knock down the wall and remove
2 everything behind it, but you left and did not touch the
3 stairs, would it still function as a staircase
4 structure?

5 A. If you removed the wall, right, then there's no
6 support for the -- for the steps.

7 Is that what you mean?

8 Q. I'm asking you.

9 If you remove the wall and everything behind
10 it, would the steps in Figure 14 function as a staircase
11 structure?

12 A. Well, assuming the steps are anchored to the
13 wall, the removal of the wall does not negate the fact
14 that the steps themselves remain arranged in a
15 functional pattern, assuming that there is still some
16 other means of holding the steps such that the stair
17 construction still exists even without the wall, as long
18 as the steps are organized to perform the function which
19 is vertical movement.

20 Q. So it would require another supporting
21 structure in order to maintain the staircase structure,
22 correct, that's not visible in this figure?

1 A. So you're saying that what if the step falls --
2 fall apart when we remove the wall.

3 Is that right?

4 Q. I'm asking, in this figure, where we have
5 assumed that the stairs are embedded into the wall, and
6 you knock down the wall and everything behind it, are
7 the steps still a staircase structure?

8 Do they function as a staircase structure?

9 A. So under your scenario, that if we remove the
10 wall that causes the step to fall apart, then the
11 structure as a functional unit may not exist.

12 In other words, that the picture as itself
13 shown here is consider a staircase structure because
14 they're function only arranged to sort of a purpose
15 which is -- enable someone to have a vertical movement
16 from downstairs to upstairs and from upstairs to
17 downstairs. However, if removing the wall to cause -- if
18 removing the wall causes the step to collapse, then that
19 would call into question whether the steps alone can
20 constitute a stable, operable structure. So depends on
21 whether the steps after removing the wall would still
22 performing the function.

1 So depending on what you mean by -- you know,
2 what is the assumption behind your question?

3 Q. The only assumption in my question is that the
4 steps are embedded into the wall, and you now knock down
5 the wall and remove everything behind it.

6 Is it possible that the steps function as a
7 staircase structure, assuming no other supporting
8 structures?

9 A. So is your assumption that removing the wall
10 causes the step to collapse?

11 Q. I'm asking you.

12 If you remove the wall and the only support
13 that these stairs have by the fact that they're embedded
14 into the wall, could the steps still function as a
15 staircase structure after removing the wall?

16 A. Well, I don't know what you mean by "removing
17 the wall."

18 If you mean by "removing the wall" simply
19 remove the drywall on the wall or --

20 Q. Sorry. I'll stop you there because I said
21 removing the wall and everything behind it.

22 A. Behind what?

1 Q. The wall.

2 A. Behind the wall or within the wall?

3 What do you mean "behind the wall"?

4 Q. Removing everything, including the wall and
5 everything behind it. I'm not exactly sure where the
6 confusion is.

7 A. The confusion is that when you say remove the
8 wall -- remove everything behind the wall.

9 Behind the wall there's a bathroom maybe.
10 There's a -- there might be a garage.

11 Are you saying remove the whole garage?

12 What do you mean "behind the wall"?

13 Are you saying that you remove the wall so that
14 the supporting -- the anchoring mechanism no longer
15 exists?

16 So in order to answer your question -- all
17 right. In order to answer your question, I have to know
18 what happens when someone remove the wall.

19 Does it cause the step to collapse?

20 If it does, then the structure no longer
21 perform the functional unit, than it would not be called
22 a staircase structure.

1 On the other hand, if you remove the wall and
2 the steps still remain for some reason and do not fall
3 apart and still allowing and enabling vertical movement,
4 then the structure will still be a functional unit, and,
5 therefore, be called a staircase structure.

6 So that's my answer. Depends on what is the
7 outcome when you remove the wall.

8 Q. What would you expect the outcome to be,
9 assuming that there's no invisible support structure?

10 A. I don't know. You're the -- you're the one
11 that answered -- asked a question that what if you
12 remove the wall?

13 And my answer is it depends on the outcome of
14 the -- of the removal of the wall and if it is -- if it
15 causes the wall to collapse -- causes the steps to
16 collapse and fall apart, then the structure will no
17 longer exist as a functional unit. Then the staircase
18 would -- then the steps collectively would not be called
19 a staircase structure.

20 On the other hand, if removing the wall does
21 not caused the step to collapse, then the structure
22 remained and would still be -- give you a stable,

1 operable structure. Then the step collectively will
2 still be a -- called a structure, a staircase structure.

3 If you ask me, assuming that the picture seems
4 to appear that the steps are anchored, embedded within
5 the wall, so if you remove the anchoring mechanism,
6 which is the wall, then it's pretty good assumption that
7 the wall -- removing the wall would cause the steps to
8 fall apart, and that the structure will no longer exist
9 as a functional unit.

10 Q. Okay. We've been going for about an hour.

11 Do you want to take a five-minute break?

12 A. Sure. Thank you.

13 Q. Okay.

14 (A short recess was taken.)

15 BY MR. CROSS:

16 Q. Thank you, Dr. Lee.

17 Let's see. If we can turn to, oh, page 11 of
18 your reply declaration?

19 A. Page 11.

20 Q. Paragraph 15.

21 A. Okay.

22 Q. You state that: "Dr. Yang also ignores the

1 benefits of thin liners, which occupy less space and
2 provide more of the gate layers, offering advantages in
3 layout density and electrical performance."

4 Can you explain what you mean by advantages of
5 electrical performance by preserving more of the gate
6 layers?

7 A. Providing . . .

8 Are you asking me to explain the sentence right
9 behind -- right after the sentence "Dr. Yang, however"?

10 Q. Yes. The one that starts with "Yang also."

11 A. I see.

12 Well, first of all, I believe Dr. -- Dr. Yang
13 failed to consider the key advantage of using the thin
14 conformal dielectric liner, which are commonly done in
15 3D memory.

16 These liner, this thin liner require physical
17 -- less physical volume than a large, solid dielectric
18 block, so this will leave more room for other important
19 structure such as gate layers in a tightly packed memory
20 array. So because this thin liner take less space and
21 does not intrude significantly into the memory array,
22 they would allow more of the wordlines, that is the gate

1 layer, to remain intact. So this will in turn help to
2 maintain the, effectively, gate length, which is crucial
3 in controlling the current flow and threshold voltage in
4 the memory array.

5 So when we say -- when I saw offer advantages
6 in the layout density and electrical performance, so
7 less intrusion means higher density, meaning tighter
8 layout.

9 And when I say better electric characteristics,
10 this include, for example, there would be less parasitic
11 capacitant, more uniform gate control, and better
12 channel coupling.

13 So, basically, that -- in short, basically,
14 that sentence argue that a thin dielectric liner to a
15 person of ordinary skill in the art would understand
16 that are beneficial because they maximize use of space
17 in the memory array, and, therefore, allow the case
18 there to function more effectively which in turns
19 improve both layout, efficiency, or, in other words,
20 layout density and electrical behavior, in other words,
21 electrical performance of the memory cells.

22 Q. So you're saying that Dr. Yang is ignoring the

1 fact that a liner provides better electrical performance
2 than a larger dielectric structure?

3 MR. SAGDEO: Objection, form.

4 THE WITNESS: I believe that Dr. Yang's
5 overload that the liner, liner base approach would
6 provide these layout performance, layout design, and
7 performance benefits in his analysis.

8 So I believe that a person of ordinary skill in
9 the art would recognize this liner base insulation was
10 well-known and effective and a desirable method for the
11 electrically isolating through array context.

12 In fact, I believe that the '806 patent
13 discloses such approach. Uh, sorry. Yeah.

14 BY MR. CROSS:

15 Q. Are you done?

16 A. Yes.

17 Q. So I'm still a little bit unclear.

18 You say that it offers the advantages in layout
19 density and electrical performances.

20 I understand how it has an advantage in layout
21 density, but how does a liner have advantages in an
22 electrical performance over dielectric structure?

1 MR. SAGDEO: Objection, form.

2 THE WITNESS: I explained earlier that the --
3 this liner base would provide electrical -- better
4 electrical characteristics, including lower parasitic
5 capacitance, more uniform gate control, and better
6 channel coupling.

7 MR. CROSS: I have no further questions.

8 MR. SAGDEO: Okay. No -- no redirect.

9 THE COURT REPORTER: Okay. Folks, have we
10 finished today?

11 THE WITNESS: Thank you.

12 MR. CROSS: We are.

13 Do you have any questions for us?

14 THE COURT REPORTER: If I have questions, I
15 will be reaching out to both of you gentlemen. Thank
16 you.

17 Could I just understand what your orders are on
18 this record, please, what you'd like to see and when on
19 this final transcript?

20 MR. CROSS: I think you have our standing
21 orders.

22 If not, do you mind reaching out to our

1 paralegal?

2 THE COURT REPORTER: I don't.

3 Do you happen to know what that standing order
4 is by chance?

5 Do you receive a rough draft?

6 MR. CROSS: I think we get a rough draft
7 automatically because we have the real time.

8 THE COURT REPORTER: Okay. And then what about
9 the final?

10 Are you getting that standard delivery, or do
11 you get that expedited?

12 MR. CROSS: Standard is . . .

13 THE COURT REPORTER: Two business weeks.

14 MR. CROSS: I think that's too late. I'll have
15 my paralegal reach out to you. I have your email
16 address from earlier today.

17 THE COURT REPORTER: Okay. Very good. Thank
18 you.

19 And how about for you, Mr. Sagdeo?

20 MR. SAGDEO: Just a standard is fine.

21 THE COURT REPORTER: Do you want the rough
22 draft?

1 MR. SAGDEO: Yeah. Sure.

2 THE COURT REPORTER: And when you say
3 "standard," you mean the two weeks, right?

4 MR. SAGDEO: Yes.

5 THE COURT REPORTER: Okay. Very good.

6 Thank you so much. Great to work with you
7 today. Wishing you a lovely Friday and an even better
8 weekend, folks.

9 (The deposition concluded at 8:32 a.m. PDT.)

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DEPOSITION ERRATA SHEET

Our Assignment No. 587939

Case Caption: Micron Technology, Inc. vs. Yangtze
Memory Technologies Company, Ltd.

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that I offer these changes as if still under
oath.

Signed on the _____ day of
_____, 20____.

JACK C. LEE, Ph.D.

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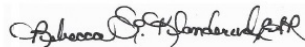
2
3 I, REBECCA KLANDERUD, Registered Professional
4 Reporter, Certified Shorthand Reporter within and for
the State of California do hereby certify:

5 That JACK C. LEE, Ph.D., the witness whose
6 deposition is hereinbefore set forth, was duly sworn by
7 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.

8 I further certify that both parties were
9 represented by counsel at the deposition.

10 I further certify that the deposition of JACK C.
11 LEE, Ph.D. was taken via Zoom videoconference
communication on Friday, June 13, 2025, commencing at
7:00 a.m. PDT.

12 I further certify that I am not related to any
13 of the parties to this action by blood or marriage, I am
14 not employed by or an attorney to any of the parties to
this action, and that I am in no way interested,
financially or otherwise, in the outcome of this matter.

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A			
able	all	87:2, 89:12,	argument
82:3, 89:14,	66:16, 71:9,	91:4, 91:7,	85:3
91:13	74:4, 75:16,	92:20	arranged
about	76:14, 80:19,	answer	84:18, 92:14,
71:17, 78:20,	85:13, 88:13,	69:19, 72:13,	93:14
80:10, 97:10,	88:20, 89:4,	73:7, 73:8,	arrangement
102:8, 102:19	89:12, 91:9,	73:16, 74:1,	86:19, 86:21,
above-entitled	95:16, 98:12	75:4, 79:2,	87:3, 88:21,
69:4	alleged	82:3, 95:16,	88:22, 89:8,
above-styled	74:17, 77:11,	95:17, 96:6,	89:17, 89:18,
65:2	79:8	96:13	90:2, 90:9
according	allen	answered	array
87:11	66:10, 66:11,	96:11	78:1, 78:7,
accordingly	68:20, 83:22	answering	78:10, 78:12,
72:13	allow	70:13	78:19, 79:11,
accurate	86:22, 87:14,	any	79:12, 80:9,
104:12	98:22, 99:17	70:1, 70:4,	81:8, 98:20,
action	allowing	70:7, 70:18,	98:21, 99:4,
106:19, 106:21	88:2, 88:8,	72:21, 82:9,	99:17, 100:11
additional	96:3	101:13, 104:14,	art
85:2	alone	106:18, 106:20,	71:10, 72:20,
address	85:5, 93:19	106:31	74:2, 74:5,
73:12, 102:16	along	anyone	74:17, 76:18,
administer	75:4	86:2	77:11, 79:4,
68:5	also	anything	79:7, 86:18,
administered	71:9, 71:11,	85:18, 85:20	89:19, 99:15,
68:14	73:20, 76:22,	apart	100:9
advantage	84:20, 84:22,	93:2, 93:10,	aside
98:13, 100:20	97:22, 98:10	96:3, 96:16,	74:1, 74:2,
advantages	alternating	97:8	74:4
98:2, 98:4,	75:20, 76:9,	apparent	asked
99:5, 100:18,	76:17, 76:20	85:4	96:11
100:21	analysis	appeal	asking
after	83:7, 100:7	64:3	70:12, 73:12,
93:21, 94:15,	anchor	appear	78:6, 92:8,
98:9	86:14, 90:12,	91:14, 97:4	93:4, 94:11,
again	90:14	appearances	98:8
73:6, 73:10,	anchored	66:1	asserted
74:13, 77:7,	90:4, 90:6,	appears	71:11
79:3, 85:17,	91:1, 91:4,	90:11	assignment
91:2	91:16, 92:12,	apply	104:3
agree	97:4	106:31	assume
68:4, 70:15,	anchoring	approach	71:1
70:22, 90:3,	90:7, 90:15,	100:5, 100:13	assumed
90:17, 90:22	95:14, 97:5	architecture	93:5
aircraft	anchors	80:16, 80:21	assuming
83:11	91:15	argue	91:16, 92:12,
	another	99:14	92:15, 94:7,
	80:21, 82:5,		

96:9, 97:3 assumption 94:2, 94:3, 94:9, 97:6 attached 65:9 attorney 106:20 austin 69:14 automatically 102:7 automobile 83:10 avenue 66:12	85:20, 85:22, 86:4, 86:6, 91:18, 92:2, 92:9, 93:6, 94:2, 94:5, 94:21, 94:22, 95:2, 95:3, 95:5, 95:8, 95:9, 95:12, 98:9 being 82:9, 83:2 believe 73:10, 75:12, 76:12, 80:2, 98:12, 100:4, 100:8, 100:12 below 85:8, 85:19 beneficial 99:16 benefits 98:1, 100:7 better 99:9, 99:11, 100:1, 101:3, 101:5, 103:7 between 88:14, 89:4, 89:13 bit 78:16, 78:17, 79:13, 81:16, 100:17 bitlines 79:13, 79:20, 80:13, 81:4, 81:7 bits 79:22 block 98:18 blood 106:19 board 64:3 both 99:19, 101:15,	106:11 bottom 85:21 break 97:11 bridges 83:10 building 85:1, 89:11 buildings 83:9 built 91:3, 91:13 business 102:13 C calculated 79:17 calculation 80:19 calculations 79:6 california 66:6, 106:5 call 84:11, 84:15, 93:19 called 95:21, 96:5, 96:18, 97:2 can't 82:5 cannot 70:18, 88:10 capacitance 101:5 capacitant 99:11 caption 104:4 captioned 104:10 carrier 74:7, 74:8, 77:2 case 64:14, 89:7,	90:7, 99:17, 104:4 cause 65:3, 93:17, 95:19, 97:7 caused 96:21 causes 93:10, 93:18, 94:10, 96:15 cells 99:21 certificate 106:1 certification 106:30 certified 106:4, 106:28 certify 106:5, 106:11, 106:14, 106:18 certifying 106:33 chance 102:4 changes 104:13, 104:16 channel 73:1, 73:3, 73:19, 73:21, 74:5, 74:10, 74:14, 74:15, 74:19, 74:22, 75:2, 75:12, 75:18, 76:2, 76:4, 76:6, 76:11, 76:19, 77:1, 77:5, 77:8, 77:10, 77:12, 78:1, 78:6, 79:5, 79:6, 79:9, 79:16, 79:19, 80:3, 80:6, 81:9, 81:13, 99:12, 101:6 channels 80:10
B base 100:5, 100:9, 101:3 basically 79:13, 84:17, 99:13 bathroom 95:9 because 82:21, 83:17, 85:2, 87:4, 87:9, 87:13, 89:20, 90:9, 93:13, 94:20, 98:20, 99:16, 102:7 become 85:4 been 68:18, 69:5, 97:10, 104:11 before 64:3, 65:4, 70:12, 106:8, 106:9 behalf 68:21, 69:2 behavior 99:20 behind 85:15, 85:18,			

characteristics 99:9, 101:4 charge 74:7, 77:2 chat 72:11, 75:6, 83:18 chip 77:15, 79:14, 80:14, 80:20, 81:10 cite 72:1, 72:3 civil 65:7, 83:5, 83:6, 83:17 claim 73:5, 73:19, 73:21, 74:13, 77:8 clar 77:18 clarification 70:22 clarify 77:18, 78:4, 82:19 clearly 86:8 collapse 93:18, 94:10, 95:19, 96:15, 96:16, 96:21 collectively 87:16, 87:20, 88:1, 88:7, 88:11, 96:18, 97:1 column 75:16, 75:18 com 66:4, 66:11 commencement 106:8 commencing 106:16 commonly 98:14	communication 65:4, 106:16 company 64:11, 104:5 component 74:11 components 85:12, 85:13 concluded 103:9 conductor 76:21 conference 81:22 configurations 80:17 conformal 98:14 confusion 95:6, 95:7 connected 86:6 consider 88:3, 88:17, 93:13, 98:13 considered 85:14, 89:9 consist 80:4 consistent 75:14, 76:1, 85:7, 85:9 constitute 93:20 constructed 85:1 construction 73:5, 73:19, 73:21, 74:14, 77:8, 92:17 consumer 78:21 contain 80:5 context 100:11 contiguous 85:11, 87:18,	88:20 continuity 86:20, 89:1 continuous 87:18 control 99:11, 101:5, 106:32 controlling 99:3 copy 73:6, 75:3 core 74:10 correct 87:6, 88:4, 92:22 corrections 104:13 correctly 73:18 could 69:19, 78:15, 80:17, 94:14, 101:17 counsel 66:7, 66:14, 68:4, 68:18, 71:12, 71:14, 106:12 couple 71:15 coupling 99:12, 101:6 court 65:7, 68:1, 68:2, 68:9, 68:12, 68:14, 68:17, 69:18, 101:9, 101:14, 102:2, 102:8, 102:13, 102:17, 102:21, 103:2, 103:5 covers 80:19 cross 66:10, 67:3,	68:7, 68:8, 68:20, 69:8, 69:22, 75:22, 78:8, 80:22, 82:15, 82:22, 84:5, 90:21, 97:15, 100:14, 101:7, 101:12, 101:20, 102:6, 102:12, 102:14 cross@ropesgray 66:11 crucial 99:2 csr 64:24, 65:5 current 69:13, 99:3 D dams 83:10 day 104:18 days 80:4 declaration 71:7, 71:8, 71:18, 71:21, 71:22, 72:1, 72:2, 72:4, 72:6, 72:8, 72:12, 72:15, 72:18, 72:19, 73:5, 73:7, 73:9, 73:11, 73:13, 73:14, 73:17, 73:20, 73:22, 74:3, 79:4, 79:5, 83:19, 84:8, 84:10, 84:13, 84:21, 85:21, 97:18, 104:7 declare 104:8 definite 84:19
--	--	---	--

definition 84:22, 85:2, 85:5, 85:7, 85:9 delivery 102:10 density 77:14, 98:3, 99:6, 99:7, 99:20, 100:19, 100:21 depending 80:16, 94:1 depends 77:14, 78:14, 80:13, 93:20, 96:6, 96:13 depo 72:4 deposi 71:22 deposition 64:18, 65:1, 68:3, 68:6, 71:5, 71:6, 71:7, 71:12, 71:16, 71:20, 71:22, 72:9, 72:16, 72:17, 72:19, 73:10, 75:4, 103:9, 104:1, 104:10, 104:14, 105:1, 106:7, 106:8, 106:9, 106:12, 106:14 depositions 65:8 describe 74:21, 76:5 described 74:20, 75:2, 75:13, 76:2, 76:12, 76:13, 77:5 describing 88:16 description 91:10, 91:12	design 83:6, 100:6 desirable 100:10 detailed 91:11 determine 91:13 device 77:12, 77:13, 77:17, 77:20, 78:2, 78:15 devices 70:8, 81:15, 81:17, 81:21, 82:6 dictionary 84:22, 85:10 dielectric 75:19, 75:20, 76:9, 76:17, 76:21, 98:14, 98:17, 99:14, 100:2, 100:22 dies 80:4 different 80:19, 80:20 differently 74:19, 75:13 direct 106:32 discloses 100:13 discuss 71:13 discussed 71:11, 81:14 dispute 85:5 district 65:7 doctor 68:17 document 75:6, 83:18, 84:6 documents 70:1, 70:4, 72:21	doing 69:10 done 98:14, 100:15 dope 79:9 down 72:10, 92:1, 93:6, 94:4 download 72:10 downstair 93:17 downstairs 93:16 dr 68:13, 69:9, 73:1, 82:11, 85:15, 90:3, 90:17, 97:16, 97:22, 98:9, 98:12, 99:22, 100:4 draft 102:5, 102:6, 102:22 drywall 94:19 duly 69:5, 106:7 during 74:8, 77:2	102:16 easily 80:5 effective 100:10 effectively 99:2, 99:18 efficiency 99:19 either 74:8 electric 99:9 electrical 98:3, 98:5, 99:6, 99:20, 99:21, 100:1, 100:19, 100:22, 101:3, 101:4 electrically 100:11 electronic 70:7 electrons 74:8, 77:1 element 85:11, 91:5 elements 88:20 email 102:15 embedded 86:14, 90:6, 90:12, 91:15, 91:17, 93:5, 94:4, 94:13, 97:4 employed 106:20 enable 93:15 enabling 96:3 engineer 82:12, 82:17, 82:20, 83:2, 83:5, 83:6, 83:13, 83:16,
		E	
		each 71:16, 75:19, 79:14, 79:15, 85:13, 86:9, 86:10, 86:15, 87:4, 87:9, 87:13, 90:3, 90:8, 90:12, 90:15 earlier 76:12, 76:16, 76:22, 85:4, 88:18, 101:2,	

83:17 engineering 83:6, 83:13 ensuring 83:7 entire 104:9 envision 88:10 equal 79:10, 79:16, 79:19, 79:20 erase 74:10, 77:3 errata 104:1, 104:15, 105:1 esquire 66:3 essentially 88:19 even 78:16, 83:3, 83:4, 83:10, 86:11, 86:13, 87:17, 90:5, 90:6, 90:14, 92:17, 103:7 every 82:1 everyone 68:1 everything 91:18, 92:2, 92:9, 93:6, 94:5, 94:21, 95:4, 95:5, 95:8 exactly 74:21, 87:12, 90:10, 91:2, 95:5 examination 67:2, 69:7 example 71:10, 80:9, 80:15, 80:18, 81:2, 81:3, 81:6, 81:12,	89:2, 99:10 except 104:13 exhibit 75:7, 83:19 exhibits 67:5, 67:6, 67:7 exist 93:11, 96:17, 97:8 exists 92:17, 95:15 expect 77:13, 77:17, 78:2, 96:8 expected 78:7 expedited 102:11 experiment 82:9 expert 71:8 explain 98:4, 98:8 explained 88:18, 101:2 explaining 82:20 extend 76:8 extending 75:19, 76:15, 76:19 F fabricating 81:21 fact 92:13, 94:13, 100:1, 100:12 failed 98:13 fair 71:3, 72:14 fall 93:2, 93:10,	96:2, 96:16, 97:8 falls 93:1 federal 65:6 few 71:12 figure 84:16, 85:16, 85:19, 85:21, 90:4, 92:10, 92:22, 93:4 filed 84:8 final 101:19, 102:9 financially 106:22 fine 102:20 finish 70:16, 86:12 finished 101:10 first 69:5, 88:14, 98:12 five-minute 97:11 floating 90:18, 90:20, 91:1 floor 87:1, 87:2, 87:3, 87:15, 88:2, 88:3, 88:8, 88:9, 89:10 flow 77:2, 99:3 flows 74:7 focus 73:10, 86:18, 88:21 focused 72:18	focuses 71:20 folks 101:9, 103:8 follows 69:6 footnote 84:20, 85:4 foregoing 106:30 form 75:15, 78:3, 80:11, 82:13, 87:17, 87:21, 90:19, 100:3, 101:1 formed 75:21, 80:16 forth 106:7 four 79:14, 80:1 frame 83:11 frames 83:11 friday 64:20, 65:3, 103:7, 106:16 front 69:15, 70:5 fulfills 87:9 fully 70:19, 85:5 function 76:6, 76:22, 86:22, 87:3, 87:5, 87:10, 87:14, 88:2, 88:7, 88:11, 89:15, 89:21, 91:18, 92:3, 92:10, 92:18, 93:8, 93:14, 93:22, 94:6, 94:14, 99:18 functional 86:19, 86:21,
--	---	---	---

88:21, 89:8, 89:18, 90:9, 92:15, 93:11, 95:21, 96:4, 96:17, 97:9 functionality 88:16 further 101:7, 106:11, 106:14, 106:18	great 103:6	hypothetical 89:14	involved 81:15
	H	hypothetically 89:16	ipr 64:14, 83:20
	hand 68:13, 96:1, 96:20	I	isolating 100:11
	happen 102:3	ignores 97:22	itself 72:21, 93:12
	happens 95:18	ignoring 99:22	J
G	hear 69:20	imagine 88:13	jack 64:19, 65:2, 68:15, 69:3, 104:24, 106:6, 106:14
garage 95:10, 95:11	heard 83:1	important 98:18	job 64:25
gate 98:2, 98:5, 98:19, 98:22, 99:2, 99:11, 101:5	height 89:10, 89:11	improve 99:19	joined 66:16
general 79:3, 82:21, 83:12, 90:1	help 99:1	inc 64:5, 104:4	june 64:20, 65:3, 106:16
gentlemen 101:15	here 86:21, 93:13	include 82:10, 83:9, 99:10	K
getting 102:10	hereby 106:5	including 95:4, 101:4	key 98:13
gigabit 80:5	hereinbefore 106:7	indeed 91:3	kindly 68:13
give 77:16, 80:18, 85:2, 96:22	hereof 104:15	index 67:1	klanderud 64:24, 65:4, 68:2, 106:3, 106:26
given 68:5, 106:10	hereto 65:9	indicated 104:14	knock 92:1, 93:6, 94:4
go 79:17, 89:6, 89:12	herrington 66:2, 69:2	indicating 76:15, 77:9, 83:9	know 69:15, 73:4, 73:11, 75:1, 75:8, 75:11, 76:3, 78:17, 78:18, 78:22, 80:3, 80:8, 83:21, 84:1, 86:5, 88:5, 90:10, 91:2, 91:3, 91:20, 94:1, 94:16, 95:17, 96:10,
going 97:10	hi 69:9	insulation 100:9	
good 68:1, 69:11, 97:6, 102:17, 103:5	high 83:4	intact 99:1	
googled 76:3	higher 89:4, 89:7, 99:7	intended 89:15, 89:21	
gotten 83:22	holding 92:16	interested 106:21	
gray 66:9, 68:21	holes 74:8, 77:2	intrude 98:21	
	hour 97:10	intrusion 99:7	
	hours 71:17	invention 74:17, 77:11, 79:8	
	however 93:17, 98:9	invisible 96:9	

102:3 knowing 76:13	let's 78:22, 79:12, 79:13, 80:2, 88:13, 97:17	89:3, 89:6, 101:4 lowers 89:3	99:7 means 74:13, 80:19, 92:16, 99:7, 106:31
L	light 85:3	M	mechanism 95:14, 97:5
laptop 69:17, 69:21	line 75:16, 75:18	machine 65:5	medical 68:21
large 80:2, 98:17	liner 98:14, 98:16, 98:20, 99:14, 100:1, 100:5, 100:9, 100:21, 101:3	made 90:11	memory 64:11, 68:22, 72:10, 74:6, 74:9, 74:11, 77:12, 77:15, 77:22, 78:7, 78:10, 78:12, 78:15, 78:19, 79:10, 79:11, 79:12, 79:14, 79:19, 80:9, 80:14, 80:20, 81:10, 81:12, 81:15, 81:21, 82:6, 98:15, 98:19, 98:21, 99:4, 99:17, 99:21, 104:5
larger 100:2	liners 98:1	maintain 92:21, 99:2	menlo 66:6
last 71:15, 88:14	link 69:17	make 80:7, 81:2	mentioned 80:13, 85:3, 86:13, 90:5
late 102:14	little 100:17	makes 80:8	merriam-webster 84:21, 85:10
layer 99:1	llp 66:2, 66:9	marked 67:6, 67:7, 75:6, 83:19	method 100:10
layers 98:2, 98:6, 98:19	load 83:8	marriage 106:19	micron 64:5, 64:6, 69:2, 104:4
layout 98:3, 99:6, 99:8, 99:19, 99:20, 100:6, 100:18, 100:20	loaded 83:18	marsh 66:5	might 80:15, 91:4, 95:10
least 76:7	location 69:13	matter 69:4, 71:19, 84:9, 104:10, 106:22	millions 80:5
leave 98:18	locations 76:10	maximize 99:16	mind 101:22
lee 64:19, 65:2, 67:6, 68:13, 68:15, 69:3, 69:9, 73:1, 82:11, 85:15, 90:3, 90:17, 97:16, 104:24, 106:6, 106:15	long 71:17, 89:5, 92:17	maybe 81:15, 95:9	miss 76:5, 76:7
left 92:2	longer 95:14, 95:20, 96:17, 97:8	mean 77:20, 78:14, 82:20, 83:15, 88:5, 90:20, 90:22, 91:21, 92:7, 94:1, 94:16, 94:18, 95:3, 95:12, 98:4, 103:3	
legs 89:5	look 72:12	meaning 74:8, 88:20,	
length 99:2	looking 73:9, 86:2, 91:12		
less 77:5, 98:1, 98:17, 98:20, 99:7, 99:10	lovely 103:7		
	lower 84:16, 85:16, 86:3, 87:2, 87:15, 88:2, 88:8, 88:9,		

missed 72:5 missing 88:13, 89:5, 89:13 modern 80:4 more 75:5, 76:20, 77:4, 87:21, 90:1, 98:2, 98:5, 98:18, 98:22, 99:11, 99:18, 101:5 morning 68:1, 69:10, 69:11 movement 92:19, 93:15, 96:3 much 103:6 multiply 80:1	69:6, 70:10, 104:17 objection 75:15, 78:3, 80:11, 82:13, 82:18, 90:19, 100:3, 101:1 obviously 86:1 occupy 98:1 off-shore 83:11 offer 84:22, 99:5, 104:16 offering 77:7, 98:2 offers 100:18 office 64:1 oh 84:3, 97:17 oil 83:11 okay 68:20, 69:9, 69:15, 70:7, 75:11, 77:22, 78:20, 78:22, 81:6, 82:2, 82:5, 82:16, 84:4, 84:8, 84:12, 84:14, 86:5, 91:20, 97:10, 97:13, 97:21, 101:8, 101:9, 102:8, 102:17, 103:5 once 75:8 one 71:16, 80:15, 80:20, 81:11, 82:1, 82:5, 87:1, 89:11, 89:12, 91:12,	96:10, 98:10 only 81:10, 89:2, 93:14, 94:3, 94:12 open 70:1, 72:14, 75:11, 83:21 opening 71:18, 71:21, 72:1, 72:8, 72:15, 73:22, 74:3, 84:21 operable 93:20, 97:1 operation 74:9, 77:3 opinion 74:18, 87:7, 87:11 order 72:15, 92:21, 95:16, 95:17, 102:3 orders 101:17, 101:21 ordinary 74:4, 74:16, 76:17, 77:10, 79:7, 86:17, 89:19, 99:15, 100:8 organiza 86:19 organization 84:19 organized 86:19, 88:22, 92:18 orient 76:6 orientations 76:10 oriented 74:12, 78:15 original 72:3, 72:19, 79:4	orrick 66:2, 69:1 other 70:4, 70:7, 72:20, 72:21, 80:16, 80:17, 85:12, 85:14, 86:10, 86:15, 86:17, 90:8, 90:15, 92:16, 93:12, 94:7, 96:1, 96:20, 98:18, 99:19, 99:20 otherwise 71:1, 106:22 out 76:8, 101:15, 101:22, 102:15 outcome 96:7, 96:8, 96:13, 106:22 outside 79:3 over 71:13, 80:3, 81:21, 100:22 overload 100:5 owner 64:12, 66:14
N			P
nand 74:6, 77:15, 78:7, 80:4 negate 92:13 number 79:6, 79:8, 79:10, 79:15, 79:16, 79:18, 79:19, 79:20, 79:21, 80:2, 81:12, 88:6, 88:10 numbered 65:3 numbers 79:18 nw 66:12			packed 98:19 page 67:2, 67:6, 84:12, 85:9, 85:21, 86:3, 97:17, 97:19, 105:3, 105:5, 105:7, 105:9, 105:11, 105:13, 105:15, 105:17 paper 70:4, 81:22 paragraph 84:17, 85:6,
O			
oath 68:5, 68:14,			

85:13, 86:13, 88:18, 90:5, 97:20 paralegal 102:1, 102:15 parasitic 99:10, 101:4 park 66:6 part 86:20, 87:5, 87:9, 87:10, 87:19 parth 66:3, 69:1 parties 66:16, 85:3, 106:11, 106:19, 106:20 parts 88:22 patent 64:1, 64:3, 64:12, 64:15, 66:14, 71:11, 72:20, 74:2, 74:21, 75:3, 75:7, 76:5, 76:14, 77:4, 79:3, 84:11, 100:12 pattern 84:19, 92:15 pdt 65:4, 103:9, 106:17 penalty 104:7, 104:8 pennsylvania 66:12 perform 89:14, 92:18, 95:21 performance 98:3, 98:5, 99:6, 99:21, 100:1, 100:6, 100:7, 100:22	performances 100:19 performing 93:22 perhaps 72:12, 73:7, 75:4 period 71:13 perjury 104:7, 104:8 person 74:4, 74:16, 76:17, 77:10, 79:7, 86:17, 87:15, 88:2, 88:8, 89:5, 89:19, 99:15, 100:8 pertaining 65:8 petitioner 64:8, 66:7 ph 64:19, 65:2, 66:10, 68:15, 69:3, 104:24, 106:6, 106:15 photo 91:12 photograph 90:11 physical 86:20, 89:1, 98:16, 98:17 physically 87:17, 87:18 picture 86:3, 86:8, 91:6, 91:11, 93:12, 97:3 pictured 85:8 pillar 74:7, 76:14, 79:10 plane 79:15, 81:11	planes 79:14, 79:21, 80:14 platforms 83:11 please 68:6, 76:7, 87:8, 101:18 plurality 88:15 point 72:5, 73:13, 74:16, 76:7, 82:4, 90:13, 90:14 policy 79:9 possibility 91:8 possible 94:6 post 75:3 precise 76:20, 87:22 precisely 75:5 prep 71:16 preparation 71:12, 72:19 prepare 71:5, 72:15 prepared 71:6 present 66:16 preserving 98:5 pretty 97:6 previously 75:6, 76:2, 81:14, 83:18 prior 71:10, 72:20, 74:2, 79:4 procedure 65:7	proceed 68:19 proceedings 81:22 product 79:18 profess 82:11, 82:16 professional 106:3, 106:27 professor 82:9, 83:3 program 74:10 provide 69:13, 73:4, 73:6, 73:18, 73:21, 87:3, 87:14, 88:1, 88:7, 88:11, 88:15, 89:7, 89:18, 89:21, 90:9, 98:2, 100:6, 101:3 provided 85:9, 89:17 provides 87:4, 100:1 providing 98:7 provisions 65:9 psagdeo@orrick 66:4 purpose 93:14 purposes 68:6 pursuant 65:6 put 72:11, 74:1, 74:4, 75:6, 84:20 putting 74:2 Q qualifications 84:15
--	--	---	--

qualified 81:1, 83:16 question 70:21, 71:2, 72:13, 73:7, 73:8, 73:16, 74:1, 75:5, 77:19, 78:5, 78:18, 79:2, 81:1, 82:4, 82:19, 87:8, 93:19, 94:2, 94:3, 95:16, 95:17, 96:11 questions 70:12, 70:16, 101:7, 101:13, 101:14	73:18, 73:20, 74:21, 75:1, 81:19, 82:1, 82:5, 82:8 receive 102:5 received 75:8 recess 97:14 recognize 84:6, 100:9 record 65:9, 101:18, 106:9 redirect 101:8 reference 71:10 references 71:9 referred 72:7 referring 73:17, 74:6, 78:10 refers 84:18 registered 106:3, 106:27 related 106:18 relevant 71:9 reliability 83:7 rely 84:15 remain 92:14, 96:2, 99:1 remained 96:22 remains 90:14 remember 72:3 remotely 65:5, 66:16,	68:5 removal 92:13, 96:14 remove 91:17, 91:21, 92:1, 92:9, 93:2, 93:9, 94:5, 94:12, 94:19, 95:7, 95:8, 95:11, 95:13, 95:18, 96:1, 96:7, 96:12, 97:5 removed 92:5 removing 93:17, 93:18, 93:21, 94:9, 94:15, 94:16, 94:18, 94:21, 95:4, 96:20, 97:7 repeat 69:19, 87:8 reply 71:8, 71:21, 72:2, 72:6, 72:11, 72:18, 73:5, 73:6, 73:9, 73:11, 73:12, 73:17, 73:20, 74:3, 75:4, 79:4, 83:19, 84:8, 84:10, 85:21, 97:18 reported 64:23, 65:5 reporter 68:1, 68:2, 68:9, 68:12, 68:14, 68:17, 69:18, 101:9, 101:14, 102:2, 102:8, 102:13, 102:17, 102:21, 103:2, 103:5, 106:1, 106:4,	106:27, 106:28, 106:33 represented 106:12 reproduction 106:31 require 88:19, 92:20, 98:16 required 85:11 research 78:14, 78:15, 81:15, 81:22 researchers 81:20 resist 83:8 resolve 85:5 review 71:9, 71:18, 71:21, 72:18, 72:21 reviewing 71:6 right 68:13, 75:17, 86:1, 88:21, 91:22, 92:5, 93:3, 95:17, 98:8, 98:9, 103:3 road 66:5 room 98:18 ropes 66:9, 68:21 rough 102:5, 102:6, 102:21 rpr 64:24, 65:5 rules 65:6
R			S
raise 68:13 range 77:16 rather 85:12, 88:20 reach 102:15 reaching 101:15, 101:22 read 74:9, 77:2, 104:9, 104:11 real 102:7 realistic 90:1 really 82:21 realtime 65:6 reason 70:18, 96:2 rebecca 64:24, 65:4, 68:2, 106:3, 106:26 recall 72:7, 72:22,			safety 83:7

sagdeo 66:3, 68:10, 68:11, 69:1, 75:15, 78:3, 80:11, 82:13, 82:18, 83:22, 90:19, 100:3, 101:1, 101:8, 102:19, 102:20, 103:1, 103:4 said 77:6, 81:4, 94:20 sale 78:21 same 82:18, 84:21, 104:11, 104:12, 106:31 save 104:12 saw 99:5 say 72:14, 76:16, 76:22, 77:20, 78:22, 79:12, 79:13, 80:12, 85:17, 87:12, 87:19, 89:19, 89:20, 95:7, 99:5, 99:9, 100:18, 103:2 saying 76:8, 87:13, 87:20, 88:19, 91:7, 91:10, 93:1, 95:11, 95:13, 99:22 says 75:18, 84:17, 84:22 scenario 88:6, 88:10, 89:14, 93:9 school 83:4 screen 70:2	searched 76:4 see 78:2, 80:2, 85:15, 85:18, 85:20, 86:3, 91:6, 97:17, 98:11, 101:18 seems 97:3 seen 76:7, 78:13 sense 80:7, 80:8 sentence 98:8, 98:9, 99:14 sessions 71:16 set 106:7 sheet 104:1, 104:15, 105:1 short 97:14, 99:13 shorthand 65:5, 106:1, 106:4, 106:28 shown 93:13 shows 86:8 signature-plkal 106:24 signature: __date- : __ 105:22 signed 104:18 significantly 98:21 silicon 74:6, 76:13, 79:9 similar 77:5 similarly 76:14	simple 80:18 simplify 77:22 simply 76:3, 76:8, 77:9, 94:18 single 77:13, 77:17, 77:22, 80:9, 81:8, 82:1 sir 68:9, 68:12, 68:13 size 78:10, 78:12 skill 74:4, 74:16, 76:18, 77:10, 79:7, 86:17, 89:19, 99:15, 100:8 small 78:16, 81:15, 82:6 smallest 78:12, 78:19 so-called 71:7 solid 98:17 some 81:14, 92:15, 96:2 somehow 90:4 someone 87:1, 93:15, 95:18 something 73:12, 78:20, 84:18, 85:1 sorry 69:18, 86:12, 94:20, 100:13 sort 93:14 space 91:1, 98:1,	98:20, 99:16 specialize 83:6 specifically 71:7 stability 83:8 stable 93:20, 96:22 stack 75:20, 76:9, 76:17, 76:21 stain 74:11 stair 89:6, 92:16 staircase 81:17, 82:7, 82:10, 84:16, 85:8, 86:9, 86:16, 86:22, 87:5, 87:10, 87:20, 87:21, 88:3, 88:17, 89:9, 89:13, 89:16, 89:20, 89:22, 90:8, 90:16, 91:2, 91:13, 91:19, 92:3, 92:10, 92:21, 93:7, 93:8, 93:13, 94:7, 94:15, 95:22, 96:5, 96:17, 96:19, 97:2 staircases 91:9 stairs 86:8, 86:9, 86:14, 91:14, 91:16, 92:3, 93:5, 94:13 standard 102:10, 102:12, 102:20, 103:3 standing 101:20, 102:3
--	---	---	--

starts 98:10 state 84:18, 97:22, 106:5 stated 65:9, 85:6 states 64:1, 65:7 step 86:9, 88:10, 88:14, 89:3, 89:4, 89:6, 89:7, 89:12, 93:1, 93:10, 93:18, 94:10, 95:19, 96:21, 97:1 steps 86:6, 87:4, 87:9, 87:13, 87:16, 88:7, 88:13, 88:15, 89:12, 90:3, 90:6, 90:12, 90:17, 91:14, 91:18, 92:6, 92:10, 92:12, 92:14, 92:16, 92:18, 93:7, 93:19, 93:21, 94:4, 94:6, 94:14, 96:2, 96:15, 96:18, 97:4, 97:7 still 84:2, 85:14, 86:15, 89:7, 89:8, 90:8, 90:16, 91:18, 92:3, 92:15, 92:17, 93:7, 93:21, 94:14, 96:2, 96:3, 96:4, 96:22, 97:2, 100:17, 104:16 stipulate 68:4	stop 94:20 strain 79:10 strange 89:17, 91:20 strike 85:19 string 79:19, 81:12 strings 79:16 structural 82:12, 82:14, 82:16, 82:20, 83:2, 83:4, 83:13, 83:15, 83:17 structure 73:2, 73:3, 73:19, 73:22, 74:5, 74:10, 74:14, 74:15, 74:19, 74:22, 75:2, 75:19, 76:4, 76:6, 76:11, 76:19, 77:1, 77:5, 77:8, 77:10, 78:7, 79:6, 79:7, 79:9, 79:17, 79:19, 80:3, 80:6, 81:13, 81:18, 82:7, 82:10, 83:13, 84:16, 84:18, 85:7, 85:8, 85:14, 86:16, 87:5, 87:10, 87:17, 87:20, 87:21, 88:4, 88:17, 88:19, 89:9, 89:13, 89:16, 89:20, 89:22, 90:7, 90:9, 90:15, 90:16, 91:8, 91:19,	92:4, 92:11, 92:21, 93:7, 93:8, 93:11, 93:13, 93:20, 94:7, 94:15, 95:20, 95:22, 96:4, 96:5, 96:9, 96:16, 96:19, 96:21, 97:1, 97:2, 97:8, 98:19, 100:2, 100:22 structures 75:13, 75:19, 76:2, 77:12, 78:1, 81:9, 83:8, 90:10, 94:8 student 83:3, 83:4 students 81:20 sub-array 79:21, 81:11 sub-arrays 79:15, 80:15 suggest 81:8 supervision 106:32 support 83:8, 92:6, 94:12, 96:9 supporting 91:5, 91:8, 92:20, 94:7, 95:14 sure 81:2, 88:12, 95:5, 97:12, 103:1 sutcliffe 66:2 sworn 68:18, 69:5, 106:7 T take 97:11, 98:20	taken 64:20, 65:2, 97:14, 104:10, 106:9, 106:15 taking 65:8 tall 89:11 technologies 64:11, 68:22, 104:5 technology 64:5, 65:6, 69:2, 104:4 tell 73:1 tells 76:10 terabyte 80:5 term 73:19, 73:21, 74:5, 74:14, 74:15, 74:18, 74:22, 75:2, 75:12, 77:8, 77:9, 79:5, 82:14, 82:21, 83:1, 83:12, 85:10 test 72:10 testified 69:6 testify 70:18 testimony 64:18, 65:1, 106:10 texas 69:14 textbook 80:18 thank 68:9, 68:12, 68:17, 75:10, 97:12, 97:16, 101:11, 101:15,
---	---	---	--

102:17, 103:6 themselves 92:14 therefore 74:22, 87:16, 87:19, 91:11, 96:5, 99:17 thin 98:1, 98:13, 98:16, 98:20, 99:14 thing 78:19 think 83:5, 83:16, 86:2, 101:20, 102:6, 102:14 three 79:18 threshold 99:3 through 75:20, 76:9, 76:16, 76:19, 77:1, 100:11 tighter 99:7 tightly 98:19 time 71:13, 74:17, 77:11, 79:8, 102:7 times 71:12, 79:20, 79:21 to: _____ 105:3, 105:5, 105:7, 105:9, 105:11, 105:13, 105:15, 105:17 today 70:10, 70:19, 71:6, 101:10, 102:16, 103:7 today's 68:3, 71:5, 71:20	together 86:6, 87:14, 91:9 touch 86:10, 86:15, 90:8, 90:15, 92:2 touching 85:13 towers 83:10 trademark 64:1 transcript 101:19, 104:9, 106:30 transparent 91:5, 91:8 trial 64:3 true 104:12, 106:9 truthfully 70:19 try 77:18 tunnels 83:10 turn 79:20, 84:12, 97:17, 99:1 turns 99:18 two 71:16, 71:17, 79:15, 80:1, 102:13, 103:3 type 78:15, 83:5	under 70:10, 93:9, 104:7, 104:8, 104:16, 106:32 understand 70:10, 70:22, 71:1, 71:20, 74:5, 76:18, 81:3, 83:14, 86:18, 88:6, 99:15, 100:20, 101:17 understanding 72:9, 72:17, 74:15, 77:9, 79:5, 104:15 understood 73:15, 81:1, 83:14 uniform 99:11, 101:5 unit 93:11, 95:21, 96:4, 96:17, 97:9 united 64:1, 65:7 unless 76:5, 76:7, 89:5, 106:32 uploading 84:2 upper 87:2, 87:15, 88:3, 88:8, 88:9, 89:3, 89:6 upstair 93:16 upstairs 93:16 use 99:16 uses 74:18, 75:12 using 84:21, 98:13 usually 79:9	ut 82:9
	U		V
	uh 100:13 um 73:19 unable 73:8 unclear 100:17		vague 78:18 valid 68:6 variations 80:20 various 81:21 versa 87:16 vertical 74:6, 76:13, 78:1, 80:6, 92:19, 93:15, 96:3 vertically 74:11, 75:20, 76:9, 76:15, 76:19 via 65:4, 106:15 vice 87:16 videoconference 64:18, 65:1, 106:15 view 74:16 visible 92:22 voltage 99:3 volume 64:19, 98:17 vs 104:4
			W
			wait 70:15, 70:16 walk 87:1, 87:15, 88:2, 88:8 wall 85:8, 85:15,

85:18, 85:20, 85:22, 86:1, 86:4, 86:6, 86:14, 90:4, 90:6, 90:12, 91:1, 91:4, 91:15, 91:17, 91:21, 92:1, 92:5, 92:9, 92:13, 92:17, 93:2, 93:5, 93:6, 93:10, 93:17, 93:18, 93:21, 94:4, 94:5, 94:9, 94:12, 94:14, 94:15, 94:17, 94:18, 94:19, 94:21, 95:1, 95:2, 95:3, 95:4, 95:8, 95:9, 95:12, 95:13, 95:18, 96:1, 96:7, 96:12, 96:14, 96:15, 96:20, 97:5, 97:6, 97:7 want 81:2, 97:11, 102:21 washington 66:13 way 82:5, 106:21 ways 77:4, 83:1 we've 97:10 weekend 103:8 weeks 71:15, 102:13, 103:3 well-known 100:10 whether 72:3, 72:7, 82:6, 82:8,	82:9, 86:5, 91:3, 93:19, 93:21 white 86:1 whole 95:11 wishing 103:7 within 71:15, 81:11, 90:6, 90:12, 91:15, 95:2, 97:4, 106:4 without 73:8, 73:16, 91:11, 92:17 witness 68:16, 68:18, 69:4, 69:21, 75:16, 78:4, 80:12, 82:14, 82:19, 83:9, 84:4, 90:20, 100:4, 101:2, 101:11, 106:6, 106:10 wonderful 73:14 wooden 86:6, 87:4, 90:17 word 76:4 wordlines 98:22 words 85:12, 86:17, 93:12, 99:19, 99:20 work 103:6 worked 81:19, 81:20 working 87:14 wouldn't 88:15, 90:2,	91:3 write 77:3 y yang 97:22, 98:9, 98:10, 98:12, 99:22 yang's 100:4 yangtze 64:11, 68:21, 104:4 yeah 69:12, 75:17, 100:13, 103:1 years 82:8 z zoom 65:4, 69:17, 106:15 0 00 64:21, 65:3, 106:17 00791 64:14, 83:20 1 1 71:8 10 78:17 10,937,806 64:15 1000 66:5 1001 75:7 1043 83:19 11 97:17, 97:19 128 79:1	13 64:20, 65:3, 106:16 14 84:12, 85:9, 85:21, 86:3, 92:10 15 97:20 16000 80:3 18 84:17, 85:6, 85:13, 86:13, 88:18, 90:5 2 20 104:19 2000 79:13, 80:10, 81:4 20006 66:13 2024 64:14, 83:20 2025 64:20, 65:3, 106:16 2048 79:12, 79:13, 79:22, 81:5, 81:6, 81:9, 81:13 2099 66:12 24 78:17 2400 79:12 3 32 78:16, 81:16, 82:8, 103:9 35 75:16, 75:18, 82:8
--	--	---	---

3d 74:6, 77:14, 78:7, 80:4, 80:20, 98:15 5 512 80:4 587939 64:25, 104:3 6 600 81:21 69 67:3 7 7 64:21, 65:3, 106:17 8 8 103:9 806 71:8, 71:11, 72:20, 74:18, 74:21, 75:1, 75:3, 75:7, 75:12, 76:4, 76:14, 77:4, 84:11, 100:12 9 94025 66:6	
---	--