UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS

PROXENSE, LLC, Plaintiff, vs. GOOGLE LLC and GOOGLE PAYMENT CORP. Defendants.	Civil Action No. 6:23-cv-320

ZOOM VIDEOTAPED DEPOSITION OF AVIEL RUBIN
Key West, Florida
Monday, December 18, 2023
Volume I

Reported by:
LORI M. BARKLEY
CSR No. 6426
Job No. SF 6357374
PAGES 1 - 66

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS

PROXENSE, LLC, Plaintiff,	)	
vs.	)	Civil Action No.
GOOGLE LLC and GOOGLE PAYMENT CORP. Defendants.	)	6:23-cv-320

Zoom Videotaped deposition of Aviel Rubin, Volume I, taken on behalf of DEFENDANTS, at Key West, Florida, beginning at 8:03 a.m. and ending at 9:44 a.m. on Monday, December 18, 2023, before LORI M. BARKLEY, Certified Shorthand Reporter No. 6426.

APPEARANCES:

SUSMAN GODFREY LLP
BY: Bryce Barcelo
Attorney at Law
1000 Louisiana Street, Suite 5100
Houston, TX 77002
713-651-9366
BBarcelo@susmangodfrey.com

QUINN EMANUEL URQUHART & SULLIVAN, LLP
BY: John T. McKee
Attorney at Law
51 Madison Avenue, 22nd Floor
New York, NY 10010
212-849-7000
Johnmckee@quinnemanuel.com

Videographer:
JoAnn Yager

I N D E X

WITNESS

AVIEL RUBIN

	PAGE
Examination by Mr. McKee	6

EXHIBITS

NUMBER	DESCRIPTION	PAGE
Exhibit 1	Rubin Declaration	8
Exhibit 2	US Patent Number 8352730	8
Exhibit 3	US Patent Number 8886954	8
Exhibit 4	US Patent Number 9298905	8
Exhibit 5	Exhibit 1 to Rubin Declaration	9
Exhibit 6	Exhibit 2 to Rubin Declaration	9
Exhibit 7	Exhibit 3 to Rubin Declaration	9
Exhibit 8	File History for '730 Patent	54

Key West, Florida, Monday, December 18, 2023
8:03 a.m.

VIDEO OPERATOR: Good morning. We are on the record at 8:03 a.m. on December 18th, 2023.

Please note that this deposition is being conducted virtually. Quality of the recording depends on the quality of camera and Internet connection of participants.

What is seen from the witness and heard on screen is what will be recorded. Audio and video recording will continue to take place unless all parties agree to go off the record.

This is media number one of the recorded deposition of Aviel Rubin in the matter of Proxense LLC versus Google LLC and Google Payment Corporation, filed in the United States District Court for the Western District of Texas.

This deposition is being conducted remotely using virtual technology.

My name is JoAnn Yager representing Veritext Legal Solutions, and I am the videographer. The court reporter is Lori Barkley from the firm Veritext Legal Solutions.

May we please have introductions beginning

with the --

MR. MCKEE: Yep, this is John McKee with Quinn Emanuel, on behalf of Google.

MR. BARCELO: And Bryce Barcelo on behalf of plaintiff Proxense.

AVIEL RUBIN,

having been administered an oath, was examined and testified as follows:

EXAMINATION

BY MR. MCKEE:

Q. Dr. Rubin, just to get a few of the formalities out of the way. You've been deposed before, correct?

A. Yes.

Q. A number of times?

A. Yes.

Q. So you know the rules?

A. Yes.

Q. The only thing I'll reiterate is if you could please make sure to provide verbal answers to questions as opposed to umm-hmms, all right?

A. Yes.

Q. Okay, so I'm going to try to be efficient because I understand you have a hard stop in a few hours.

So let's just jump right in. So this is not your first case representing or working on behalf of Proxense involving these patents; is that right?

A. That's correct.

Q. And in fact you were Proxense's expert in the Samsung case; is that right?

A. Yes.

Q. And you authored a report that involved among other things the same '730 patent that you're offering claim construction opinions about today?

A. Yes. I didn't know if you were asking a question so...

Q. All good.

A. Yes.

Q. In that case, you opined on both infringement and validity, correct?

A. I think so. I'd have to look back to refresh my recollection on that.

Q. Do you recall -- did you provide a claim construction declaration in that case?

A. I don't remember.

Q. All right. You just don't remember one way

or the other?

A. Right.

Q. Okay, so before the deposition started, in the interest of expediency, I premarked a number of exhibits and I'm just going to read those for the record now.

You should see them on the Egnyte Exhibit Share platform exhibits 1 through 7.

Exhibit 1 is the declaration of Aviel B. Rubin in response to declaration of John Black concerning construction of certain terms in US patent number 8352730.

(Exhibit 1 was marked for identification by the court reporter and is attached hereto.)

MR. MCGEE: Exhibit 2 is US Patent Number 8352730.

(Exhibit 2 was marked for identification by the court reporter and is attached hereto.)

MR. MCGEE: Exhibit 3 is US Patent Number 8886954.

(Exhibit 3 was marked for identification by the court reporter and is attached hereto.)

MR. MCGEE: Exhibit 4 is US Patent Number 9298905.

(Exhibit 4 was marked for identification by

the court reporter and is attached hereto.)

///

MR. MCGEE: And then Exhibits 5, 6, and 7 are exhibits 1, 2 and 3 to your declaration, respectively.

(Exhibit 5 was marked for identification by the court reporter and is attached hereto.)

(Exhibit 6 was marked for identification by the court reporter and is attached hereto.)

(Exhibit 7 was marked for identification by the court reporter and is attached hereto.)

BY MR. MCGEE:

Q. Do you see those exhibits?

A. Yes.

Q. Okay, so let's start by pulling up Exhibit 2, the '730 patent. The '730 patent is the first patent in this patent family, correct?

MR. BARCELO: Objection, form.

THE WITNESS: You're asking if it's the parent patent?

BY MR. MCKEE:

Q. Yeah, the '730 patent issued from the first non-provisional application filed in its family, right?

A. I don't recall that detail. I could see if

it's my declaration.

Q. Well, if you look at the Exhibit 2, the '730 patent, it doesn't say it's a continuation or a continuation in part of a divisional from some other application, right?

A. I don't see it say that anywhere on the cover page.

Q. And if you were to turn to Exhibit 3 or Exhibit 4, you would see under -- on the cover page, under related US application data that they are a continuation of the application that became the '730 patent, right?

MR. BARCELO: Objection, form.

THE WITNESS: So I'm looking at the covers of those two, and it does say that they're continuations.

BY MR. MCKEE:

Q. Great. So keep one of those open -- let's keep the '905 opened. And if you could turn to column 4 for me.

Let me know when you're there.

A. And just to be clear, you're talking about the '905, not the '730.

Q. Right, the '905 patent, Exhibit 4.

A. Okay.

Q. You see the paragraph that in column 4 that begins at line 1 and ends at line 16?

A. Yes.

Q. You're familiar with that paragraph?

A. I've seen it before but I -- yes, I'm familiar with it.

Q. And in particular, I'd like to focus on the language beginning about halfway through line 8 that begins at the end of the line.

It says, "in one embodiment the biometric 100 is integrated into another object or device."

Do you see that?

A. I do.

Q. And continues, "a device having an integrated biometric key 100 is occasionally referred to herein as an integrated device."

Do you see that as well?

A. I do not.

Q. That language -- is that consistent with your opinion as to the plain meaning of integrated device?

MR. BARCELO: Objection, form, vague.

THE WITNESS: So it's the sentence, "a device having an integrated biometric key 100 is occasionally referred to herein as an integrated

device."

And your question is if that's consistent with my understanding of the plain and ordinary meaning?

BY MR. MCKEE:

Q. Yes.

A. Yes.

Q. And it continues, for example, "in one embodiment the biometric key 100 is integrated into a mobile phone."

And then it gives a laundry list of other devices it could be integrated into.

Do you see that?

A. I see that.

Q. That's also consistent with your understanding or opinions regarding the plain meaning of integrated device, correct?

MR. BARCELO: Objection, form, vague.

THE WITNESS: Are you asking -- 'cause the word integrated device does not appear in the sentence that you just read.

So when you say that is consistent with the plain and ordinary meaning, what are you referring to?

///

BY MR. MCKEE:

Q. Well, it's your opinion, isn't it, that if the biometric key is integrated into a mobile phone, a tablet, a laptop, an MP3 player or mobile gaming device, that device then becomes an integrated device?

MR. BARCELO: Objection, form.

THE WITNESS: Well, it may have already been an integrated device. But it is still an integrated device -- I don't know that that transforms it from a nonintegrated device to an integrated device.

BY MR. MCKEE:

Q. And just to be clear, the integrated device is the -- let me ask this differently.

Is the integrated device in your opinion that the larger device that multiple components are integrated into? Or is it the individual components that are integrated?

MR. BARCELO: Objection, form, vague, compound.

THE WITNESS: So can we talk about one of these items specifically?

BY MR. MCKEE:

Q. Sure. So if we can just take that last sentence and it says, "the biometric key 100 is

integrated into a mobile phone."

What is the integrated device then? Is it the biometric key or the mobile phone?

A. It would be the mobile phone.

Q. Because the biometric key is integrated into the mobile phone?

MR. BARCELO: Objection, form.

THE WITNESS: I'm not sure I understand your question. Are you asking me is a mobile phone an integrated device because it has a biometric key?

BY MR. MCKEE:

Q. It's alright, we can move on from this. I think you answered my question already.

So I want you to look -- we started here at line 8 where it begins, "in one embodiment," and I'd like you to look at the sentence before that that says, "biometric key 100 has a small form factor such that it can be unobtrusively carried by user."

Do you see that?

MR. BARCELO: Objection, form, misstates evidence.

THE WITNESS: Yes.

BY MR. MCKEE:

Q. All right, if you could turn to Exhibit 2, the '730 patent for me. Just hold that in your mind.

And turn to column 3. Let me know you're there.

A. Okay.

Q. And do you see that there is a -- line numbers are a little off.

But do you so that there is a paragraph beginning with the language, "figure 1 is a schematic" on approximately line 12. And it continues down to about line 20, ending with the same language we just looked at: "Such that it can be unobtrusively carried by a user."

MR. BARCELO: Objection, form.

THE WITNESS: I see that.

BY MR. MCKEE:

Q. All right. So the following sentence that we just looked at that reads, "in one embodiment, the biometric key 100 is integrated into another object or device."

That's not in the '730 patent, right?

MR. BARCELO: Objection, form.

THE WITNESS: Just to be clear so I know if I'm searching the whole '730 patent, are you just saying that the sentence that would come after "unobtrusively carried by user in '730" is not the one that's in the other patent that we looked at?

BY MR. MCKEE:

Q. Yeah, the sentence that follows "unobtrusively carried by user" in the '905 patent is not there in the '730 patent?

A. Anywhere or right after --

Q. Anywhere but certainly not right after that sentence.

MR. BARCELO: Objection, form.

THE WITNESS: Let me, I need to download these. Because I have no way of looking at both of them at the same time.

MR. MCKEE: That's fine, download them and put them on the screen next to each other. I think that could be helpful.

Q. So, that's column 3 of the '730 patent and column 4 of the '905 patent.

Paragraph beginning with, "figure one is a schematic diagram."

A. Okay, I've downloaded them on my computer now. Open them.

All right. So on the '730, we were in column 4?

Q. '730 on column 3 around line 12, '905 you're in column 4 at line one.

A. I'm sorry what column in '905. I was in the

other one --

Q. Column 4, line 1, right at the top.

A. Okay, and which sentence am I looking to see if it's not in the '730?

Q. The first sentence after "unobtrusively carried by a user?"

And in the '905 patent that sentence reads, "in one embodiment, the biometric key 100 is integrated into another object or device."

That's not in the '730 patent, right?

A. It's not in the paragraph that we're looking at, column 3. But I'm going to have to do a search to see that it's not anywhere in the patent.

Q. Please go ahead and confirm that it's not in the patent.

A. Okay, I don't see that it is. I did a search.

Q. All right. Following the sentence that reads, "a device having an integrated biometric key 100 is occasionally referred to herein as an integrated device" is also not in the '730 patent, correct?

A. I did a word search in the version you gave me. And I don't see that.

Q. And the following sentence that reads (as

read):

> For example, in one embodiment the biometric key 100 is integrated into a mobile phone, e.g., a cellular phone or smart phone, tablet, laptop, MP3 player, mobile gaming device, watch, key fob or other mobile device, thereby making the biometric key 100 unobtrusive to carry."

Is also not in the '703 patent?

A. So I did a search on the word "unobtrusive" and it wasn't there. So I take it that sentence couldn't be in there.

Q. Can you take a look at figure 1 for me?

A. Which patent?

Q. It's the same figure either way.

A. Okay.

Q. Does that show an integrated device?

A. I see that in the text that describes figure 1, it says "it comprises a frame, a scan pad and an LED."

So it is made up of other components. And

so I would say that's an integrated device.

Q. Let's talk for a minute about components: How do you understand that term? What is a component?

A. I'm just going to download my report.

Q. And I can point you -- just to speed us up, I can point you to -- and you're free to take a look at your whole report.

I can point you to paragraph 35 you say (as read):

> In summary, when the '730 patent was filed, the term integrated device was on commonly used and indicates the integration of components into a larger whole.

So I see that opinion. I'm trying to understand what components means here.

MR. BARCELO: Objection, form.

THE WITNESS: So I am not using the word "component" in any way other than its plain English meaning.

BY MR. MCKEE:

Q. Can it be software?

MR. BARCELO: Objection, form.
THE WITNESS: In the discussion that I have in my declaration and in the patent, it's referring to a piece of hardware.
BY MR. MCKEE:
Q. In the context of the patent, your opinion is that an integrated device is a collection of hardware components?
MR. BARCELO: Objection, form.
THE WITNESS: It's an integration of hardware components.
BY MR. MCKEE:
Q. And how small can a component be in order for it to still qualify as a component of an integrated device?
Does the single capacitor qualify?
MR. BARCELO: Objection, vague, compound, calls for speculation.
THE WITNESS: I haven't analyzed or previously given thought to that question. It's not something in my declaration.
BY MR. MCKEE:
Q. What about a collection of circuit elements like a low-pass or high-pass filter?
MR. BARCELO: Objection, form, compound,

vague. Calls for speculation.

THE WITNESS: I haven't looked at that either.

BY MR. MCKEE:

Q. If I were to stick a low-pass or high-pass filter into a radio, is that radio now an integrated device?

MR. BARCELO: Objection, form. Calls for speculation. Vague.

THE WITNESS: I haven't studied that question.

BY MR. MCKEE:

Q. Well, you studied the question of what an integrated device is, and you say it has a plain meaning, right?

A. Yes.

Q. So to a person of skill at the time of this patent, understanding the plain meaning of integrated device, if I stuck a low-pass filter into a radio, would that person of skill consider that to be an integrated device?

MR. BARCELO: Objection, form. Vague. Calls for speculation.

THE WITNESS: I would want to take a look at the radio, take a look at the high-pass filter and

perform an analysis.

You're asking me to comment on something that I haven't analyzed.

BY MR. MCKEE:

Q. What would you need to see in the high-pass filter we're talking about here in order to determine whether it is or is not a component that can be part of an integrated device?

MR. BARCELO: Objection, vague. Calls for speculation.

THE WITNESS: I haven't thought about that either.

BY MR. MCKEE:

Q. Have you thought about any question vis-a-vis integrated device other than biometric keys?

MR. BARCELO: Objection, form, vague.

THE WITNESS: So I previously mentioned that a frame, a scan pad, an LED, can be components.

BY MR. MCKEE:

Q. You understand that in order to ascertain whether a claim term is definite, that a person of skill in the art has to be able to ascertain its scope with reasonable certainty, right?

MR. BARCELO: Objection, calls for a legal

conclusion.

MR. MCKEE: Not a legal conclusion?

THE WITNESS: I'm not a lawyer --

MR. BARCELO: Sorry, what was that, counsel?

MR. MCKEE: I'm asking for his legal understanding, not a legal conclusion.

MR. BARCELO: Okay, well, that wasn't clear in your question. So my objection stands. If you'd like to re-ask, the question go ahead.

MR. MCKEE: If you had the Real Time up I said: "Dr. Rubin, do you understand that a person of skill in the art, that definiteness is evaluated from the perspective of a person of skill in the art seeking to ascertain the scope of a claim term."

MR. BARCELO: Objection, calls for a legal conclusion.

THE WITNESS: So I'm not a lawyer. But my understanding is that -- I would add to that that it's at the time of the invention and that is correct.

BY MR. MCKEE:

Q. If a person of ordinary skill in the art cannot ascertain the scope of a claim term, "reasonable certainty," the claim term is not definite, correct?

MR. BARCELO: Objection, calls for a legal conclusion.

THE WITNESS: Again, I'm not a lawyer. But that sounds like the legal standard.

BY MR. MCKEE:

Q. So we've said that a biometric key in your opinion integrated into a phone is an integrated device, right?

A. Are you asking me if the biometric key or the phone is an integrated device?

Q. The phone.

A. Yes.

Q. And a device that comprises a frame, scan pad, and LED is an integrated device, right?

MR. BARCELO: Objection, form, compound.

THE WITNESS: I would say that a device that is composed of those components is an integrated device.

BY MR. MCKEE:

Q. What else is an integrated device?

MR. BARCELO: Objection, vague, calls for speculation.

THE WITNESS: There are many things that are integrated devices. I don't know --

///

BY MR. MCKEE:

Q. -- list --

A. Phone, biometric key, a smart TV, a tablet.

Q. What about on the other side of the coin: What are some things that in your opinion are not integrated devices?

A. A book.

Q. In the electronics context, are there any examples you can provide me of devices that are not integrated?

MR. BARCELO: Objection, vague.

THE WITNESS: I would say like a -- a memory chip that is not connected to anything.

BY MR. MCKEE:

Q. Okay. Just before I move on -- I'm going to talk about the exhibit to your declaration in just a minute.

First, I'd just like to confirm it's your opinion that integrated device has the same meaning across the '730, '905, and '954 patents that are marked as Exhibits 2 through 4 to this deposition, correct?

MR. BARCELO: Objection, compound.

THE WITNESS: So I do address that in paragraph 32. I say that, "furthermore I expect a

POSITA to interpret the term integrated device consistently across patents that are derived from the same parent application, which these are."

BY MR. MCKEE:

Q. And then at the end of that paragraph, you say, "I believe a person of skill in the art would have understood the term integrated device the same way across all three patents," right?

A. Right.

MR. BARCELO: Objection, misstates the evidence.

BY MR. MCKEE:

Q. Just trying to establish here, we are saying that -- or you're saying that integrated device, means the same thing across all three patents?

A. Yes.

Q. All right, can you pull up Exhibit 5 to your deposition for me, please, which is exhibit 1 to your declaration.

And let me know when you have that opened.

A. Okay.

Q. All right, do you recognize this paper?

A. Yes.

Q. All right. What is it?

A. It's a publication in the 1999 IEEE called,

A New Circuit Breaker Integrated Device for Protection Applications.

Q. What is the integrated device here?

MR. BARCELO: Objection, vague.

THE WITNESS: At a high level, it's a circuit breaker device.

BY MR. MCKEE:

Q. So can you turn to figure 2 on page -- well, its IEEE page number is page 316.

A. Yes.

Q. Is that the integrated device shown there in figure 2, A and B?

MR. BARCELO: Objection, compound.

THE WITNESS: So that is an illustration from a particular perspective, a cross-section of the integrated device.

BY MR. MCKEE:

Q. And what's shown on the left in figure 2(a), is that the equivalent electrical circuit for the integrated device, right?

A. That's what it says.

Q. And shown on the right in figure 2B, that's a schematic cross-section of the integrated device, right?

A. Yes.

Q. And what figure 2B is showing -- correct me if I'm wrong -- is four different transistors.

I'm sorry, three different transistors and a logic gate DZ?

A. So I'm looking at the text on page 315, it says "figure 2B shows a four-layered technology design."

And then it gives information about some of the components there, like the IGBT1 section, and then and you look for the figure you see an MP section, a DZ section, and an IGBT2 section.

Q. If you look at the equivalent electrical circuit figure 2A for IGBT1 -- and it's outlined in dashed box.

What is shown there?

A. I believe -- and I'm not an electrical engineer so this isn't really in my field.

But the way I understood this when I read it, is that it's showing the logic that this device performs, what is like another circuit that could perform the same logic.

Q. And the thing that's shown on the left of IGBT1, has the arrow pointing into it, that's a schematic representation of a transistor, isn't it?

A. I'm sorry -- oh, in A?

Q. In A.

A. It's been I think 35 years since I had a hardware course. But I think that's right.

Q. So the integrated device in this paper, Exhibit 5, is a collection of circuit elements, correct?

A. What I see in figure 2B is a -- several components. I don't know enough of electrical engineering to say whether they're transistors or what the particular hardware pieces look like.

But it is four pieces of hardware that are put together into a whole system.

Q. I suppose that's fine, that's helpful to understand.

Figure 2B in your opinion shows a collection of components that are integrated together; is that fair?

A. Yes.

Q. We might come back to this but let's move to Exhibit 6 to the deposition, which is exhibit 2 to your declaration.

And please let me know when you have that opened.

A. Okay.

Q. All right. What is this paper?

A. This is a publication of the IEEE from 1988. And it's titled, "Seminet Further Advances an Integrated Device/Circuit Simulation For Power Electronics."

Q. In the title there, it says, "integrated device/circuit."

Do you see that?

A. Yes.

Q. And it's your understanding that when someone were to -- in common parlance when you're writing if you say something like device/circuit, you're saying those two things are interchangeable, right?

A. I don't know that is a hard-and-fast rule.

Q. Okay, in this paper what is the integrated device?

A. So this paper is not focused on a particular integrated device. It's talking about a simulator that can simulate integrated devices.

Q. All right, so you look on the very first page the section called Seminet overview, Seminet.

A. Yes.

Q. And it says that it's a (as read):

> Circuit simulation package which

incorporates an integral device simulator (IVCALC1) to provide DC operating point and time domain transient analysis of circuits containing up to 50 components.

Do you see that?

A. Yes.

Q. What is your understanding of what "components" refers to in this paper?

A. So again this paper's a bit far afield from my area of expertise.

But I would say that this simulator -- this publication is a result that shows how to simulate something that is made up of multiple components.

Q. Is the '730 patent far away from your field of expertise?

A. No.

Q. Then why are you relying on papers that are?

MR. BARCELO: Objection, compound, form.

THE WITNESS: I was showing that in the IEEE, which is one of the two largest publication venues for scientists and engineers, there are many different papers in different subfields that use the term integrated device to show that when something is

a whole composed of multiple components, that it's an integrated device.

BY MR. MCKEE:

Q. Are any of the exhibits 1 through 3 to your declaration in your opinion in the same field of invention as the '730 patent?

MR. BARCELO: Objection, form.

THE WITNESS: So in the sense that they are in the field of engineering and technology, they can use commonly understood terms the same way.

But they are in a different subfield from the '730 patent.

BY MR. MCKEE:

Q. So they're in the same field only in the broad sense that they all relate to engineering?

MR. BARCELO: Objection, misstates testimony. Vague.

THE WITNESS: They're -- yeah, they broadly relate to technology and engineering.

BY MR. MCKEE:

Q. All right if you could turn to the next page of Exhibit 6. Page numbered 70 in whatever publication this is from.

And find the section titled "Dynamic IGT Modeling."

A. Yes.

Q. Do you see the second sentence there that says "traditional circuit simulators cannot accurately reflect the large signal dynamic performance of this device using standard circuit components."

And then it continues.

A. Yes.

Q. Are those the types of components, standard circuit components, that this paper is discussing?

A. I think it's explaining why this invention that's being described as needed is to be able to deal with integrated devices, and not ones there have a single standard circuit component.

Q. Is it your opinion that a person of skill would have understood that integrating standard circuit components into a larger whole would comprise an integrated device?

MR. BARCELO: Objection, vague.

THE WITNESS: I think in a field where the building blocks are circuits, then integrating circuits into a whole would be an integrated device.

BY MR. MCKEE:

Q. Aren't all electronics -- isn't the building blocks of all electronic circuits?

MR. BARCELO: Objection, vague.
THE WITNESS: Circuits do make up a part of modern electronics.
BY MR. MCKEE:
Q. And building blocks of a biometric key is circuits, right?
MR. BARCELO: Objection, misstates testimony. Vague.
THE WITNESS: A biometric key would consist of circuits.
BY MR. MCKEE:
Q. Let's talk about the last paper, Exhibit 7 to your deposition, exhibit 3 to your declaration.
Let me know when you have that up.
A. Okay.
Q. What does -- what is this paper? Excuse me.
A. So this is an IEEE paper from 2001, and the title is, "A Novel Integrated Device -- A Simulated Inductor With Voltage Control Characteristics Inversely Proportional to the Square of Control Voltage Uc."
Q. What is the integrated device in this paper, Exhibit 7 to your deposition?
A. It's a voltage variable simulated inductor.
Q. Are you referring to figure 1?

A. I was just reading from the abstract.
Q. Does figure 1 show the integrated device of Exhibit 7 to your deposition?
A. Yes, it's a diagram of it.
Q. And if you could turn to the page numbered 1130, and take a look at figure 3 for me.
A. Okay.
Q. That's also an integrated device, correct?
A. So within the realm of circuits, this is showing the layout of the figure 1 on a chip, it looks like.
Q. This could also be -- strike that.
Figure 3 could also be described as an integrated circuit, right?
A. Yes.
Q. You mentioned that these are from -- these papers that you included as exhibits to your declaration are from a different subfield than the invention of the '730 patent.
Do I have that right?
MR. BARCELO: Objection, misstates testimony.
THE WITNESS: So they're all within the realm of technology and engineering. But the specific subfields of these three papers is different

from the specific subfield of the '730 patent.
BY MR. MCKEE:
Q. And in your declaration, in fact, you mentioned that you searched through ACM publications and other databases looking for the term integrated device; is that right?
I'm referring to paragraph 26, if that helps.
A. Right, I just got there.
That's right, I also looked for the term integrated device in titles of ACM papers.
Q. You did not cite any papers from the same subfield as the '730 patent in your declaration, correct?
A. The only specific examples that I gave are from three of the IEEE papers. But my point of mentioning the ACM is that there are 35 publications that came up in a quick search up to 2004 that had integrated device in the title.
Q. Just for the record, we mentioned IEEE.
What's ACM?
A. The Association of Computing Machinery. Together with the IEEE, those are the two largest venues that I know of for scientists that publish their results.

Q. And if you were looking for papers that were relevant for the '730 patent, would you look in IEEE publications, ACM publications or both?

A. If I was doing that for what purpose?

Q. If you were trying to find papers that informed you about the meaning of integrated device to someone working in the same subfield as the '730 patent, where would you look?

A. The ACM and IEEE are two places that I did look.

Q. Did you find any papers in either the ACM or IEEE database searches that you did in the same subfield as the '730 patent using the term integrated device?

A. I wasn't looking for that. I was simply counting appearances of the term integrated device.

Q. To the best of your recollection sitting here today, did you see any papers in the same subfield as the '730 patent that informed your understanding of what integrated device meant to a person of skill in the art at the time of the alleged invention of the '730 patent?

MR. BARCELO: Objection, form.

THE WITNESS: I was not performing a search looking for that. I was not looking at the content

of all these papers.

I was counting how many times the term integrated device appeared to show that this a term of art that is often used.

BY MR. MCKEE:

Q. When you ran those searches on the ACM and IEEE databases, how many hits did you get?

A. I have that answer in my declaration: 218 for IEEE and 35 for ACM.

Q. How many papers ballpark are in the combined ACM and IEEE databases?

MR. BARCELO: Objection, calls for speculation.

THE WITNESS: I have no idea.

BY MR. MCKEE:

Q. Less than a thousand?

MR. BARCELO: Objection, form.

BY MR. MCKEE:

Q. Would you say less than a thousand papers in those databases?

A. No.

Q. Would you say there's less than 10,000 papers in those databases?

A. No.

Q. Less than a 100,000 papers in those

databases?

A. Probably not.

Q. So we're talking a small fraction of the papers in those databases that use the phrase integrated device, right?

MR. BARCELO: Objection, form.

THE WITNESS: Yes.

BY MR. MCKEE:

Q. All right. Let me shift gears slightly. And I'll come right back to integrated device.

If you could turn to paragraph 21 of your declaration.

A. Okay.

Q. All right, you have -- paragraph 21 talks about the different possible priority dates of the '730 patent.

Do you see that?

MR. BARCELO: Objection, misstates the evidence.

THE WITNESS: Basically saying that my opinions are the same regardless of which of the dates is used.

BY MR. MCKEE:

Q. Why was it necessary for you to state that your opinion remains the same if the '730 patent is

deemed not entitled to the filing date of the provisional application?

A. Nothing happened between December 20th, 2004 to December 20th, 2005, to change the way that one of ordinary skill in the art would have understood the term integrated device.

Q. But why even mention it? Is there a risk that the '730 patent is not entitled to its provisional filing date?

MR. BARCELO: Objection, form, vague.

THE WITNESS: In the event that there's a dispute about the priority date, I was mentioning that it wouldn't matter which side of the dispute it was resolved to.

BY MR. MCKEE:

Q. Just being thorough, okay.

Let me ask you this -- in paragraph 22, you provide your definition of a person of ordinary skill in the art; is that right?

A. Yes.

Q. And in there you say, "the field of encryption and security or an equivalent."

Do you see that?

A. Yes.

Q. What is in your opinion an equivalent to the

field of an encryption and security?

A. Well, I think there are many different ways people use to describe encryption and security.

Some people say information security. Some people say computer security.

So I just wanted to make sure I covered other ways that people might express those terms.

Q. Is there any dispute that Dr. Black is a person of skill in the art under your definition?

A. No.

MR. BARCELO: Objection, vague. Calls for legal conclusion.

BY MR. MCKEE:

Q. Have you worked with Dr. Black before?

A. I don't believe I've worked with him on any research.

Q. Just curious.

Now, if you could pull up the '730 patent for me that is Exhibit 2.

And I'd like it to turn your attention to the claims. So column 9. I'm going to ask some questions about claim 1.

So let me know when you're there.

A. I'm there.

Q. All right. On line 17, do you see the term

"secret decryption value"?

A. Yes.

Q. You've analyzed these claims before, right?

A. I have.

Q. So you have an understanding of what the different elements of the claims mean?

A. I do.

Q. Kind of high level to a person of skill in the art, what is a secret decryption value?

A. So I am prepared to talk about the integrated device term. I have not looked at that in quite awhile and so I'm going to wait to offer opinions on that until later parts of the case.

Q. All right, but I'm asking you about now. And I'm taking your deposition now, and you've offered opinions for it before and you understand the claims.

So I'm just asking -- and I can ask more nuanced questions here, what is a secret decryption value?

MR. BARCELO: Objection, outside the scope.

THE WITNESS: I have not looked at that in awhile. I don't remember what I did previously in this case.

And I only prepared to talk to you about the

term integrated device. So I do not want to speculate.

BY MR. MCKEE:

Q. Well, a person of skill, that's someone in the field of security and encryption, right?

MR. BARCELO: Objection, misstates evidence --

BY MR. MCKEE:

Q. That's what we just looked at, right?

MR. BARCELO: Objection, misstates evidence and testimony.

THE WITNESS: There was a little more to it than that but that is the field.

BY MR. MCKEE:

Q. All right, and you're a person of ordinary skill, correct?

A. Yes.

Q. So let me ask it this way then. What is a decryption value, take secret out of the equation.

What is a decryption value? What does it mean to decrypt something?

MR. BARCELO: Objection, compound. Outside the scope.

THE WITNESS: Again, that's a claim term. It's not one that I prepared my declaration about,

and I'm not prepared to talk about it today.
BY MR. MCKEE:
Q. Taken out of the claims, what is decryption?
A. Outside of the claims, decryption is the inverse of encryption.
Q. And what is encryption?
A. Giving an off the top of my head kind of loose non-precise definition, I would say it's the transformation -- an irreversible transformation of data unless you have a secret key.
Q. And that secret key that's referred to in common parlance as an encryption value, correct?
MR. BARCELO: Objection, vague, form.
THE WITNESS: I think in common parlance, it can be called that. It can also be called an encryption key.
BY MR. MCKEE:
Q. And you have to decrypt something using the same key that was used to encrypt it, right?
MR. BARCELO: Objection, vague, calls for speculation.
THE WITNESS: So that's a certain class of cyphers called symmetric cyphers. Symmetric cyphers are ones where you use the same key to encrypt and decrypt.

BY MR. MCKEE:

Q. All right. So there are some cyphers in which you use the same key to encrypt and decrypt, and other cyphers in which you use different keys to encrypt and decrypt; is that accurate?

A. Yes.

Q. Now, so then a decryption value is a value that's used to decrypt encrypted information?

MR. BARCELO: Objection, outside the scope. Calls for speculation. Vague.

THE WITNESS: Outside of the patent, you could refer to a decryption value or decryption key as something that could be used to decrypt something that's encrypted.

BY MR. MCKEE:

Q. And to a person of skill, what does it mean for something to be secret in this field?

MR. BARCELO: Objection, outside the scope.

THE WITNESS: So just speaking as an expert in security and not relating to the '730 patent, something that is secret is typically referred to as something that's not known to the adversary.

BY MR. MCKEE:

Q. In a security context, what is an adversary just so I get the terminology right.

A. We have a very fancy term for that in a lot of literature called a bad guy.

Q. So something is secret if it's not available to whoever is trying to do something malicious, right?

MR. BARCELO: Objection, misstates testimony. Outside the scope.

THE WITNESS: So I didn't consider that specific question before. But I think it's a little more than that.

Something is secret if -- so, for example, I did a lot of work on the logic of authentication. And you had certain values that were labeled in your logic as secret and others that are labeled as public.

And so the secret ones are not available to anyone who hasn't been explicitly given the secret value whereas a public value is available to anyone.

BY MR. MCKEE:

Q. So in a cryptographic transaction where there's encryption and decryption occurring, the only people who should know a piece of secret information are the parties that are encrypting or decrypting and no one else?

MR. BARCELO: Objection, form -- sorry, Dr.

Rubin, you'll have to give me a moment to get my objection in.

THE WITNESS: I apologize, I'll pause.

MR. MCKEE: I'll re-ask the question then.

I know you're going to disagree with the premise of it. So let me just read the exact same question.

Q. So in a cryptographic transaction, where there's encryption and decryption occurring, the only people who should know a piece of secret information are the parties that are encrypting or decrypting and no one else, correct?

MR. BARCELO: Objection, form, calls for speculation. Outside the scope.

THE WITNESS: So that's not necessarily always the case. In fact in the work I did for my PhD, I worked on a system where there was a trusted key server.

And so if two parties wanted to communicate, they would go to the trusted key server for a shared key. And they would each get the key but the trusted server would also know the key.

So in terms of your question, that's not exactly correct -- in that example.

///

BY MR. MCKEE:

Q. Is that the subject of --

(Reporter clarification.)

-- a thesis or dissertation that you prepared?

A. So the title of my dissertation was Non-Monotonic Cryptographic Protocols. And in there, I looked at many different types of cryptographic protocols.

And the one that I just mentioned was one of them that I examined and wrote extensively about.

Q. And what was -- when did you prepare that dissertation?

A. I graduated in 1994. I did most of that work in the years leading up to that.

Q. Before the '730 patent in any event?

A. Yes.

Q. So there are cryptographic environments in which there is -- they're a party to the transaction to use -- to coin of term which you called a trusted key server.

Is there anyone else in a cryptographic transaction that would have access to secret information?

MR. BARCELO: Objection to form.

THE WITNESS: There are protocols out there where there's an escrow service that if you have an important keys that you may want to recover later, you would escrow the secret keys with that escrow service, and then you could recover those keys under certain circumstances using the protocols that are specified and get the secret key.

BY MR. MCKEE:

Q. Are there any other similar services in which there's a third party that might have access to secret information other than the escrow service that you just mentioned and the trusted key server that you mentioned previously?

MR. BARCELO: Objection, vague. Outside the scope.

THE WITNESS: Within certain hierarchal organizations, there may be a requirement that a higher-level authority --

So, for example, I worked at AT&T labs. And the labs would have key management, then a department could have key management, then individuals could have key management.

And while it wasn't the case at AT&T, there are organizations that require access to the lower-level keys from the higher-level

administration.

So in that case, they would have copies of the keys.

BY MR. MCKEE:

Q. But in all of these configurations, the information is kept secret from the bad guys to use your terminology earlier?

A. Yeah --

MR. BARCELO: Objection. Sorry, Dr. Rubin, objection, vague. Outside the scope.

THE WITNESS: The idea behind these protocols is that only the parties that the designer of the protocol wants would know the secret keys, and the bad guys wouldn't.

MR. BARCELO: Is now an okay good time for a break for you?

THE WITNESS: I would appreciate a break, yeah.

MR. BARCELO: I'd like some coffee, so I would, too.

VIDEO OPERATOR: Going off the record. The time is 9:11 a.m.

(Recess taken.)

VIDEO OPERATOR: Back on the record. The time is 922 a.m.

MR. MCKEE:

Q. So we've -- I've asked you a number of questions about the biometric key that's described in the '730 patent.

Do you recall that?

A. I recall questions about that, yes.

Q. And the biometric key that's shown in figure 1 of the '730 patent, for example, that's a fingerprint reader or thumbprint reader, right?

A. Yes.

Q. Now, there are plenty of other types of biometrics out there, right?

A. Yes.

Q. So you could do an eye scanner like in Mission Impossible. Or a face scanner like on an iPhone, right?

MR. BARCELO: Objection, compound, vague.

THE WITNESS: So there are systems that use face scanning and iris scanning for -- as a biometric.

BY MR. MCKEE:

Q. You could do, you know, a full handprint

that gets the entirety of your fingers and your palm and your whole hand, right?

MR. BARCELO: Objection, vague. Outside the scope.

THE WITNESS: I don't know that I could do it.

But I think what you're asking is if that can be used as a biometric. And it can be.

BY MR. MCKEE:

Q. Now, when you have a -- when you're at the hospital, you have a brand new baby and they take a handprint of the baby, what parts of the hand does that capture?

MR. BARCELO: Objection, calls for speculation. Vague. Outside the scope.

THE WITNESS: When my kids were born, they got their feet. And it wasn't for biometric.

It was just to make a little mark for us for a souvenir. But I don't know what those systems use.

BY MR. MCKEE:

Q. What parts of the foot, then, is it?

MR. BARCELO: Objection, vague, outside the scope. And then I'd like to object to the second question as well for the same reason: Outside the scope. Vague.

THE WITNESS: You know, my youngest is 21 years old, I don't remember what those footprints looked like but they were very cute.

BY MR. MCKEE:

Q. Well, when you talk about a handprint as a person of skill in the art in these patents, you understand that includes the fingers, right?

MR. BARCELO: Objection, misstates testimony, vague.

THE WITNESS: I don't see the word handprint in the patent.

BY MR. MCKEE:

Q. I don't think it is. But you're a person of skill in the art in this patent, which talks about biometrics that include different parts of the hand, right?

MR. BARCELO: Objection, vague.

THE WITNESS: So the patent does talk about thumbs and other fingers. And it mentions various types of biometrics, like hand geometry.

MR. MCKEE: What is hand geometry?

MR. BARCELO: Objection, outside the scope.

THE WITNESS: So hand geometry is a way of mathematically representing somebody's hand and using that as a biometric.

BY MR. MCKEE:

Q. And when you say mathematically representing someone's hand, what parts of the hand?

A. My understanding of the term hand geometry is that it is a broad term that could represent any mathematical use of something to do with the hand.

Q. Does the hand include the fingers?

A. A hand can include fingers.

Q. Does the hand include the palm?

A. A hand includes the palm.

Q. Does the palm include the fingers?

MR. BARCELO: Objection, outside the scope.

THE WITNESS: I am not an anatomy expert. But I don't believe that I would include the fingers in a palm.

MR. MCKEE: All right. I realized I forgot to do something earlier. So I'm going to mark an Exhibit 8.

(Exhibit 8 was marked for identification by the court reporter and is attached hereto.)

BY MR. MCKEE:

Q. And if you could pull up the '905 patent again, and just have it side-by-side with Exhibit 8?

Just give me a moment, I think we can go through this pretty quickly.

So Exhibit 8 is being distributed now. You should see it in a minute. It's being distributed very slowly.

So I'll let you know when it's uploaded on my end.

A. Sure, meanwhile I'm getting up the '905.

Q. Okay, it should show up now.

A. I have it.

Q. All right. And you see that on the first page of Exhibit 8 it says application number 11/314199?

A. Yes.

Q. And if you were to look at the '905 patent, where it's talking about how it's a continuation of the '730 patent, it says that it's a continuation of that same application number.

Do you see that?

A. I do.

Q. This is file history for the '730 patent, right?

A. That's what it looks like.

Q. All right, turn to column 4 of the '905 patent again then please?

A. Okay.

Q. And I understand this will take slightly

longer to search because it is a much longer document.

But the sentence, "in one embodiment, the biometric key 100 is integrated into another object or device," is not part of the file history of the '730 patent, right?

A. When I search for "another object," it does not come up. So I would say it's not there.

Q. And the sentence, "a device having an integrated biometric key 100 is occasionally referred to herein as an integrated device," also does not a show up in the file history for the '730 patent, correct?

A. I don't see that.

Q. And finally, the sentence, "for example, in one embodiment, the biometric key 100 is integrated into a mobile phone e.g., a cellular phone or smart phone, tablet, laptop, MP3 player, mobile gaming device, watch, key fob or other mobile device, thereby making the biometric key 100 unobtrusive to carry," similarly does not appear in the file history of the '730 patent, correct?

A. I don't see that sentence.

Q. All right. Now turning back to your declaration, I'd like to ask you about something you

wrote in paragraph 32.

So let me know when you're there.

A. Okay.

Q. And here you refer to one of those sentences we just read that the device having an integrated biometric key is occasionally referred to as an integrated device.

Do you see that?

A. Yes.

Q. And you say, "first, a person of ordinary skill in the art would have that understanding already from the context of the '730 patent."

Do you see that?

A. Yes.

Q. What is the basis for that opinion that a person of ordinary skill in the art would have that understanding from the '730 patent's -- '730 patent alone?

A. So the '730 patent talks about biometric keys.

It's mentioned in particular in claim 15. And claim 15 also mentions uniquely identifying legitimate integrated devices.

If you read the patent, you understand that there's an integrated device that has the biometric

key stored in it.

And within the context of the specification of the patent, including the abstract, the specification, it's clear that the device having an integrated biometric key is occasionally referred to as an integrated device.

Q. All right, let me -- let's take a look at claim 15 then.

Claim 15 recites two components at a high level: Biometric key and an authentication unit, right?

MR. BARCELO: Objection, vague, form.

THE WITNESS: So the first two elements of claim 15 are a biometric key and an authentication unit.

So those are two components.

BY MR. MCKEE:

Q. And claim 15 is a system comprising, correct?

A. Yes.

Q. Not an integrated device comprising.

A. Well, it doesn't use the word integrated device in the preamble. But it does use that term later in the claim.

Q. To refer to legitimate integrated devices?

MR. BARCELO: Objection, form.
THE WITNESS: To identifying legitimate integrated devices.
BY MR. MCKEE:
Q. Okay. And let me just shift gears slightly.
Do you have the '905 patent up?
A. I can get it. Now I do.
Q. If you can turn to column 2 for me.
A. Okay.
Q. And at line 43, there's a sentence that begins "in one embodiment, a system includes an integrated device, e.g., a biometric key to store biometric data for a user in a tamper-resistant format."
And then it continues.
Do you see that?
A. I see that.
Q. So biometric key is an example of an integrated device, correct?
A. It's an example of something that -- well, can I hear the question again, please?
Q. A biometric key, according to this sentence, is an example of an integrated device, correct?
A. Yes.
Q. Can you confirm for me whether this

embodiment is described in the '730 patent?

MR. BARCELO: Objection, form.

THE WITNESS: Which embodiment?

BY MR. MCKEE:

Q. The one that we were just looking at in column 2 of the '905 patent: "In one embodiment, a system includes an integrated device, e.g., a biometric key to store biometric data for a user."

A. So the abstract of the '730 patent talks about an integrated device that persistently stores biometric data for a user in a temporary system format.

Q. And that confirms for you that in that sense integrated device is referring to biometric key?

MR. BARCELO: Objection, form.

THE WITNESS: Oh, I see what you're saying.

I didn't understand the question. So if you look at figure 1 and the description of figure 1 that we looked at earlier, in column 3, line 12, it talks about the biometric key and it shows that it is composed of different components so it's an integrated device.

BY MR. MCKEE:

Q. One final question to close the loop about something we were discussing earlier: Encryption and

decryption in cryptography are opposite sides of a single transaction, correct?

MR. BARCELO: Objection, form, vague, calls for speculation.

THE WITNESS: That's not exactly how I would put it.

BY MR. MCKEE:

Q. How would you put it?

MR. BARCELO: Objection, same objection.

THE WITNESS: How would I put what?

BY MR. MCKEE:

Q. I asked the question, "encryption and decryption in cryptography are opposite sides of a single transaction, correct," and you said that's not exactly how I would put it.

So how would you put it?

MR. BARCELO: Objection, compound. Calls for speculation. Outside the scope.

THE WITNESS: I don't know what you're asking me. But the statement you made is not one I would make.

It's not technically precise. But I'm not sure what you mean.

BY MR. MCKEE:

Q. What is technically imprecise about my

question?

A. I don't think of the functions of encryption and decryption as being transactions.

Q. In order to decrypt -- you can only decrypt something that's been encrypted, right?

MR. BARCELO: Objection, calls for speculation. Outside the scope.

THE WITNESS: So that's not entirely true. You could run the decryption function on any data and produce a plain text from that cyphered text.

If you're thinking of it from a mathematical perspective, you're just applying a function to bits.

So you could run decryption without ever having run encryption.

BY MR. MCKEE:

Q. In order to recover encrypted information, you must decrypt it, fair?

MR. BARCELO: Objection -- Dr. Rubin, please give me one second. I'll object to the question as outside the scope and vague and calls for speculation.

THE WITNESS: That's not true.

So let's say that you encrypt something and then I break into your computer and I find the plain text data, then I've recovered the data without

decrypting.

But you could also coerce someone who knows the information to tell it to you.

BY MR. MCKEE:

Q. Fine. But in order to get the information that's been encrypted out of, you know, the packet of encrypted information, I have to decrypt it unless you go through some other mechanism to get at the information pre-encrypted?

MR. BARCELO: Objection -- sorry, Dr. Rubin. I have to wait for Mr. McKee to finish his question, and then you'll have to give me a second, just to wait.

So I'll object to the question as calling for a hypothetical -- an incomplete hypothetical, calls for speculation and outside the scope.

THE WITNESS: So in the world of cryptography as a science outside of these patents, which I assume this entire line of questioning has been, the -- if you have some encrypted information and you don't get it any other way, then to get the information, you would decrypt it.

MR. MCKEE: All right. I have no further questions.

MR. BARCELO: Nothing from us.

VIDEO OPERATOR: This completes today's deposition. We are going off the record. The time is 9:44 a.m.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on _____, 2023, at

_____, _____.

_____

SIGNATURE OF WITNESS

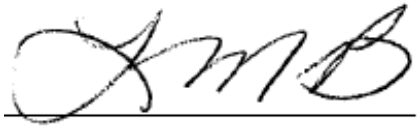
STATE OF CALIFORNIA) ss.
COUNTY OF LOS ANGELES)

I, Lori M. Barkley, CSR No. 6426, do hereby certify:

That the foregoing deposition proceedings were taken before me at the time and place therein set forth and were recorded stenographically by me, and were thereafter transcribed under my direction and supervision, and that the foregoing pages contain a full, true and accurate record of all proceedings and testimony to the best of my skill and ability.

I further certify that I am neither counsel for any party to said action, nor am I related to any party to said action, nor am I in any way interested in the outcome thereof.

IN WITNESS WHEREOF, I have subscribed my name this 18th day of December 2023.



LORI M. BARKLEY, CSR No. 6426

&

& 3:12

1

1 1:25 4:9,13 8:8,9,13 9:4 11:2 15:7 17:2 18:17,23 26:18 32:4 34:25 35:2,10 41:22 51:11 60:18,18
10,000 38:22
100 11:11,15,24 12:9 13:25 14:17 15:17 17:8,20 18:4 18:10 56:4,10 56:16,20
100,000 38:25
1000 3:6
10010 3:16
11/314199 55:11
1130 35:6
12 15:8 16:23 60:19
15 57:21,22 58:8,9,14,18
16 11:2
17 41:25
18 1:17 2:16 5:1
18th 5:5 66:18
1988 30:1
1994 48:14
1999 26:25

2

2 4:10,14 8:15 8:17 9:4,16 10:2 14:24 25:21 27:8,12 27:18 29:20 41:19 59:8 60:6
20 15:9
2001 34:17
2004 36:18 40:3
2005 40:4
2023 1:17 2:16 5:1,5 65:4 66:18
20th 40:3,4
21 39:11,14 53:1
212-849-7000 3:17
218 38:8
22 40:17
22nd 3:15
26 36:7
2a 28:13
2b 27:22 28:1,6 29:7,15

3

3 4:11,15 8:19 8:21 9:4 10:8 15:1 16:15,23 17:12 32:4 34:13 35:6,13 60:19
315 28:5
316 27:9
32 25:25 57:1
320 1:8 2:8
35 19:9 29:2 36:17 38:9

4

4 4:12 8:23,25 10:9,20,24 11:1 16:16,22 16:24 17:2 25:21 55:22
43 59:10

5

5 4:13 9:3,6 26:17 29:5
50 31:5
51 3:15
5100 3:6
54 4:16

6

6 4:5,14 9:3,8 29:20 32:22
6357374 1:24
6426 1:23 2:17 66:4,21
66 1:25
6966 66:20
6:23 1:8 2:8

7

7 4:15 8:8 9:3 9:10 34:12,23 35:3
70 32:22
703 18:13
713-651-9366 3:8
730 4:16 7:12 9:16,16,22 10:2,11,23 14:25 15:19,22 15:24 16:4,15 16:21,23 17:4 17:10,21 19:12 25:20 31:16 32:6,12 35:19 36:1,13 37:2,7 37:13,19,22 39:16,25 40:8 41:18 45:20 48:16 51:7,11 55:15,19 56:6 56:12,22 57:12 57:17,17,19 60:1,9
77002 3:7

8

8 4:9,10,11,12 4:16 11:8 14:15 54:18,19 54:23 55:1,10
8352730 4:10 8:12,16

8886954 4:11 8:20
8:03 2:15 5:2,5

9

9 4:13,14,15 41:21
905 10:19,23,24 16:3,16,23,25 17:7 25:20 54:22 55:6,13 55:22 59:6 60:6
922 51:2
9298905 4:12 8:24
954 25:20
9:11 50:22

a

a.m. 2:15,16 5:2,5 50:22 51:2 64:3
ability 66:12
able 22:23 33:12
abstract 35:1 58:3 60:9
access 48:23 49:10,24
accurate 45:5 66:11
accurately 33:4
acm 36:4,11,17 36:21 37:3,9 37:11 38:6,9 38:11
action 1:8 2:7 66:14,15
add 23:18
address 25:24
administered 6:8
administration 50:1
advances 30:2
adversary 45:22,24
afield 31:11
agree 5:13
ahead 17:14 23:9
alleged 37:21
alright 14:12
analysis 22:1 31:4
analyzed 20:19 22:3 42:3
anatomy 54:13
angeles 66:2
answer 38:8
answered 14:13
answers 6:23
apologize 47:3
appear 12:20 56:21
appearances 3:1 37:16
appeared 38:3
application 9:23 10:5,10 10:11 26:3 40:2 55:10,16
applications 27:2
applying 62:12
appreciate 50:17
approximately 15:8
area 31:12
arrow 28:23
art 22:23 23:12 23:13,22 26:6 37:21 38:4 40:5,19 41:9 42:9 53:6,14 57:11,16
ascertain 22:21 22:23 23:14,23
asked 51:5 61:12
asking 7:14 9:19 12:19 14:9 22:2 23:5 24:9 42:14,18 52:7 61:20
association 36:22
assume 63:19
at&t 49:19,23
attached 8:14 8:18,22 9:1,7,9 9:11 54:20
attention 41:20
attorney 3:5,14
audio 5:11
authentication 46:12 58:10,14
authored 7:11
authority 49:18
available 46:3 46:16,18
avenue 3:15
aviel 1:15 2:13 4:3 5:15 6:7 8:9
awhile 42:12 42:23

b

b 8:9 27:12
baby 52:11,12
back 7:20 29:19 39:10 51:1 56:24
bad 46:2 50:6 50:14
ballpark 38:10
barcelo 3:4 6:4 6:4 9:18 10:13 11:22 12:18 13:7,19 14:7 14:20 15:12,20 16:8 19:20 20:1,9,17,25 21:8,22 22:9 22:17,25 23:4 23:7,15 24:1 24:15,21 25:11

25:23 26:10 27:4,13 31:20 32:7,16 33:19 34:1,7 35:21 37:23 38:12,17 39:6,18 40:10 41:11 42:21 43:6,10,22 44:13,20 45:9 45:18 46:6,25 47:13 48:25 49:14 50:9,15 50:19 51:20 52:3,14,22 53:8,17,22 54:12 58:12 59:1 60:2,15 61:3,9,17 62:6 62:18 63:10,25
barkley 1:22 2:17 5:23 66:4 66:21
basically 39:20
basis 57:15
bbarcelo 3:9
beginning 2:15 5:25 11:8 15:7 16:17
begins 11:2,9 14:15 59:11
behalf 2:14 6:3 6:4 7:5
believe 26:6 28:16 41:15 54:14
best 37:17 66:12
biometric 11:10,15,24 12:9 13:3,25 14:3,5,10,17 15:17 17:8,19 18:4,10 22:15 24:6,9 25:3 34:5,9 51:6,10 51:23 52:8,17 53:25 56:4,10 56:16,20 57:6 57:19,25 58:5 58:10,14 59:12 59:13,18,22 60:8,8,11,14,20
biometrics 51:15 53:15,20
bit 31:11
bits 62:12
black 8:10 41:8 41:14
blocks 33:21,25 34:5
book 25:7
born 52:16
box 28:14
brand 52:11
break 50:16,17 62:24
breaker 27:1,6
broad 32:15 54:5
broadly 32:18
bryce 3:4 6:4
building 33:21 33:24 34:5

c

california 65:2 66:1
called 26:25 30:21 44:15,15 44:23 46:2 48:20
calling 63:14
calls 20:18 21:1 21:8,23 22:9 22:25 23:15 24:1,21 38:12 41:11 44:20 45:10 47:13 52:14 61:3,17 62:6,20 63:16
camera 5:8
capacitor 20:16
capture 52:13
carried 14:18 15:11,24 16:3 17:6
carry 18:11 56:21
case 7:5,9,18,23 42:13,24 47:16 49:23 50:2
cause 12:19
cellular 18:6 56:17
certain 8:11 44:22 46:13 49:6,16
certainly 16:6
certainty 22:24 23:24
certified 2:17
certify 66:5,13
change 40:4
characteristics 34:19
chip 25:13 35:10
circuit 20:23 27:1,6,19 28:13,20 29:5 30:3,6,11,25 33:3,5,10,14,17 35:14
circuits 31:4 33:21,22,25 34:2,6,10 35:9
circumstances 49:6
cite 36:12
civil 1:8 2:7
claim 7:13,22 22:22 23:14,23 23:24 41:22 43:24 57:21,22 58:8,9,14,18,24
claims 41:21 42:3,6,17 44:3 44:4

clarification 48:3
class 44:22
clear 10:22 13:13 15:21 23:7 58:4
close 60:24
coerce 63:2
coffee 50:19
coin 25:4 48:20
collection 20:7 20:23 29:5,15
column 10:20 11:1 15:1 16:15,16,22,23 16:24,25 17:2 17:12 41:21 55:22 59:8 60:6,19
combined 38:10
come 15:23 29:19 39:10 56:8
comment 22:2
common 30:10 44:12,14
commonly 19:14 32:10
communicate 47:19
completes 64:1
component 19:4,22 20:13 20:14 22:7 33:14
components 13:16,17 18:25 19:2,16,19 20:8,11 22:19 24:17 28:9 29:8,16 31:5 31:10,15 32:1 33:6,9,10,17 58:9,16 60:21
composed 24:17 32:1 60:21
compound 13:20 20:17,25 24:15 25:23 27:13 31:20 43:22 51:20 61:17
comprise 33:17
comprises 18:23 24:13
comprising 58:18,21
computer 16:19 41:5 62:24
computing 36:22
concerning 8:11
conclusion 23:1 23:2,6,16 24:2 41:12
conducted 5:7 5:19
configurations 50:5
confirm 17:14 25:18 59:25
confirms 60:13
connected 25:13
connection 5:9
consider 21:20 46:8
consist 34:9
consistent 11:19 12:2,15 12:22
consistently 26:2
construction 7:13,23 8:11
contain 66:10
containing 31:5
content 37:25
context 20:6 25:8 45:24 57:12 58:2
continuation 10:3,4,11 55:14,15
continuations 10:16
continue 5:12
continues 11:14 12:8 15:9 33:7 59:15
control 34:19 34:20
copies 50:2
corp 1:9 2:9
corporation 5:16
correct 6:16 7:7,19 9:17 12:17 17:22 23:20,25 25:22 28:1 29:6 35:8 36:14 43:16 44:12 47:12,24 56:13,22 58:19 59:19,23 61:2 61:14 65:3
counsel 23:4 66:13
counting 37:16 38:2
county 66:2
course 29:3
court 1:1 2:1 5:17,23 8:14 8:18,22 9:1,7,9 9:11 54:20
cover 10:7,9
covered 41:6
covers 10:14
cross 27:15,23
cryptographic 46:20 47:8 48:7,8,18,22

cryptography 61:1,13 63:18
csr 1:23 66:4 66:21
curious 41:17
cute 53:3
cv 1:8 2:8
cyphered 62:10
cyphers 44:23 44:23,23 45:2 45:4

d

d 4:1
dashed 28:14
data 10:10 44:10 59:13 60:8,11 62:9 62:25,25
database 37:12
databases 36:5 38:7,11,20,23 39:1,4
date 40:1,9,12
dates 39:15,22
day 66:18
dc 31:2
deal 33:13
december 1:17 2:16 5:1,5 40:3 40:4 66:18
declaration 4:9 4:13,14,15 7:23 8:9,10 9:4 10:1 20:3,21 25:16 26:19 29:21 32:5 34:13 35:18 36:3,13 38:8 39:12 43:25 56:25
declare 65:1
decrypt 43:21 44:18,25 45:3 45:5,8,13 62:4 62:4,17 63:7 63:22
decrypting 46:23 47:11 63:1
decryption 42:1,9,19 43:19,20 44:3 44:4 45:7,12 45:12 46:21 47:9 61:1,13 62:3,9,13
deemed 40:1
defendants 1:10 2:10,14
definite 22:22 23:25
definiteness 23:12
definition 40:18 41:9 44:8
department 49:20
depends 5:8
deposed 6:15
deposition 1:15 2:13 5:6,15,19 8:3 25:21 26:18 29:20 34:13,23 35:3 42:15 64:2 66:6
derived 26:2
describe 41:3
described 33:12 35:13 51:6 60:1
describes 18:22
description 4:8 60:18
design 28:7
designer 50:12
detail 9:25
determine 22:6
device 11:11,14 11:16,21,24 12:1,17,20 13:5,5,6,9,10 13:11,11,13,15 13:16 14:2,10 15:18 17:9,19 17:21 18:8,9 18:21 19:1,14 20:7,15 21:7 21:14,19,21 22:8,15 24:8 24:10,13,14,16 24:18,20 25:19 26:1,7,14 27:1 27:3,6,11,16,20 27:23 28:19 29:4 30:3,6,11 30:16,18 31:1 31:25 32:2 33:5,18,22 34:18,22 35:2 35:8 36:6,11 36:19 37:6,14 37:16,20 38:3 39:5,10 40:6 42:11 43:1 56:5,9,11,19,19 57:5,7,25 58:4 58:6,21,23 59:12,19,23 60:7,10,14,22
devices 12:12 24:24 25:6,9 30:19 33:13 57:23 58:25 59:3
diagram 16:18 35:4
different 28:2,3 31:24,24 32:11 35:18,25 39:15 41:2 42:6 45:4 48:8 53:15 60:21
differently 13:14
direction 66:9
disagree 47:5

discussing 33:10 60:25
discussion 20:2
dispute 40:12 40:13 41:8
dissertation 48:4,6,13
distributed 55:1,2
district 1:1,2 2:1,2 5:17,18
divisional 10:4
document 56:2
doing 37:4
domain 31:3
download 16:9 16:12 19:5
downloaded 16:19
dr 6:14 23:11 41:8,14 46:25 50:9 62:18 63:10
dynamic 32:24 33:4
dz 28:4,11

e

e 4:1
e.g. 18:5 56:17 59:12 60:7
earlier 50:7 54:17 60:19,25
efficient 7:1
egnyte 8:7
either 18:19 21:3 22:12 37:11
electrical 27:19 28:12,16 29:8
electronic 33:25
electronics 25:8 30:4 33:24 34:3
elements 20:23 29:5 42:6 58:13
emanuel 3:12 6:3
embodiment 11:10 12:9 14:15 15:16 17:8 18:3 56:3 56:16 59:11 60:1,3,6
encrypt 44:19 44:24 45:3,5 62:23
encrypted 45:8 45:14 62:5,16 63:6,7,9,20
encrypting 46:23 47:11
encryption 40:22 41:1,3 43:5 44:5,6,12 44:16 46:21 47:9 60:25 61:12 62:2,14
ends 11:2
engineer 28:17
engineering 29:9 32:9,15 32:19 35:24
engineers 31:23
english 19:22
entire 63:19
entirely 62:8
entirety 52:1
entitled 40:1,8
environments 48:18
equation 43:19
equivalent 27:19 28:12 40:22,25
escrow 49:2,4,4 49:11
establish 26:13
evaluated 23:12
event 40:11 48:16
evidence 14:21 26:11 39:19 43:6,10
exact 47:6
exactly 47:24 61:5,15
examination 4:5 6:11
examined 6:8 48:11
example 12:8 18:3 46:11 47:24 49:19 51:11 56:15 59:18,20,23
examples 25:9 36:15
excuse 34:16
executed 65:4
exhibit 4:9,10 4:11,12,13,13 4:14,14,15,15 4:16 8:7,9,13 8:15,17,19,21 8:23,25 9:6,8 9:10,15 10:2,8 10:9,24 14:24 25:16 26:17,18 29:5,20,20 32:22 34:12,13 34:23 35:3 41:19 54:18,19 54:23 55:1,10
exhibits 4:7 8:5 8:8 9:3,4,13 25:21 32:4 35:17
expect 25:25
expediency 8:4
expert 7:8 45:19 54:13
expertise 31:12 31:17
explaining 33:11

explicitly 46:17
express 41:7
extensively 48:11
eye 51:17

f

face 51:18,22
fact 7:8 36:3 47:16
factor 14:17
fair 29:17 62:17
familiar 11:4,6
family 9:17,23
fancy 46:1
far 31:11,16
fast 30:14
feet 52:17
field 28:17 31:16 32:5,9 32:14 33:20 40:21 41:1 43:5,13 45:17
figure 15:7 16:17 18:17,19 18:22 27:8,12 27:18,22 28:1 28:6,10,13 29:7,15 34:25 35:2,6,10,13 51:10 60:18,18
file 4:16 55:19 56:5,12,21
filed 5:17 9:23 19:13
filing 40:1,9
filter 20:24 21:6,19,25 22:6
final 60:24
finally 56:15
find 32:24 37:5 37:11 62:24
fine 16:12 29:13 63:5
fingerprint 51:12
fingers 52:1 53:7,19 54:7,8 54:11,14
finish 63:11
firm 5:23
first 7:5 9:16 9:22 17:5 25:18 30:20 55:9 57:10 58:13
floor 3:15
florida 1:16 2:15 5:1
fob 18:8 56:19
focus 11:7
focused 30:17
following 15:15 17:18,25
follows 6:9 16:2
foot 52:21
footprints 53:2
foregoing 65:2 66:6,10
forgot 54:16
form 9:18 10:13 11:22 12:18 13:7,19 14:7,17,20 15:12,20 16:8 19:20 20:1,9 20:25 21:8,22 22:17 24:15 31:20 32:7 37:23 38:17 39:6 40:10 44:13 46:25 47:13 48:25 58:12 59:1 60:2,15 61:3
formalities 6:15
format 59:14 60:12
forth 66:8
four 28:2,6 29:11
fraction 39:3
frame 18:23 22:19 24:13
free 19:7
full 51:25 66:11
function 62:9 62:12
functions 62:2
further 30:2 63:23 66:13
furthermore 25:25

g

gaming 13:4 18:8 56:18
gate 28:4
gears 39:9 59:5
geometry 53:20 53:21,23 54:4
getting 55:6
give 47:1 54:24 62:19 63:12
given 20:20 46:17
gives 12:11 28:8
giving 44:7
go 5:13 17:14 23:9 47:20 54:24 63:8
godfrey 3:3
going 7:1 8:5 17:12 19:5 25:15 41:21 42:12 47:5 50:21 54:17 64:2
good 5:4 7:16 50:15
google 1:9,9 2:8 2:8 5:16,16 6:3
graduated 48:14
great 10:18

guy 46:2
guys 50:6,14

h

halfway 11:8
hand 52:2,12 53:15,20,21,23 53:24 54:3,3,4 54:6,7,8,9,10
handprint 51:25 52:12 53:5,10
happened 40:3
hard 7:2 30:14
hardware 20:4 20:8,11 29:3 29:10,11
head 44:7
hear 59:21
heard 5:10
helpful 16:14 29:13
helps 36:8
hereto 8:14,18 8:22 9:1,7,9,11 54:20
hierarchal 49:16
high 20:24 21:5 21:25 22:5 27:5 42:8 58:9
higher 49:18,25
history 4:16 55:19 56:5,12 56:21
hits 38:7
hmms 6:24
hold 14:25
hospital 52:11
hours 7:3
houston 3:7
hypothetical 63:15,15

i

idea 38:14 50:11
identification 8:13,17,21,25 9:6,8,10 54:19
identifying 57:22 59:2
ieee 26:25 27:9 30:1 31:22 34:17 36:16,20 36:23 37:2,9 37:12 38:7,9 38:11
igbt1 28:9,13 28:23
igbt2 28:11
igt 32:24
illustration 27:14
important 49:3
impossible 51:18
imprecise 61:25
include 53:15 54:7,8,9,11,14
included 35:17
includes 53:7 54:10 59:11 60:7
including 58:3
incomplete 63:15
incorporates 31:1
indicates 19:15
individual 13:17
individuals 49:21
inductor 34:19 34:24
information 28:8 41:4 45:8 46:22 47:10 48:24 49:11 50:6 62:16 63:3,5,7,9,20 63:22
informed 37:6 37:19
infringement 7:19
integral 31:1
integrated 11:11,15,16,20 11:24,25 12:9 12:12,17,20 13:3,5,9,9,11 13:13,15,17,18 14:1,2,5,10 15:17 17:9,19 17:21 18:4,21 19:1,13 20:7 20:15 21:6,14 21:18,21 22:8 22:15 24:7,7 24:10,14,17,20 24:24 25:6,10 25:19 26:1,7 26:14 27:1,3 27:11,16,20,23 29:4,16 30:3,5 30:15,18,19 31:25 32:2 33:13,18,22 34:18,22 35:2 35:8,14 36:5 36:11,19 37:6 37:13,16,20 38:3 39:5,10 40:6 42:11 43:1 56:4,10 56:11,16 57:5 57:7,23,25 58:5,6,21,22,25 59:3,12,19,23 60:7,10,14,22
integrating 33:16,21
integration 19:15 20:10
interchangea... 30:12
interest 8:4

interested 66:15
internet 5:8
interpret 26:1
introductions 5:25
invention 23:19 32:6 33:11 35:19 37:22
inverse 44:5
inversely 34:20
involved 7:11
involving 7:6
iphone 51:19
iris 51:22
irreversible 44:9
issued 9:22
items 13:22
ivcalc1 31:2

j

joann 3:22 5:21
job 1:24
john 3:13 6:2 8:10
johnmckee 3:18
jump 7:4

k

keep 10:18,19
kept 50:6
key 1:16 2:14 5:1 11:15,24 12:9 13:3,25 14:3,5,10,17 15:17 17:8,19 18:4,8,10 24:6 24:9 25:3 34:5 34:9 44:10,11 44:16,19,24 45:3,12 47:18 47:20,21,21,22 48:21 49:7,12 49:20,21,22 51:6,10 56:4 56:10,16,19,20 57:6 58:1,5,10 58:14 59:12,18 59:22 60:8,14 60:20
keys 22:16 45:4 49:3,4,5,25 50:3,13 57:20
kids 52:16
kind 42:8 44:7
know 6:20 7:14 10:21 13:10 15:1,21 24:24 26:20 29:8,22 30:14 34:14 36:24 41:23 46:22 47:5,10 47:22 50:13 51:25 52:5,19 53:1 55:4 57:2 61:19 63:6
known 45:22
knows 63:2

l

labeled 46:13 46:14
labs 49:19,20
language 11:8 11:19 15:7,10
laptop 13:4 18:7 56:18
large 33:4
larger 13:16 19:16 33:17
largest 31:22 36:23
laundry 12:11
law 3:5,14
laws 65:1
lawyer 23:3,17 24:3
layered 28:6
layout 35:10
leading 48:15
led 18:24 22:19 24:14
left 27:18 28:22
legal 5:22,24 22:25 23:2,5,6 23:15 24:1,4 41:12
legitimate 57:23 58:25 59:2
level 27:5 42:8 49:18,25,25 58:10
line 11:2,2,8,9 14:15 15:4,8,9 16:23,24 17:2 41:25 59:10 60:19 63:19
list 12:11 25:2
literature 46:2
little 15:5 43:12 46:9 52:18
llc 1:6,9 2:5,8 5:16,16
llp 3:3,12
logic 28:4,19,21 46:12,14
longer 56:1,1
look 7:20 10:2 14:14,16 18:17 19:7 21:24,25 28:10,12 29:10 30:20 35:6 37:2,8,10 55:13 58:7 60:18
looked 15:10 15:16,25 21:2 36:10 42:11,22 43:9 48:8 53:3 60:19
looking 10:14 16:10 17:3,11 28:5 36:5 37:1 37:15,25,25 60:5
looks 35:11 55:21

loop 60:24
loose 44:8
lori 1:22 2:16 5:23 66:4,21
los 66:2
lot 46:1,12
louisiana 3:6
low 20:24 21:5 21:19
lower 49:25

m

m 1:22 2:16 66:4,21
machinery 36:22
made 18:25 31:15 61:20
madison 3:15
make 6:23 34:2 41:6 52:18 61:21
making 18:9 56:20
malicious 46:4
management 49:20,21,22
mark 52:18 54:17
marked 8:13 8:17,21,25 9:6 9:8,10 25:21 54:19
mathematical 54:6 62:11
mathematically 53:24 54:2
matter 5:15 40:13
mcgee 8:15,19 8:23 9:3,12
mckee 3:13 4:5 6:2,2,13 9:21 10:17 12:5 13:1,12,23 14:11,23 15:14 16:1,12 19:24 20:5,12,22 21:4,12 22:4 22:13,20 23:2 23:5,10,21 24:5,19 25:1 25:14 26:4,12 27:7,17 32:3 32:13,20 33:23 34:4,11 36:2 38:5,15,18 39:8,23 40:15 41:13 43:3,8 43:14 44:2,17 45:1,15,23 46:19 47:4 48:1 49:8 50:4 51:4,24 52:9 52:20 53:4,12 53:21 54:1,16 54:21 58:17 59:4 60:4,23 61:7,11,24 62:15 63:4,11 63:23
mean 42:6 43:21 45:16 61:23
meaning 11:20 12:4,16,23 19:23 21:15,18 25:19 37:6
means 19:19 26:15
meant 37:20
mechanism 63:8
media 5:14
memory 25:12
mention 40:7
mentioned 22:18 35:16 36:4,20 48:10 49:12,13 57:21
mentioning 36:17 40:12
mentions 53:19 57:22
mind 14:25
minute 19:2 25:17 55:2
mission 51:18
misstates 14:20 26:10 32:16 34:7 35:21 39:18 43:6,10 46:6 53:8
mobile 12:10 13:3,4 14:1,3,4 14:6,9 18:5,7,9 56:17,18,19
modeling 32:25
modern 34:3
moment 47:1 54:24
monday 1:17 2:16 5:1
monotonic 48:7
morning 5:4
move 14:12 25:15 29:19
mp 28:10
mp3 13:4 18:7 56:18
multiple 13:16 31:15 32:1

n

n 4:1
name 5:21 66:18
necessarily 47:15
necessary 39:24
need 16:9 22:5
needed 33:12
neither 66:13
new 3:16 27:1 52:11
non 9:23 44:8 48:6
nonintegrated 13:11

note 5:6
novel 34:18
nuanced 42:19
number 4:8,10 4:11,12 5:14 6:18 8:4,12,15 8:19,23 27:9 51:5 55:10,16
numbered 32:22 35:5
numbers 15:5
ny 3:16

o

oath 6:8
object 11:11 15:17 17:9 52:23 56:4,7 62:19 63:14
objection 9:18 10:13 11:22 12:18 13:7,19 14:7,20 15:12 15:20 16:8 19:20 20:1,9 20:17,25 21:8 21:22 22:9,17 22:25 23:8,15 24:1,15,21 25:11,23 26:10 27:4,13 31:20 32:7,16 33:19 34:1,7 35:21 37:23 38:12,17 39:6,18 40:10 41:11 42:21 43:6,10,22 44:13,20 45:9 45:18 46:6,25 47:2,13 48:25 49:14 50:9,10 51:20 52:3,14 52:22 53:8,17 53:22 54:12 58:12 59:1 60:2,15 61:3,9 61:9,17 62:6 62:18 63:10
occasionally 11:15,25 17:20 56:10 57:6 58:5
occurring 46:21 47:9
offer 42:12
offered 42:16
offering 7:13
oh 28:25 60:16
okay 7:1 8:3 9:15 10:25 15:3 16:19 17:3,16 18:20 23:7 25:15 26:21 29:24 30:15 34:15 35:7 39:13 40:16 50:15 55:7,24 57:3 59:5,9
old 53:2
ones 33:13 44:24 46:16
open 10:18 16:20
opened 10:19 26:20 29:23
operating 31:3
operator 5:4 50:21 51:1 64:1
opined 7:18
opinion 11:20 13:2,15 19:18 20:6 24:7 25:5 25:19 29:15 32:5 33:15 39:25 40:25 57:15
opinions 7:13 12:16 39:21 42:13,16
opposed 6:24
opposite 61:1 61:13
order 20:13 22:6,21 62:4 62:16 63:5
ordinary 12:3 12:23 23:22 40:5,18 43:15 57:10,16
organizations 49:17,24
outcome 66:16
outlined 28:13
outside 42:21 43:22 44:4 45:9,11,18 46:7 47:14 49:14 50:10 52:3,15,22,24 53:22 54:12 61:18 62:7,20 63:16,18
overview 30:21

p

package 30:25
packet 63:6
pad 18:23 22:19 24:14
page 4:4,8 10:7 10:9 27:8,9,9 28:5 30:21 32:21,22 35:5 55:10
pages 1:25 66:10
palm 52:1 54:9 54:10,11,15
paper 26:22 29:4,25 30:15 30:17 31:10 33:10 34:12,16 34:17,22
paper's 31:11
papers 31:19 31:24 35:17,25 36:11,12,16 37:1,5,11,18

38:1,10,19,23 38:25 39:4
paragraph 11:1,4 15:6 16:17 17:11 19:9 25:25 26:5 36:7 39:11,14 40:17 57:1
parent 9:20 26:3
parlance 30:10 44:12,14
part 10:4 22:7 34:2 56:5
participants 5:9
particular 11:7 27:15 29:10 30:17 57:21
parties 5:13 46:23 47:11,19 50:12
parts 42:13 52:12,21 53:15 54:3
party 48:19 49:10 66:14,15
pass 20:24,24 21:5,5,19,25 22:5
patent 4:10,11 4:12,16 7:12 8:11,15,19,23 9:16,16,17,17 9:20,22 10:3 10:12,24 14:25 15:19,22,25 16:3,4,15,16 17:7,10,13,15 17:21 18:13,18 19:12 20:3,6 21:18 31:16 32:6,12 35:19 36:1,13 37:2,8 37:13,19,22 39:16,25 40:8 41:18 45:11,20 48:16 51:7,11 53:11,14,18 54:22 55:13,15 55:19,23 56:6 56:12,22 57:12 57:17,19,24 58:3 59:6 60:1 60:6,9
patent's 57:17
patents 7:6 25:20 26:2,8 26:15 53:6 63:18
pause 47:3
payment 1:9 2:9 5:16
penalty 65:1
people 41:3,4,5 41:7 46:22 47:10
perform 22:1 28:21
performance 33:5
performing 37:24
performs 28:20
perjury 65:1
persistently 60:10
person 21:17 21:20 22:22 23:11,13,22 26:6 33:15 37:21 40:18 41:9 42:8 43:4 43:15 45:16 53:6,13 57:10 57:16
perspective 23:13 27:15 62:12
phd 47:17
phone 12:10 13:3 14:1,3,4,6 14:9 18:5,6,6 24:7,10,11 25:3 56:17,17 56:18
phrase 39:4
piece 20:4 46:22 47:10
pieces 29:10,11
place 5:12 66:7
places 37:9
plain 11:20 12:3,16,23 19:22 21:14,18 62:10,24
plaintiff 1:7 2:6 6:5
platform 8:8
player 13:4 18:7 56:18
please 5:6,25 6:23 17:14 26:18 29:22 55:23 59:21 62:18
plenty 51:14
point 19:6,7,9 31:3 36:16
pointing 28:23
posita 26:1
possible 39:15
power 30:3
pre 63:9
preamble 58:23
precise 44:8 61:22
premarked 8:4
premise 47:6
prepare 48:12
prepared 42:10 42:25 43:25 44:1 48:5
pretty 54:25
previously 20:20 22:18 42:23 49:13
priority 39:15 40:12

probably 39:2
proceedings 66:6,11
produce 62:10
proportional 34:20
protection 27:2
protocol 50:13
protocols 48:7 48:9 49:1,6 50:12
provide 6:23 7:22 25:9 31:2 40:18
provisional 9:23 40:2,9
proxense 1:6 2:5 5:15 6:5 7:6
proxense's 7:8
public 46:15,18
publication 26:25 30:1 31:14,22 32:23
publications 36:4,17 37:3,3
publish 36:24
pull 26:17 41:18 54:22
pulling 9:15
purpose 37:4
put 16:13 29:12 61:6,8,10,15,16

q

qualify 20:14 20:16
quality 5:7,8
question 7:15 12:2 14:9,13 20:20 21:11,13 22:14 23:8,9 46:9 47:4,7,23 52:24 59:21 60:17,24 61:12 62:1,19 63:11 63:14
questioning 63:19
questions 6:24 41:22 42:19 51:6,9 63:24
quick 36:18
quickly 54:25
quinn 3:12 6:3
quinnemanue... 3:18
quite 42:12

r

radio 21:6,6,19 21:25
ran 38:6
read 8:5 12:21 18:1 19:10 28:18 30:23 47:6 57:5,24
reader 51:12 51:12
reading 35:1
reads 15:16 17:7,19,25
real 23:10
realized 54:16
really 28:17
realm 35:9,24
reason 52:24
reasonable 22:24 23:24
recall 7:22 9:25 51:8,9
recess 50:24
recites 58:9
recognize 26:22
recollection 7:21 37:17
record 5:5,13 8:6 36:20 50:21 51:1 64:2 66:11
recorded 5:11 5:14 66:8
recording 5:7 5:12
recover 49:3,5 62:16
recovered 62:25
refer 45:12 57:4 58:25
referred 11:15 11:25 17:20 44:11 45:21 56:10 57:6 58:5
referring 12:23 20:3 34:25 36:7 60:14
refers 31:10
reflect 33:4
refresh 7:21
regarding 12:16
regardless 39:21
reiterate 6:22
relate 32:15,19
related 10:10 66:14
relating 45:20
relevant 37:2
relying 31:19
remains 39:25
remember 7:24 7:25 42:23 53:2
remotely 5:19
report 7:11 19:5,8
reported 1:22
reporter 2:17 5:23 8:14,18 8:22 9:1,7,9,11 48:3 54:20
represent 54:5
representation 28:24

representing 5:21 7:5 53:24 54:2
require 49:24
requirement 49:17
research 41:16
resistant 59:13
resolved 40:14
respectively 9:5
response 8:10
result 31:14
results 36:25
right 6:24 7:4,6 7:9,25 8:2 9:24 10:5,12,24 14:24 15:15,19 16:5,6,21 17:2 17:10,18 21:15 22:24 24:8,14 26:8,9,17,22,24 27:20,22,24 29:3,25 30:13 30:20 32:21 34:6 35:14,20 36:6,9,10 39:5 39:9,10,14 40:19 41:25 42:3,14 43:5,9 43:15 44:19 45:2,25 46:5 51:12,15,19 52:2 53:7,16 54:16 55:9,20 55:22 56:6,24 58:7,11 62:5 63:23
risk 40:7
rubin 1:15 2:13 4:3,9,13,14,15 5:15 6:7,14 8:10 23:11 47:1 50:9 62:18 63:10
rule 30:14
rules 6:20
run 62:9,13,14

s

samsung 7:9
saying 15:23 26:13,14 30:12 39:20 60:16
says 11:10 13:25 14:17 18:23 27:21 28:6 30:5,23 33:3 55:10,15
scan 18:23 22:19 24:13
scanner 51:17 51:18
scanning 51:22 51:22
schematic 15:8 16:18 27:23 28:24
science 63:18
scientists 31:23 36:24
scope 22:24 23:14,23 42:21 43:23 45:9,18 46:7 47:14 49:15 50:10 52:4,15,23,25 53:22 54:12 61:18 62:7,20 63:16
screen 5:11 16:13
search 17:12,17 17:23 18:14 36:18 37:24 56:1,7
searched 36:4
searches 37:12 38:6
searching 15:22
second 33:2 52:23 62:19 63:12
secret 42:1,9,19 43:19 44:10,11 45:17,21 46:3 46:11,14,16,17 46:22 47:10 48:23 49:4,7 49:11 50:6,13
section 27:15 27:23 28:9,11 28:11,11 30:21 32:24
security 40:22 41:1,3,4,5 43:5 45:20,24
see 8:7 9:13,25 10:6,9 11:1,12 11:17 12:13,14 14:19 15:4,13 17:3,13,16,24 18:22 19:18 22:5 28:10 29:7 30:7 31:7 33:2 37:18 39:17 40:23 41:25 53:10 55:2,9,17 56:14,23 57:8 57:13 59:16,17 60:16
seeking 23:14
seen 5:10 11:5
seminet 30:2,21 30:21
sense 32:8,15 60:13
sentence 11:23 12:21 13:25 14:16 15:15,23 16:2,7 17:3,5,7 17:18,25 18:15 33:2 56:3,9,15 56:23 59:10,22
sentences 57:4
server 47:18,20 47:22 48:21 49:12

service 49:2,5 49:11
services 49:9
set 66:8
several 29:7
sf 1:24
share 8:8
shared 47:20
shift 39:9 59:5
shorthand 2:17
show 18:21 31:25 35:2 38:3 55:7 56:12
showing 28:1 28:19 31:21 35:10
shown 27:11,18 27:22 28:15,22 51:10
shows 28:6 29:15 31:14 60:20
side 25:4 40:13 54:23,23
sides 61:1,13
signal 33:4
signature 65:10 66:20
similar 49:9
similarly 56:21
simply 37:15
simulate 30:19 31:14
simulated 34:18,24
simulation 30:3 30:25
simulator 30:18 31:2,13
simulators 33:3
single 20:16 33:14 61:2,14
sitting 37:17
skill 21:17,20 22:23 23:12,13 23:22 26:6 33:15 37:21 40:5,18 41:9 42:8 43:4,16 45:16 53:6,14 57:11,16 66:12
slightly 39:9 55:25 59:5
slowly 55:3
small 14:17 20:13 39:3
smart 18:6 25:3 56:17
software 19:25
solutions 5:22 5:24
somebody's 53:24
someone's 54:3
sorry 16:25 23:4 28:3,25 46:25 50:9 63:10
sounds 24:4
souvenir 52:19
speaking 45:19
specific 35:25 36:1,15 46:9
specifically 13:22
specification 58:2,4
specified 49:7
speculate 43:2
speculation 20:18 21:1,9 21:23 22:10 24:22 38:13 44:21 45:10 47:14 52:15 61:4,18 62:7 62:21 63:16
speed 19:6
square 34:20
ss 66:1
standard 24:4 33:5,9,14,16
stands 23:8
start 9:15
started 8:3 14:14
state 39:24 65:2 66:1
statement 61:20
states 1:1 2:1 5:17
stenographic... 66:8
stick 21:5
stop 7:2
store 59:12 60:8
stored 58:1
stores 60:10
street 3:6
strike 35:12
stuck 21:19
studied 21:10 21:13
subfield 32:11 35:18 36:1,13 37:7,13,19
subfields 31:24 35:25
subject 48:2
subscribed 66:17
suite 3:6
sullivan 3:12
summary 19:12
supervision 66:10
suppose 29:13
sure 6:23 13:24 14:8 41:6 55:6 61:23
susman 3:3
susmangodfr... 3:9
symmetric 44:23,23

system 29:12 47:17 58:18 59:11 60:7,11
systems 51:21 52:19

t

t 3:13
tablet 13:4 18:7 25:3 56:18
take 5:12 13:24 18:15,17 19:7 21:24,25 35:6 43:19 52:11 55:25 58:7
taken 2:14 44:3 50:24 66:7
talk 13:21 19:2 25:16 34:12 42:10,25 44:1 53:5,18
talking 10:22 22:6 30:18 39:3 55:14
talks 39:14 53:14 57:19 60:9,19
tamper 59:13
technically 61:22,25
technology 5:20 28:6 32:9 32:19 35:24
tell 63:3
temporary 60:11
term 19:3,13 22:22 23:14,23 23:24 26:1,7 31:25 36:5,10 37:13,16 38:2 38:3 40:6 41:25 42:11 43:1,24 46:1 48:20 54:4,5 58:23
terminology 45:25 50:7
terms 8:11 32:10 41:7 47:23
testified 6:9
testimony 32:17 34:8 35:22 43:11 46:7 53:9 66:12
texas 1:2 2:2 5:18
text 18:22 28:5 62:10,10,25
thereof 66:16
thesis 48:4
thing 6:22 26:15 28:22
things 7:12 24:23 25:5 30:12
think 7:20 14:13 16:13 29:2,3 33:11 33:20 41:2 44:14 46:9 52:7 53:13 54:24 62:2
thinking 62:11
third 49:10
thorough 40:16
thought 20:20 22:11,14
thousand 38:16 38:19
three 26:8,15 28:3 35:25 36:16
thumbprint 51:12
thumbs 53:19
time 16:11 21:17 23:10,19 31:3 37:21 50:15,22 51:2 64:2 66:7
times 6:18 38:2
title 30:5 34:18 36:19 48:6
titled 30:2 32:24
titles 36:11
today 7:13 37:18 44:1
today's 64:1
together 29:12 29:16 36:23
top 17:2 44:7
traditional 33:3
transaction 46:20 47:8 48:19,23 61:2 61:14
transactions 62:3
transcribed 66:9
transformation 44:9,9
transforms 13:10
transient 31:4
transistor 28:24
transistors 28:2,3 29:9
true 62:8,22 65:2 66:11
trusted 47:17 47:20,21 48:20 49:12
try 7:1
trying 19:18 26:13 37:5 46:4
turn 10:8,19 14:24 15:1 27:8 32:21 35:5 39:11 41:20 55:22 59:8

turning 56:24
tv 25:3
two 10:15 30:12 31:22 36:23 37:9 47:19 58:9,13 58:16
tx 3:7
types 33:9 48:8 51:14 53:20
typically 45:21

u

uc 34:21
umm 6:24
under 10:9,10 41:9 49:5 65:1 65:1 66:9
understand 7:2 14:8 19:3,19 22:21 23:11 29:14 42:16 53:7 55:25 57:24 60:17
understanding 12:3,16 21:18 23:6,18 30:9 31:9 37:20 42:5 54:4 57:11,17
understood 26:7 28:18 32:10 33:16 40:5
uniquely 57:22
unit 58:10,15
united 1:1 2:1 5:17
unobtrusive 18:10,14 56:20
unobtrusively 14:18 15:11,24 16:3 17:5
uploaded 55:4
urquhart 3:12
use 31:24 32:10 39:4 41:3 44:24 45:3,4 48:20 50:6 51:21 52:19 54:6 58:22,23
used 19:14 38:4 39:22 44:19 45:8,13 52:8
user 14:18 15:11,24 16:3 17:6 59:13 60:8,11
using 5:20 19:21 33:5 37:13 44:18 49:6 53:24

v

vague 11:22 12:18 13:19 20:17 21:1,9 21:22 22:9,17 24:21 25:11 27:4 32:17 33:19 34:1,8 40:10 41:11 44:13,20 45:10 49:14 50:10 51:20 52:3,15 52:22,25 53:9 53:17 58:12 61:3 62:20
validity 7:19
value 42:1,9,20 43:19,20 44:12 45:7,7,12 46:18,18
values 46:13
variable 34:24
various 53:19
venues 31:23 36:24
verbal 6:23
veritext 5:21,23
version 17:23
versus 5:16
video 5:4,11 50:21 51:1 64:1
videographer 3:21 5:22
videotaped 1:15 2:13
virtual 5:20
virtually 5:7
vis 22:15,15
voltage 34:19 34:21,24
volume 1:18 2:14
vs 1:8 2:7

w

wait 42:12 63:11,13
want 14:14 21:24 43:1 49:3
wanted 41:6 47:19
wants 50:13
watch 18:8 56:19
way 6:15 7:25 16:10 18:19 19:22 26:8 28:18 32:10 40:4 43:18 53:23 63:21 66:15
ways 41:2,7
we've 24:6 51:5
west 1:16 2:14 5:1
western 1:2 2:2 5:18
whereof 66:17
witness 4:2 5:10 9:19 10:14 11:23 12:19 13:8,21 14:8,22 15:13 15:21 16:9 19:21 20:2,10 20:19 21:2,10 21:24 22:11,18

23:3,17 24:3
24:16,23 25:12
25:24 27:5,14
31:21 32:8,18
33:20 34:2,9
35:23 37:24
38:14 39:7,20
40:11 42:22
43:12,24 44:14
44:22 45:11,19
46:8 47:3,15
49:1,16 50:11
50:17 51:21
52:5,16 53:1
53:10,18,23
54:13 58:13
59:2 60:3,16
61:5,10,19
62:8,22 63:17
65:10 66:17
word 12:20
17:23 18:14
19:21 53:10
58:22
work 46:12
47:16 48:15
worked 41:14
41:15 47:17
49:19
working 7:5
37:7
world 63:17
writing 30:11
wrong 28:2
wrote 48:11
57:1

x

x 4:1

y

yager 3:22 5:21
yeah 9:22 16:2
32:18 50:8,18
years 29:2
48:15 53:2
yep 6:2
york 3:16
youngest 53:1

z

zoom 1:15 2:13

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.