1

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

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AX WIRELESS LLC, :
Plaintiff, : Case No.
vs. : 2:22-cv-277
DELL INC., and DELL TECHNOLOGIES :
INC., :
Defendants. :
----------x

VIDEOTAPED DEPOSITION OF CHRISTOPHER HANSEN, PhD
Palo Alto, California
Wednesday, November 29, 2023

Stenographically Reported by:
LORI STOKES
RPR, CSR No. 12732
Job No. 515729
Pages 1-54

2

The Videotaped Deposition of CHRISTOPHER HANSEN, PhD, was taken on behalf of Defendants, at 3150 Porter Drive, Palo Alto, California, beginning at 10:08 a.m., Pacific Time, on November 29, 2023, before LORI STOKES, RPR, Certified Shorthand Reporter No. 12732.

3

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4

INDEX

WITNESS EXAMINATION
CHRISTOPHER HANSEN, PhD
BY MR. HINDMAN 7
BY MR. MAKKER 43

INTEL - 1048
Intel Corp. v. AX Wireless, LLC, IPR2023-01135

5

EXHIBITS

EXHIBIT	DESCRIPTION	PAGE
EXHIBIT 1	IEEE P802.11 Wireless LANs dated March 2005	12
EXHIBIT 2	New Participant Orientation Bates-stamped INTEL-1038	26
EXHIBIT 3	Printout from https://mentor.ieee.org/802.11/documents?n=38&is_group=000n	40

6

Palo Alto, California
November 29, 2023 | 10:08 a.m.

THE VIDEOGRAPHER: Here begins Media Number 1 in the videotaped deposition of Christopher J. Hansen in the matter of AX Wireless LLC versus Dell Inc., et al. in the court of the United States District Court for the Eastern District of Texas, Marshall Division, Case Number 2:22-cv-00277-RWS-RSP.

Today's date is November 29th. The time on the video monitor is 10:08 a.m. The videographer today is Johanna Lopez representing Planet Depos.

This video deposition is taking place at 3150 Porter Drive, Palo Alto, California 94304.

Would counsel please voice-identify themselves and state whom they represent.

MR. HINDMAN: This is Matthew Hindman with Perkins Coie for Defendants Dell Incorporated and Dell Technologies Incorporated.

MR. MAKKER: Amit Makker from Latham & Watkins on behalf of Plaintiff AX Wireless.

THE VIDEOGRAPHER: The court reporter today is Lori Stokes representing Planet Depos.

The witness will now be sworn.

7

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

EXAMINATION

BY MR. HINDMAN:

Q Good morning, Dr. Hansen. How are you?
A Good.
Q I'm sure you understand why you're here today, correct?
A Uhm...
Q The deposition regarding topics in your subpoena, correct?
A Yes. I received a subpoena, correct.
Q And I believe you've been deposed before; is that correct?
A Yes, I've been deposed before.
Q And so you know the general rules of a deposition. You understand that you're under oath, correct?
A Yes.
Q And same as if you were at a trial in a courthouse with a judge and jury, you have to tell the truth.
Do you understand that?

8

A Yes, uh-huh.
Q All right. And I'm going to ask you some questions. You have to answer audibly. You won't be able to nod or shake your head because the court reporter won't be able to take that down.
Is that okay?
A Yes.
Q And we can take a break at any time, so please feel free to let me know if you need a break. I would appreciate if you answer the question first if we have a pending question.
Is that okay?
A Yes.
Q All right. And also opposing counsel is here and may be making some objections from time to time, but you still have to answer the question.
Do you understand that?
A Yes.
Q Okay. I figured you understood all that, but I just wanted to make that clear for the record.
So is there any reason today you cannot offer complete and accurate testimony?
A Not that I'm aware of.
Q Okay.
Did you do anything to prepare for today's

9

1 deposition?
2 **A No.**
3 Q Okay.
4 So can you briefly summarize your
5 educational background, institutions you attended
6 and the degrees received.
7 **A Sure, yes. I have a bachelor's degree in**
8 **electrical engineering from Rensselaer Polytechnic**
9 **Institute. I received that in 1987.**
10 **I have a master's degree in electrical**
11 **engineering from the University of Massachusetts. I**
12 **received that in 1989.**
13 **And I have a PhD in electrical engineering**
14 **from UCLA, which I received in 1997.**
15 Q All right. And what was your focus of
16 your research at UCLA?
17 **A Wireless communications.**
18 Q Okay. And what company do you work for
19 now?
20 **A I work for Covariant Corporation.**
21 Q And what is your current role?
22 **A I'm president of the company.**
23 Q Okay. And how long have you worked in
24 that role?
25 **A I believe ten years.**

10

1 Q Okay. And what types of work do you do in
2 your current role?
3 **A Engineering work.**
4 Q Okay. And does your work involve 802.11
5 wireless communications?
6 **A Some of my work does, yes.**
7 Q How much would you say involves 802.11
8 wireless communications in your current work?
9 **A Maybe 90 percent.**
10 Q Okay. And so for those 90 percent, what
11 types of activities do you get involved in?
12 **A I work in standards development.**
13 (Reporter clarification.)
14 THE WITNESS: I work on -- I do some
15 expert witness work. I do technical analysis for
16 companies.
17 BY MR. HINDMAN:
18 Q Okay. Do you work on any systems or
19 products?
20 **A I have worked on products, yes.**
21 Q Okay. In your past?
22 **A Yes, uh-huh.**
23 Q Okay. And about how long have you worked
24 with 802.11 communication systems?
25 **A Since roughly January of 2000, so almost**

11

1 **24 years.**
2 Q Okay.
3 So are you currently involved in any 802
4 wireless standards development now?
5 **A No, not right now.**
6 Q Okay. But you do have standards
7 development in your background, correct?
8 **A Yes, that's correct.**
9 Q And for about how long would you say?
10 **A I've worked on standards since, I believe,**
11 **1999.**
12 Q Okay.
13 **A So, yeah, 25 years.**
14 Q Do you recall a general list of the
15 different 802.11 standards you've worked on?
16 **A Yeah, I can remember some of them. Do you**
17 **want the whole list?**
18 **Okay. Yeah, I've worked on 802.11g,**
19 **802.11h, 802.11n, 802.11ad, 802.11ay, 802.11md, and,**
20 **you know, I've reviewed and voted on other 802.11**
21 **amendments, so -- many of them.**
22 Q Okay. So quite a substantial bit.
23 **A Yes, uh-huh.**
24 Q Okay. And regarding 802.11n, do you
25 recall approximately what time period you were

12

1 involved with the development of that standard?
2 **A I believe it would be roughly from**
3 **sometime in 2003 until January of 2006.**
4 Q Okay. And what was the scope of your
5 involvement in the 802.11 standardization process?
6 (Reporter clarification.)
7 THE WITNESS: For 802.11n, I worked on a
8 proposal and then supporting that proposal through
9 contributions in the standard -- in the 802.11
10 standard.
11 MR. HINDMAN: Okay.
12 All right. I'm going to hand you what
13 we'll mark as Exhibit 1.
14 (Deposition Exhibit 1 was marked
15 for identification.)
16 BY MR. HINDMAN:
17 Q Do you recognize this document?
18 **A It appears to be a contribution to 802.11.**
19 Q Okay. And was this -- were you involved
20 in parts of generating this document?
21 **A Yes, I believe I was involved in**
22 **developing this document.**
23 Q And this document was submitted by the
24 WWiSE industry group; is that correct?
25 **A No -- no, I don't think that's correct.**

13

1 Q Okay. What would you -- how would you
2 characterize this document with regard to the WWiSE
3 industry group?
4 **A Well, there was a WWiSE industry group at**
5 **the time this document -- in the 2005 time frame --**
6 **that wrote -- you know, wrote a proposal for**
7 **802.11n.**
8 Q Okay. And were you a part of that WWiSE
9 group?
10 **A Not -- well, not -- not exactly. My**
11 **employer was a part of the WWiSE -- WWiSE is an**
12 **industry group. My employer was part of that group.**
13 **And as my work, I worked with that group.**
14 Q Oh, got you.
15 **A I wasn't a member of that group. I mean,**
16 **it was an industry group; it wasn't an individual**
17 **group.**
18 Q Understood, okay.
19 And what company was that that you were
20 working for at the time?
21 **A I was working at Broadcom Corporation at**
22 **the time.**
23 Q Okay.
24 Do you know what WWiSE stands for?
25 **A I believe it was an acronym for World-Wide**

14

1 **Spectrum Efficiency, but I'm not certain of that.**
2 **It's been a long time.**
3 Q Okay. Okay.
4 And what is WWiSE as far as you know?
5 **A If I remember correctly -- it's been a**
6 **long time -- but WWiSE was an industry group that's**
7 **sometimes called a special interest group, or a SIG,**
8 **that was put together to develop a proposal for**
9 **802.11n.**
10 Q And what -- this proposal that was
11 developed, who was it submitted to?
12 **A Well, the -- the proposal was developed**
13 **and agreed upon within WWiSE, and then -- an**
14 **individual who was working in the group would then**
15 **make it as a -- make the proposal as a contribution**
16 **to 802.11.**
17 Q Okay. And that person, would that be a
18 member of the IEEE working group?
19 **A Yes, yeah.**
20 Q Okay. And what companies were part of the
21 WWiSE group as far as you recall?
22 **A As I recall, the membership changed over**
23 **time, it grew over time. But originally it included**
24 **Broadcom, a startup company called Airgo Networks,**
25 **Texas Instruments, and Conexant was also a member.**

15

1 Q Okay. Were you involved in any other of
2 these special interest groups during your time
3 working on the 802.11n standard?
4 **A I think WWiSE was the only -- at the**
5 **time -- for the -- during the 802.11n time frame, I**
6 **think WWiSE was the only SIG group I was working in.**
7 (Reporter clarification.)
8 BY MR. HINDMAN:
9 Q If you'll turn to the next page of this
10 document.
11 On about line 28, do you see your name
12 there listed as a contributor?
13 **A Yes.**
14 Q Do you recall what your specific
15 contributions were to this document?
16 **A No.**
17 Q Okay. Do you recall generally the types
18 of activities you were involved in?
19 **A Some of them. I mean, we had a large**
20 **number of meetings, and I participated in those**
21 **meetings.**
22 Q Okay. And those meetings were put on by
23 who?
24 **A Those -- so these were meetings that were**
25 **for WWiSE, and we -- the individual companies that**

16

1 **were members of WWiSE would host them in different**
2 **locations. So they would host meetings.**
3 Q Okay. And those were for the purpose of
4 developing what's in this document?
5 **A That's correct.**
6 Q Okay. And about how often were those
7 meetings held?
8 **A I think initially they were every month,**
9 **roughly every month. But it changed somewhat over**
10 **time. They probably slowed down, at some point,**
11 **were every two months or so.**
12 Q Okay.
13 And this particular WWiSE proposal, was
14 this ever submitted to the Task Group N as far as
15 you know?
16 **A Yeah, I believe it -- this particular**
17 **document -- what's contained in this document, I**
18 **believe it was. Although, I don't remember, you**
19 **know, exactly when.**
20 **I mean, the formatting is, you know,**
21 **appropriate, and the time period is appropriate**
22 **for --**
23 Q Okay.
24 **A -- being submission into 802.11n.**
25 Q And what is the Task Group N?

17

1 **A Task Group N was a group -- a subgroup of**
2 **the 802.11 working group that was writing an**
3 **amendment to 802.11 at the time that became called**
4 **802.11n. That's what the Task Group N was for.**
5 Q Okay. And so what was the purpose of
6 submitting documents like the WWiSE proposal to the
7 Task Group N?
8 MR. MAKKER: Objection. Calls for
9 speculation.
10 THE WITNESS: 802.11 -- the Task Group N
11 had a process for developing the 802.11n amendment.
12 And as part of that process, there was -- the group
13 would accept contributions they called proposals
14 that would be candidates or technical candidates for
15 what would become the amendment itself. So this was
16 part of that process.
17 BY MR. HINDMAN:
18 Q Okay. And what did the TGn do with these
19 documents once they were submitted?
20 **A So they would be available to be reviewed**
21 **by the participants in the task group, and then**
22 **there would be presentations in the meeting,**
23 **technical discussions about the contents of the**
24 **contributions and so forth.**
25 Q Okay. So -- and these were different

18

1 meetings than the WWiSE meetings?
2 **A That's right. These were IEEE802.11**
3 **standards meetings.**
4 Q Okay. And do you recall about how often
5 those meetings were held?
6 **A Those meetings were held every two months,**
7 **so six times a year.**
8 Q Okay. And were members of the public free
9 to join in on those meetings?
10 **A Yes. 802.11 is what's called an open**
11 **standards body. But to participate, you would have**
12 **to pay a registration -- you would have to register**
13 **beforehand. But it was open to anyone who chose to**
14 **register and pay the fee.**
15 Q Okay. All right.
16 And can you -- what can you tell me about
17 the voting process?
18 **A So 802.11n had a voting process for**
19 **determining -- well, for making -- I would say**
20 **802.11, in general, has a voting process for making**
21 **decisions of all kinds.**
22 Q Okay. And so were submissions like this
23 WWiSE proposal available to all participants in
24 these meetings?
25 MR. MAKKER: Objection. Calls for

19

1 speculation.
2 THE WITNESS: The contributions were made
3 available to everyone participating in the meeting,
4 yes.
5 BY MR. HINDMAN:
6 Q Okay. And were you aware of other
7 competing proposals at the time?
8 **A Yes.**
9 Q Can you tell me -- list a few.
10 **A So the main competing proposal was one**
11 **called TGnSync.**
12 Q Can you spell that for the record.
13 **A Yeah. It's the letters T-G-N-S-Y-N-C.**
14 **And starting at the beginning of the**
15 **process, there was also a proposal from Qualcomm, a**
16 **proposal from -- I believe a proposal from**
17 **Mitsubishi.**
18 **And there were numerous what they called**
19 **partial proposals, which were technical**
20 **contributions that wouldn't cover the entire 802.11n**
21 **amendment, but were -- would cover portions of**
22 **that --**
23 Q Okay.
24 **A -- so there were many -- yeah, there were**
25 **many.**

20

1 Q So this particular WWiSE proposal, was
2 this a complete proposal?
3 **A Yes.**
4 Q Okay. And what about the TGnSync
5 proposal?
6 **A Yes, that was also a complete.**
7 Q Okay.
8 So I just want to ask you: Who can submit
9 proposals like the WWiSE proposal to the Task Group
10 N?
11 **A I believe anyone could submit a proposal.**
12 Q Did you have to be a member of the IEEE
13 working group to submit a proposal?
14 **A I don't think so. I think it would be**
15 **possible to register and submit a proposal. In**
16 **order to vote, you would have to be a voting member,**
17 **but I don't think to submit a proposal you had to be**
18 **a voting member.**
19 Q Okay. And do you know who could become a
20 member of the 802.11 working group? Were there any
21 restrictions on that?
22 **A I'm not aware of any restrictions. It**
23 **only required attendance at multiple meetings. So**
24 **there was a process for -- after attending three**
25 **meetings or something, then you were a voting**

21

1 **member.**
2 Q Okay. So would it be fair to say that any
3 interested member of the public who attended these
4 meetings could become a member?
5 **A Yes.**
6 Q Okay. For example, could someone in
7 academia become a member?
8 **A Yes. And I think there were -- there**
9 **were -- I think there still are academic voting --**
10 **you know, say, like a college professor who is a**
11 **member of 802.11, voting member.**
12 Q Okay. And what about students? Could
13 students become members?
14 **A Yes.**
15 Q Were you aware of any students at the time
16 that were members of the 802.11n working group?
17 **A I don't recall any -- I don't recall any**
18 **students being members.**
19 Q Okay. What about engineers working on
20 upcoming products? Would they have been interested
21 in becoming members of the 802.11n working group?
22 MR. MAKKER: Objection. Vague.
23 THE WITNESS: Generally, there were many
24 engineers working on products who were members of
25 the 802 --

22

1 BY MR. HINDMAN:
2 Q Okay. Are you familiar with the term
3 "pre-N products"?
4 **A I've heard that term before, yes.**
5 Q Can you explain your understanding of that
6 term.
7 **A Yeah. So the 802.11n standards**
8 **development took a long time. And before the**
9 **standard was finalized, there were draft versions of**
10 **the standard that were -- that were available, and**
11 **companies designed products to the draft standard,**
12 **and those were called pre-N products.**
13 Q So would it be typical for engineers to
14 begin developing pre-N products before the final
15 standard was ratified?
16 **A Yes. Yes, that was common at the time.**
17 Q When you were working at Broadcom, did you
18 begin developing any 802.11 products targeted at the
19 802.11n standard before it was officially published?
20 **A Yes.**
21 Q Okay. Do you know about how long before
22 you would have started working on these products?
23 MR. MAKKER: Objection. Vague.
24 THE WITNESS: Yeah. I don't remember the
25 exact date, but it was probably roughly the same

23

1 time I started working on the standard itself, so
2 working on both simultaneously.
3 BY MR. HINDMAN:
4 Q Okay. So before the product is final, how
5 would engineers know what to -- or before the
6 standard was final, how would engineers know what
7 features to put into the product?
8 **A Yeah, there are a number of factors.**
9 **That's complicated. There are -- the most important**
10 **feature would have been to understand if it was**
11 **interoperable with other companies' products.**
12 **So features that they felt confident other**
13 **companies would also be implementing in the same way**
14 **would be -- would tend to point to the features they**
15 **would develop.**
16 Q Okay. And where would they look to find
17 those features that other companies would be
18 developing for the standardization?
19 MR. MAKKER: Objection. Calls for
20 speculation. Lack of foundation.
21 THE WITNESS: That would generally be in
22 both the draft -- one of the draft standards, and
23 then also it would be common company --
24 representatives of companies would talk to each
25 other.

24

1 MR. HINDMAN: Okay.
2 THE WITNESS: Yeah.
3 BY MR. HINDMAN:
4 Q So about how many draft standards were
5 there for 802.11n, do you recall?
6 **A No, I don't recall exactly.**
7 Q So is it fair to say that engineers
8 working on pre-N products would have been following
9 the developments of the 802.11n standardization
10 process?
11 MR. MAKKER: Objection. Lack of
12 foundation. Calls for speculation.
13 THE WITNESS: I believe so, yes.
14 BY MR. HINDMAN:
15 Q And would engineers working on pre-N
16 products be interested in reviewing proposals
17 submitted to the 802.11n working group?
18 MR. MAKKER: Same objections.
19 THE WITNESS: Yeah. I knew engineers
20 working on pre-N products who were reading the
21 different contributions to 802.11n, so yes.
22 BY MR. HINDMAN:
23 Q And do you -- is it fair to say that
24 engineers working on pre-N products would be
25 reviewing the WWiSE and TGnSync proposals at that

25

1 time?
2 MR. MAKKER: Objection. Lack of
3 foundation. Calls for speculation.
4 THE WITNESS: I know at least some
5 engineers developing pre-N products that were.
6 BY MR. HINDMAN:
7 Q Okay. And was it your expectation at the
8 time that certain features of the WWiSE and TGnSync
9 proposals would be ultimately incorporated into the
10 802.11n standard?
11 MR. MAKKER: Objection. Vague.
12 THE WITNESS: Yeah. I mean, at the time I
13 was working on the WWiSE proposal hoping that, you
14 know, the WWiSE proposal would be incorporated into
15 the 802.11n draft. Or at least portions of it would
16 be.
17 BY MR. HINDMAN:
18 Q Would it be possible for portions of both
19 standards to be incorporated in the final standard?
20 Or both proposals?
21 **A Yes, yeah.**
22 Q Okay. All right.
23 Do you recall the procedures for becoming
24 an 802.11 working group member?
25 **A I recall that there was a certain meeting**

26

1 **attendance requirement, but I don't remember the**
2 **specifics --**
3 Q Okay.
4 **A -- of that.**
5 Q All right.
6 MR. HINDMAN: I'm going to hand you a
7 document that we'll mark as Exhibit 2.
8 (Deposition Exhibit 2 was marked
9 for identification.)
10 BY MR. HINDMAN:
11 Q Do you recognize this document?
12 **A Not this -- I don't recognize this**
13 **specific document.**
14 Q So I'm going to represent to you this is a
15 copy of the new participation orientation [verbatim]
16 slides that were presented at the July 2004 working
17 group meeting.
18 Can you please turn to slide 25.
19 Do you recognize what is shown on
20 slide 25?
21 **A Yeah. It appears to be, you know, a**
22 **screen capture of the website.**
23 Q And what website is that?
24 **A It says 802wirelessworld.com.**
25 Q Were you familiar with that website?

27

1 **A Yeah. I believe I used that website, you**
2 **know, at this time, yeah, back in 2004.**
3 Q Okay. And there's a "become a member" tab
4 shown there on the right, correct?
5 **A Yes.**
6 Q So are you aware of any restrictions on
7 who could access this website and become a member?
8 MR. MAKKER: Objection. Lack of
9 foundation. Calls for speculation.
10 THE WITNESS: Yeah. I'm not aware of any
11 restrictions.
12 BY MR. HINDMAN:
13 Q Could any member of the public then access
14 this website and set up an account for membership?
15 MR. MAKKER: Same objections.
16 THE WITNESS: Yes, I believe they could.
17 BY MR. HINDMAN:
18 Q All right. Why don't we slide over to
19 slide 27.
20 Do you recognize what is shown on
21 slide 27?
22 **A It just appears to be a screen capture**
23 **from a website.**
24 Q Okay. And there's a dialogue box there,
25 correct?

28

1 **A Yes. It -- yes.**
2 Q And so someone who was seeking to become a
3 member would have to enter their email address and
4 password to join as a new member; isn't that
5 correct?
6 MR. MAKKER: Objection. Lack of
7 foundation. Calls for speculation.
8 THE WITNESS: Yeah. I don't recall
9 specifically, but that appears to be correct.
10 BY MR. HINDMAN:
11 Q All right. Let's go over to slide 29.
12 Do you recognize what is shown on
13 slide 29?
14 **A Once again, it appears to be a screen**
15 **capture from a website.**
16 Q Okay. And do you see that yellow box
17 there?
18 **A Yes.**
19 Q Do you -- what is your understanding of
20 what that's indicating?
21 MR. MAKKER: Objection. Lack of
22 foundation. Calls for speculation.
23 THE WITNESS: I think it's just
24 showing that a person filling in the website,
25 there's mandatory information -- required

29

1 information they would have to put onto the -- into
2 the website.
3 BY MR. HINDMAN:
4 Q Okay. And that would be to become a
5 member and set up an account, correct?
6 **A Yeah. It's part of this registration**
7 **process for the -- for this website.**
8 Q All right.
9 And was there any fee that you were aware
10 of for becoming a member?
11 MR. MAKKER: Objection. Lack of
12 foundation. Calls for speculation.
13 THE WITNESS: I don't believe there was a
14 fee for accessing this website. There was a fee to
15 physically attend meetings, but not -- there's no --
16 I don't believe there's a fee associated with the
17 website, no.
18 BY MR. HINDMAN:
19 Q So based on your familiarity of this
20 Wireless World website, how would submissions like
21 the WWiSE proposal be submitted to the Task Group N?
22 MR. MAKKER: Objection. Mischaracterizes
23 testimony. Lack of foundation. Calls for
24 speculation.
25 THE WITNESS: Yeah. I don't remember the

30

1 specifics. But there was -- we used a website -- I
2 believe it was this website -- for uploading
3 contributions to 802.11.
4 BY MR. HINDMAN:
5 Q Okay. And just for the record, this is
6 the 802 Wireless World website you're referring to?
7 **A Yeah. I believe at the time for 802.11n**
8 **that this was the website -- yeah. 802 Wireless**
9 **World was the website we used for uploading at this**
10 **time.**
11 (Reporter clarification.)
12 THE WITNESS: Uploading contributions.
13 BY MR. HINDMAN:
14 Q Can you turn to slide 35, please.
15 Do you recognize what is shown on
16 slide 35?
17 **A Once again, it appears to be a screen**
18 **capture from the 802 Wireless World website.**
19 Q Okay. And you see up at the top there it
20 says Document Submission Process?
21 **A Yes.**
22 Q So is it your understanding that members
23 could submit documents using this process?
24 MR. MAKKER: Objection. Lack of
25 foundation. Calls for speculation.

31

1 THE WITNESS: Yeah. As I recall, there
2 was a process that we used for uploading documents.
3 This appears to be the process that was used at the
4 time.
5 BY MR. HINDMAN:
6 Q Okay. And there's a tab on the right-hand
7 side there called "Document Control Numbers."
8 Do you see that?
9 **A Yes, uh-huh.**
10 Q Okay. Can you flip over to slide 36.
11 Do you recognize what's shown there in
12 slide 36?
13 **A Once again, it appears to be a screen**
14 **capture from the 802 Wireless World website.**
15 Q And do you see at the top there it says
16 "Document Control Numbers"?
17 **A Yes.**
18 Q Can you explain to me what these document
19 control numbers were?
20 MR. MAKKER: Objection. Lack of
21 foundation.
22 THE WITNESS: I believe these are the
23 numbers that are used to keep track of 802.11
24 contributions.
25 ///

32

1 BY MR. HINDMAN:
2 Q So how would that work if you submitted a
3 proposal?
4 **A So, for example, you would first request a**
5 **document -- a number for the contribution. And then**
6 **it would provide you with a number, and then that**
7 **number would be -- that would be the number for your**
8 **contribution, and you would place it in the file**
9 **name for the name -- for the file that you would**
10 **upload for the contribution.**
11 Q Okay.
12 **A That was how that worked.**
13 Q Would the WWiSE proposal of Exhibit 1 that
14 we've been discussing have been submitted using this
15 process?
16 MR. MAKKER: Objection. Lack of
17 foundation. Calls for speculation.
18 THE WITNESS: Yes. I believe this
19 document -- like the other documents -- would have
20 been -- would have followed -- this process would
21 have been followed.
22 BY MR. HINDMAN:
23 Q Okay. And would that be the same for the
24 TGnSync proposal?
25 MR. MAKKER: Same objection.

33

1 THE WITNESS: Yes. I think so, yes.
2 BY MR. HINDMAN:
3 Q Were all the submissions to this Task
4 Group N made through this Wireless World website?
5 MR. MAKKER: Same objections.
6 THE WITNESS: I believe so. I know that
7 the contributions that I made went through a process
8 like this one. So I assume that the other ones did
9 as well.
10 BY MR. HINDMAN:
11 Q Are you aware of any other mechanism by
12 which someone could submit a proposal to the Task
13 Group N?
14 **A No, I'm not aware of one.**
15 Q Okay.
16 **A At this time.**
17 Q Was there also an FTP site?
18 **A Yeah. So in this time frame, there**
19 **were -- yeah, I recall that we had a local file --**
20 **there was one file server that was used on-site at**
21 **some meetings, and then that was later synchronized**
22 **in some way with the main site on the internet**
23 **that -- but I don't remember the details of how that**
24 **worked.**
25 Q Okay. Do you recall who had access to

34

1 submissions to this Wireless World website?
2 **A Yeah. I believe the submissions -- all**
3 **the 802.11 submissions were public --**
4 Q Okay.
5 **A -- or available to the public.**
6 Q Were there any procedures you had to do in
7 order to access submissions on this website as far
8 as you recall?
9 **A There might have been. I don't remember**
10 **the exact process, but -- but I -- but my**
11 **understanding is they were all available.**
12 Q Would members of the public need to first
13 become a member in order to access the submissions
14 to the TGn?
15 MR. MAKKER: Objection. Calls for
16 speculation. Lack of foundation.
17 THE WITNESS: They would not have to be a
18 voting member of 802.11. They wouldn't have to be
19 an IEEE member.
20 There may have been some process on the
21 website they had to log in or something, but it
22 was -- they -- there were no -- you didn't have to
23 be an IEEE member or anything like that. It was all
24 publicly available.
25 ///

35

1 BY MR. HINDMAN:
2 Q Would members of the public have been
3 aware of this website?
4 MR. MAKKER: Objection. Calls for
5 speculation. Lack of foundation.
6 THE WITNESS: Yeah, I don't remember.
7 BY MR. HINDMAN:
8 Q Okay. What are some of the ways that the
9 members of the public might have been made aware of
10 this website?
11 MR. MAKKER: Objection. Calls for
12 speculation. Lack of foundation.
13 THE WITNESS: I believe at the time
14 IEEE802.11 had a publicity group or something. They
15 promoted themselves.
16 I don't remember the details of how they
17 did that or what, but they -- 802.11 -- the 802.11
18 working group and the IEEE standards association had
19 procedures -- had a process of some type for
20 publicizing their activities.
21 BY MR. HINDMAN:
22 Q Okay. And this website is no longer
23 active; isn't that correct?
24 **A Yeah. I don't think this -- I don't think**
25 **this website is used anymore.**

36

1 Q Were you aware about the Wireless World
2 website being replaced by another website?
3 **A I know there is a different website that's**
4 **used for 802.11 today. I don't -- I don't recall --**
5 **I don't recall exactly when that transition took**
6 **place or --**
7 Q Okay. Okay.
8 So do you recall the name of the new
9 website?
10 **A I believe the IEEE calls it Mentor.**
11 Q Okay.
12 **A But I don't know where that name comes**
13 **from.**
14 Q So submissions to the IEEE802.11 working
15 group currently would be made on that Mentor
16 website, correct?
17 MR. MAKKER: Objection, leading.
18 Objection, lack of foundation. Calls for
19 speculation.
20 THE WITNESS: Right. Current -- yeah.
21 Like if I made an 802.11 contribution today, I would
22 use the Mentor website.
23 BY MR. HINDMAN:
24 Q Okay. And what about the prior
25 submissions on Wireless World? Are they also

37

1 currently available on Mentor today?
2 **A Yes. I believe they all are, yes.**
3 Q And so, at some point, the Wireless World
4 submissions were added to the Mentor website; is
5 that correct?
6 **A Yeah. There was some process by which**
7 **they consolidated all the IEEE document -- all the**
8 **802.11 contributions over the years and unified them**
9 **on one website.**
10 Q Okay. So is it your understanding then
11 that the prior TGn submissions would be available
12 now on Mentor?
13 **A Yes, I believe they are.**
14 Q And this would include the WWiSE proposal
15 that we've been discussing, correct?
16 **A Yes.**
17 Q Do you know if these prior submissions to
18 the Task Group N maintained their original titles
19 when they were transferred over to the Mentor
20 website?
21 MR. MAKKER: Objection. Lack of
22 foundation. Calls for speculation.
23 THE WITNESS: I believe they would. I
24 don't think the documents have been changed in any
25 way.

38

1 BY MR. HINDMAN:
2 Q Okay. What about the original authors?
3 Would they have been the same?
4 MR. MAKKER: Same objections.
5 THE WITNESS: They should all be -- yeah.
6 As I said, I think they're all -- the documents
7 should not have changed. I think they're all --
8 BY MR. HINDMAN:
9 Q Okay. And just for the record, that would
10 include the document control numbers?
11 MR. MAKKER: Same objections.
12 THE WITNESS: Right, yeah. Right. Those
13 should all be -- those should all be the same.
14 MR. HINDMAN: Okay.
15 THE WITNESS: Same as they were used back
16 in 2004.
17 BY MR. HINDMAN:
18 Q All right.
19 So are submissions to the current IEEE
20 Mentor site available to the public as far as you
21 know?
22 **A Yes, I believe they are.**
23 Q Is there any credentials that you're aware
24 of that were required to gain access to Mentor?
25 **A I don't think -- I don't think credentials**

39

1 **are required for the current 802.11 website --**
2 Q Okay. So it's just wide open to the
3 public?
4 **A Wide open to download the documents, yes.**
5 Q Okay. All right.
6 Do you know if entries in Mentor are
7 searchable?
8 MR. MAKKER: Objection. Vague.
9 THE WITNESS: I think you can search by
10 the title and the year and the document number.
11 BY MR. HINDMAN:
12 Q Are there any other parameters that you're
13 aware of that are searchable?
14 **A The particular task group -- there's a**
15 **pull-down in the menu you can pull out the task**
16 **group or whatever the group was, study group or**
17 **something like that.**
18 Q Do you recall approximately what date this
19 WWiSE proposal was submitted to the TGn?
20 MR. MAKKER: Objection. Vague.
21 THE WITNESS: So there was an original
22 submission -- an original WWiSE proposal. And then
23 revisions were made, proposal was updated, and then
24 uploads were made at different dates. So -- but I
25 believe the first one was in August of 2004.

40

1 MR. HINDMAN: Okay.
2 THE WITNESS: Because -- yeah, August 2004
3 was the first one.
4 BY MR. HINDMAN:
5 Q Referring back to Exhibit 1 on the front
6 page there.
7 Do you see that date at the top of the --
8 just under the title?
9 **A Yes, uh-huh.**
10 Q What is that date?
11 **A There's a template for documents, and**
12 **there's a -- there's just a spot where you can put a**
13 **date into the document. That's all it is.**
14 Q Oh, okay. Would that be the date of
15 creation, or could it have been any date?
16 **A It actually could be any date.**
17 Q Okay.
18 **A Yeah.**
19 Q All right.
20 MR. HINDMAN: I'm going to hand you what
21 we'll mark as Exhibit 3.
22 (Deposition Exhibit 3 was marked
23 for identification.)
24 BY MR. HINDMAN:
25 Q Do you recognize this document? Or what

41

1 is shown in this document?
2 **A Yeah. It appears to be a printout from**
3 **the Mentor website.**
4 Q And what are the entries here, for
5 example, on the first page?
6 **A Yeah. It looks to be a list of some of**
7 **the contributions to -- this would have been Task**
8 **Group N from 2005.**
9 Q Okay. And if you'll look about halfway
10 down the page, there's a date there, 19 March 2005.
11 Do you see that?
12 **A Yes, uh-huh.**
13 Q And you see the title of that entry?
14 **A Yes, uh-huh.**
15 Q That's the same title as the WWiSE
16 proposal we've been discussing; is that correct?
17 **A Right. It's the same as in the Exhibit 1.**
18 Q So would that date have been the
19 submission date of that particular proposal?
20 MR. MAKKER: Objection. Vague. Calls for
21 speculation. Lack of foundation.
22 THE WITNESS: Right. So this would be --
23 my understanding is this would be the date that this
24 particular document was uploaded to the file server
25 and then made available to, you know, everyone

42

1 accessing the website.
2 BY MR. HINDMAN:
3 Q Okay. And for the record, what is that
4 date?
5 **A This one here is March 19th, 2005.**
6 Q So the original dates of submissions to
7 the TGn have been retained in this Mentor website;
8 isn't that correct?
9 MR. MAKKER: Objection. Lack of
10 foundation.
11 THE WITNESS: Yes. I believe they've
12 retained the date -- the dates that the documents
13 were uploaded.
14 BY MR. HINDMAN:
15 Q All right.
16 Final question: Would members of the
17 public who created an account on the Wireless World
18 website have been able to access the WWiSE proposal
19 after that submission date?
20 MR. MAKKER: Objection. Lack of
21 foundation. Calls for speculation.
22 THE WITNESS: Yes. I believe they could.
23 MR. HINDMAN: Okay. Well, sir, I
24 appreciate your time. Thank you so much.
25 MR. MAKKER: I might have just a few.

43

1 We'll take a quick break.
2 MR. HINDMAN: Yeah. Do you want to take a
3 break?
4 THE WITNESS: Yeah.
5 THE VIDEOGRAPHER: Okay. We're going off
6 the record. The time is 11:01 a.m.
7 (Recess taken from 11:00 a.m.
8 to 11:03 a.m.)
9 THE VIDEOGRAPHER: We're going back on the
10 record. The time is 11:04 a.m.
11
12 EXAMINATION
13 BY MR. MAKKER:
14 Q Just a handful of questions.
15 Do you have a consulting relationship with
16 Dell or any Dell entity?
17 **A Not at the present time. I've done some**
18 **work with attorneys for Dell in the past.**
19 Q Was that -- that was related to
20 litigation?
21 **A No, it was not.**
22 Q But with attorneys, you said?
23 **A With attorneys.**
24 Q Was that in patent prosecution?
25 **A Yeah, I can't answer that question.**

44

1 Q Say that again.
2 **A I can't answer that question.**
3 Q But you don't have a current consulting
4 relationship with Dell?
5 **A No, I don't believe I do -- no, I don't.**
6 Q What about with Lenovo?
7 **A I don't believe I've done any work with**
8 **Lenovo.**
9 Q What about with HP?
10 **A Yeah, I was retained as an expert witness**
11 **by HP, but I haven't done any work -- I think the**
12 **case ended. I haven't done any work on that.**
13 Q Do you know which case that was?
14 **A I don't recall off the top of my head.**
15 Q But your understanding is that case is
16 over?
17 **A Yes, yeah.**
18 Q So it's not related to this case or this
19 plaintiff, AX Wireless?
20 **A No, it's not related.**
21 Q Do you have a consulting relationship with
22 Intel?
23 **A I have done work with Intel in the past,**
24 **but not currently, no.**
25 Q What about with MediaTek?

45

1 **A No, I -- I don't believe I've done any**
2 **work with MediaTek.**
3 Q What about Qualcomm?
4 **A No, I don't believe I've done any work**
5 **with Qualcomm.**
6 Q Is there any consulting relationship or
7 work you've done in connection with the case for
8 which you've been subpoenaed for here today?
9 **A No. I -- no, there hasn't.**
10 Q Have you met Mr. Hindman before today?
11 **A No, I don't believe so.**
12 Q Did you have any conversations with him
13 before today?
14 **A I don't recall.**
15 Q You don't know if you've spoken with him
16 before today?
17 **A I don't recall -- yeah, I don't recall**
18 **specifically having any.**
19 Q What about attorneys from his law firm
20 Perkins Coie?
21 **A I have spoken with attorneys from Perkins**
22 **Coie in the past.**
23 Q In the past. Was that related to this
24 subpoena?
25 **A For scheduling the subpoena, yes.**

46

1 Q Do you mean just for scheduling today, or
2 what do you mean by that?
3 **A Right. Scheduling this meeting today.**
4 Q Did you discuss the substance of your
5 testimony today with anyone before today?
6 **A No.**
7 Q Are you being compensated for your time
8 today?
9 **A No.**
10 Q Have you provided any documents in
11 connection with the subpoena?
12 **A No, no.**
13 Q How many subpoenas did you receive for
14 this case?
15 **A I received one subpoena.**
16 Q Okay. Have you done any -- you're not
17 aware of the patents-in-suit in this case, are you?
18 **A No.**
19 Q You've never reviewed them?
20 **A I don't know.**
21 Q You've never reviewed any arguments raised
22 by Defendants or Intel in connection with this case?
23 **A I don't believe I have.**
24 Q Okay. I want to look at Exhibit 1 for a
25 second. So that's the WWiSE proposal.

47

1 I think in your previous testimony you
2 used the word "complete" with respect to this
3 proposal, but then you also described that maybe a
4 first revision might have been from the August 2004
5 time frame.
6 Do you recall that testimony?
7 MR. HINDMAN: Objection. Form.
8 THE WITNESS: Yes, I -- yes.
9 BY MR. MAKKER:
10 Q And so I guess my question is: The
11 proposal evolved over time; is that fair?
12 **A Yes.**
13 Q Things were added to it?
14 **A That's correct, yes.**
15 Q Things were removed from it?
16 **A I don't recall if anything was removed**
17 **from it.**
18 Q Okay. But at any period of time, if we
19 looked at a revision, that probably wasn't a
20 finished product.
21 Is that fair?
22 MR. HINDMAN: Objection. Form.
23 THE WITNESS: Well, there were -- yeah,
24 I'm not sure I understand what you mean by
25 "finished." But it was a proposal, and the

48

1 proposals were under development.
2 BY MR. MAKKER:
3 Q So let me give you an example. So you
4 mentioned, I think, August 2004 as a first revision
5 maybe; is that right?
6 **A Right. So the way 802.11n task group**
7 **worked was there was a call for proposals, and a**
8 **deadline was set in August of 2004 to upload and**
9 **have those proposals available.**
10 **And so that's -- and so -- right, the**
11 **original WWiSE proposal was submitted at that time.**
12 Q Is that something that you would consider
13 complete?
14 **A Yes, yeah. Those were -- so the -- the**
15 **term "complete proposal" was used in the 802.11n**
16 **task group to describe proposals that would cover --**
17 **let me word this correctly -- all of the -- in other**
18 **words, there was a set of -- or all of the features**
19 **of 802.11 -- we wanted to have an 802.11n, including**
20 **MAC features and PHY features, so that's what was**
21 **meant by "complete proposal."**
22 (Reporter clarification.)
23 BY MR. MAKKER:
24 Q So that you called something "complete"
25 doesn't mean that it wasn't changed later, right?

49

1 **A Complete -- complete meant that it would**
2 **cover all of those features. It doesn't mean --**
3 **yeah, things could still be added to the proposals.**
4 **And that was part of the process as well, proposals**
5 **could be changed.**
6 Q You mentioned in your previous testimony
7 something referred to as a "draft standard."
8 Do you recall that?
9 **A Yes.**
10 Q Exhibit 1 is not a draft standard,
11 correct?
12 **A That's correct. This is a proposal; it's**
13 **not a draft.**
14 Q This proposal, Exhibit 1, was never
15 adopted by the IEEE; is that correct?
16 **A That's correct.**
17 Q At what point in time during the
18 development -- or I should say during TGn -- did you
19 realize that the WWiSE proposal would not be
20 adopted?
21 MR. HINDMAN: Objection. Form.
22 THE WITNESS: Yeah. It would be hard to
23 pin down an exact date. Probably sometime in the
24 fall of -- autumn of 2005, I think so.
25 ///

50

1 BY MR. MAKKER:
2 Q Prior to the fall or autumn of 2005, TGn
3 had held a number of votes on which proposal would
4 go forward; is that right?
5 **A That's correct.**
6 Q And in each of those votes before the fall
7 of 2005, the TGnSync proposal garnered the most
8 votes; is that right?
9 **A I think that's correct, yes.**
10 Q You're not an IEEE employee, right?
11 **A That's correct, I don't work for the IEEE.**
12 Q You never worked for the IEEE?
13 **A No, I've never worked for the IEEE.**
14 Q You discussed a number of websites in your
15 testimony, I believe 802.11 Wireless World and
16 Mentor.
17 Do you recall that?
18 **A Yes, uh-huh.**
19 Q You were never responsible for maintaining
20 either of those websites, right?
21 **A That's correct, yeah. I have not**
22 **maintained those websites.**
23 Q You were never an admin of one of those
24 websites, right?
25 **A That's correct, I've never been an admin.**

51

1 Q You never worked for a company that
2 maintained either of those websites, right?
3 **A That's correct.**
4 Q You didn't work on or help with the
5 transition from 802 Wireless World to the Mentor
6 website, right?
7 MR. HINDMAN: Objection. Form.
8 THE WITNESS: Yeah. I did not participate
9 in that transition.
10 BY MR. MAKKER:
11 Q Looking at Exhibit 1, I believe
12 Mr. Hindman directed you to the date field there
13 toward the top. I think it says "Date: 2005-03-18."
14 Do you see that?
15 **A Yes, uh-huh.**
16 Q And then I think, if we look at Exhibit 3,
17 Mr. Hindman directed you to a line with the date
18 19 March 2005 and asked you if the title was the
19 same as Exhibit 1.
20 Do you recall that?
21 MR. HINDMAN: Objection. Mischaracterizes
22 testimony.
23 THE WITNESS: Right. I see that there.
24 Yeah, I see the -- I believe he asked me about that
25 particular line there, yes.

52

1 BY MR. MAKKER:
2 Q Did you testify -- was your testimony that
3 the date shown in Exhibit 3 then is when Exhibit 1
4 was uploaded?
5 **A Yeah, I don't recall exactly what I**
6 **testified earlier, but I believe the date -- the**
7 **date in here would correspond to when this**
8 **particular -- this particular document was uploaded.**
9 Q So are you saying that -- you're pointing
10 at Exhibit 3 for the record?
11 **A Yeah, I'm pointing at Exhibit 3.**
12 Q And so you're talking about the document
13 Exhibit 3; you're not talking about Exhibit 1?
14 **A Yeah. I see here that, yeah, they may not**
15 **be the same document.**
16 Q And in Exhibit 1, the dates shown on the
17 face of Exhibit 1, or on subsequent pages in the
18 header, those dates could be anything, right?
19 They're not auto-populated?
20 **A Right. So as I recall, the 802.11**
21 **documents had a template, where you could put in the**
22 **date for a particular document, uh-huh.**
23 Q Yeah. The date on Exhibit 1 doesn't
24 necessarily reflect the upload date, correct?
25 **A That's correct, yeah.**

53

1 Q Has anyone discussed trial in this matter
2 with you?
3 **A No.**
4 MR. MAKKER: Okay. I don't have any other
5 questions at this time.
6 THE VIDEOGRAPHER: If that's everything --
7 THE STENOGRAPHER: Do you have anything
8 else, Counsel?
9 MR. HINDMAN: No.
10 THE VIDEOGRAPHER: Okay. I'll take us off
11 the record.
12 This marks the end of the deposition of
13 Christopher J. Hansen. The time is 11:18 a.m.
14 THE STENOGRAPHER: Counsel, do you want a
15 rough?
16 MR. HINDMAN: Yeah, sure, but there's no
17 rush on it.
18 MR. MAKKER: I don't have any specific --
19 I don't think I need one.
20 THE STENOGRAPHER: Okay. Thank you.
21 (Time noted 11:18 a.m.)
22
23 ---o0o---
24
25

54

1)
STATE OF CALIFORNIA)
2)
3 CERTIFICATE OF REPORTER
4 I, LORI STOKES, do hereby certify that the
5 witness in the foregoing deposition was by me duly
6 affirmed to tell the truth, the whole truth and
7 nothing but the truth in the within-entitled cause;
8 that said deposition was taken at the time and place
9 therein stated; that the testimony of said witness
10 was reported by me and was thereafter transcribed
11 under my direction and supervision; that the
12 foregoing is a full, complete and true record of
13 said testimony; that the witness was given an
14 opportunity to read and, if necessary, correct said
15 deposition and to subscribe the same.
16 I further certify that I am not of counsel or
17 attorney for either or any of the parties in the
18 foregoing deposition and caption named, or in any
19 way interested in the outcome of the cause named in
20 said caption.
21 IN WITNESS WHEREOF, I have hereunto set my hand
22 this 10th day of December, 2023.
23
24 _____
25 LORI STOKES, CSR No. 12732

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able 8:4, 8:5, 42:18
about 10:23, 11:9, 15:11, 16:6, 17:23, 18:4, 18:16, 20:4, 21:12, 21:19, 22:21, 24:4, 36:1, 36:24, 38:2, 41:9, 44:6, 44:9, 44:25, 45:3, 45:19, 51:24, 52:12, 52:13
academia 21:7
academic 21:9
accept 17:13
access 27:7, 27:13, 33:25, 34:7, 34:13, 38:24, 42:18
accessing 29:14, 42:1
account 27:14, 29:5, 42:17
accurate 8:22
acronym 13:25
active 35:23
activities 10:11, 15:18, 35:20
actually 40:16
ad 11:19
added 37:4, 47:13, 49:3
address 28:3
admin 50:23, 50:25
administered 7:2
adopted 49:15, 49:20
affirmed 54:7
after 20:24, 42:19
again 28:14, 30:17, 31:13, 44:1
agreed 14:13
airgo 14:24
al 6:7
all 8:2, 8:14, 8:19, 9:15, 12:12, 18:15, 18:21, 18:23, 25:22, 26:5, 27:18, 28:11, 29:8, 33:3, 34:2, 34:11, 34:23, 37:2, 37:7, 38:5, 38:6, 38:7, 38:13, 38:18, 39:5, 40:13, 40:19, 42:15, 48:17, 48:18, 49:2
almost 10:25
also 8:14, 14:25, 19:15, 20:6, 23:13, 23:23, 33:17, 36:25, 47:3
although 16:18
alto 1:14, 2:5, 3:17, 6:1, 6:15
amendment 17:3, 17:11, 17:15, 19:21
amendments 11:21
amit 3:5, 6:21
analysis 10:15
another 36:2
answer 8:3, 8:10, 8:16, 43:25, 44:2
any 8:8, 8:21, 10:18, 11:3, 15:1, 20:20, 20:22, 21:2, 21:15, 21:17, 22:18, 27:6, 27:10, 27:13, 29:9, 33:11, 34:6, 37:24, 38:23, 39:12, 40:15, 40:16, 43:16, 44:7, 44:11, 44:12, 45:1, 45:4, 45:6, 45:12, 45:18, 46:10, 46:16, 46:21, 47:18, 53:4, 53:18, 54:18, 54:19
anymore 35:25
anyone 18:13, 20:11, 46:5, 53:1
anything 8:25, 34:23, 47:16, 52:18, 53:7
appearances 3:1
appears 12:18, 26:21, 27:22, 28:9, 28:14, 30:17, 31:3, 31:13, 41:2
appreciate 8:10, 42:24
appropriate 16:21
approximately 11:25, 39:18
arguments 46:21
asked 51:18, 51:24
associated 29:16
association 35:18
assume 33:8
attend 29:15
attendance 20:23, 26:1
attended 9:5, 21:3
attending 20:24
attorney 3:6, 3:15, 54:18
attorneys 43:18, 43:22, 43:23, 45:19, 45:21
audibly 8:3
august 39:25, 40:2, 47:4, 48:4, 48:8
authors 38:2
auto-populated 52:19

autumn
49:24, 50:2
available
17:20, 18:23, 19:3, 22:10, 34:5, 34:11, 34:24, 37:1, 37:11, 38:20, 41:25, 48:9
aware
8:23, 19:6, 20:22, 21:15, 27:6, 27:10, 29:9, 33:11, 33:14, 35:3, 35:9, 36:1, 38:23, 39:13, 46:17
ax
1:5, 6:6, 6:22, 44:19
ay
11:19

B

bachelor's
9:7
back
27:2, 38:15, 40:5, 43:9
background
9:5, 11:7
based
29:19
bates-stamped
5:9
became
17:3
because
8:4, 40:2
become
17:15, 20:19, 21:4, 21:7, 21:13, 27:3, 27:7, 28:2, 29:4, 34:13
becoming
21:21, 25:23, 29:10
been
7:2, 7:15, 7:17, 14:2, 14:5, 21:20, 23:10, 24:8, 32:14, 32:20, 32:21, 34:9, 34:20, 35:2, 35:9, 37:15, 37:24, 38:3, 40:15, 41:7, 41:16, 41:18, 42:7, 42:18, 45:8, 47:4, 50:25
before
2:7, 7:15, 7:17, 22:4, 22:8, 22:14, 22:19, 22:21, 23:4, 23:5, 45:10, 45:13, 45:16, 46:5, 50:6
beforehand
18:13
begin
22:14, 22:18
beginning
2:5, 19:14
begins
6:4
behalf
2:4, 6:22
being
16:24, 21:18, 36:2, 46:7
believe
7:15, 9:25, 11:10, 12:2, 12:21, 13:25, 16:16, 16:18, 19:16, 20:11, 24:13, 27:1, 27:16, 29:13, 29:16, 30:2, 30:7, 31:22, 32:18, 33:6, 34:2, 35:13, 36:10, 37:2, 37:13, 37:23, 38:22, 39:25, 42:11, 42:22, 44:5, 44:7, 45:1, 45:4, 45:11, 46:23, 50:15, 51:11, 51:24, 52:6
bit
11:22
body
18:11
both
23:2, 23:22, 25:18, 25:20
box
27:24, 28:16
break
8:8, 8:9, 43:1, 43:3
briefly
9:4
broadcom
13:21, 14:24, 22:17

C

california
1:14, 2:5, 3:9, 3:17, 6:1, 6:15, 54:2
call
48:7
called
14:7, 14:24, 17:3, 17:13, 18:10, 19:11, 19:18, 22:12, 31:7, 48:24
calls
17:8, 18:25, 23:19, 24:12, 25:3, 27:9, 28:7, 28:22, 29:12, 29:23, 30:25, 32:17, 34:15, 35:4, 35:11, 36:10, 36:18, 37:22, 41:20, 42:21
can't
43:25, 44:2
candidates
17:14
cannot
8:21
caption
54:19, 54:21
capture
26:22, 27:22, 28:15, 30:18, 31:14
case
1:6, 6:9, 44:12, 44:13, 44:15, 44:18, 45:7, 46:14, 46:17, 46:22
cause
54:8, 54:20
certain
14:1, 25:8, 25:25
certificate
54:4
certified
2:7
certify
54:5, 54:17
changed
14:22, 16:9, 37:24, 38:7, 48:25, 49:5
characterize
13:2
chose
18:13
christopher
1:13, 2:3, 4:3, 6:5, 7:1, 53:13
clarification
10:13, 12:6, 15:7, 30:11,

48:22
clear
8:20
coie
3:13, 6:19, 45:20, 45:22
college
21:10
com
26:24
comes
36:12
common
22:16, 23:23
communication
10:24
communications
9:17, 10:5, 10:8
companies
10:16, 14:20, 15:25, 22:11, 23:11, 23:13, 23:17, 23:24
company
9:18, 9:22, 13:19, 14:24, 23:23, 51:1
compensated
46:7
competing
19:7, 19:10
complete
8:22, 20:2, 20:6, 47:2, 48:13, 48:15, 48:21, 48:24, 49:1, 54:13
complicated
23:9
conexant
14:25
confident
23:12
connection
45:7, 46:11, 46:22
consider
48:12
consolidated
37:7
consulting
43:15, 44:3, 44:21, 45:6
contained
16:17
contents
17:23
contribution
12:18, 14:15, 32:5, 32:8, 32:10, 36:21
contributions
12:9, 15:15, 17:13, 17:24, 19:2, 19:20, 24:21, 30:3, 30:12, 31:24, 33:7, 37:8, 41:7
contributor
15:12
control
31:7, 31:16, 31:19, 38:10
conversations
45:12
copy
26:15
corporation
9:20, 13:21
correct
7:10, 7:13, 7:14, 7:16, 7:20, 11:7, 11:8, 12:24, 12:25, 16:5, 27:4, 27:25, 28:5, 28:9, 29:5, 35:23, 36:16, 37:5, 37:15, 41:16, 42:8, 47:14, 49:11, 49:12, 49:15, 49:16, 50:5, 50:9, 50:11, 50:21, 50:25, 51:3, 52:24, 52:25, 54:15
correctly
14:5, 48:17
correspond
52:7
could
20:11, 20:19, 21:4, 21:6, 21:12, 27:7, 27:13, 27:16, 30:23, 33:12, 40:15, 40:16, 42:22, 49:3, 49:5, 52:18, 52:21
counsel
6:16, 8:14, 53:8, 53:14, 54:17
court
1:1, 6:7, 6:8, 6:23, 8:4
courthouse
7:23
covariant
9:20
cover
19:20, 19:21, 48:16, 49:2
created
42:17
creation
40:15
credentials
38:23, 38:25
csr
1:24, 54:26
current
9:21, 10:2, 10:8, 36:20, 38:19, 39:1, 44:3
currently
11:3, 36:15, 37:1, 44:24

D

date
6:11, 22:25, 39:18, 40:7, 40:10, 40:13, 40:14, 40:15, 40:16, 41:10, 41:18, 41:19, 41:23, 42:4, 42:12, 42:19, 49:23, 51:12, 51:13, 51:17, 52:3, 52:6, 52:7, 52:22, 52:23, 52:24
dated
5:6
dates
39:24, 42:6, 42:12, 52:16, 52:18
day
54:23
deadline
48:8
december
54:23
decisions
18:21
defendants
1:10, 2:4, 3:12, 6:19, 46:22
degree
9:7, 9:10
degrees
9:6
dell
1:8, 6:7, 6:19, 6:20, 43:16, 43:18, 44:4
depos
6:13, 6:24
deposed
7:15, 7:17
deposition
1:13, 2:3, 6:5, 6:14, 7:12, 7:19, 9:1, 12:14, 26:8, 40:22, 53:12,

54:6, 54:9, 54:16, 54:19
describe 48:16
described 47:3
description 5:3
designed 22:11
details 33:23, 35:16
determining 18:19
develop 14:8, 23:15
developed 14:11, 14:12
developing 12:22, 16:4, 17:11, 22:14, 22:18, 23:18, 25:5
development 10:12, 11:4, 11:7, 12:1, 22:8, 48:1, 49:18
developments 24:9
dialogue 27:24
different 11:15, 16:1, 17:25, 24:21, 36:3, 39:24
directed 51:12, 51:17
direction 54:12
discuss 46:4
discussed 50:14, 53:1
discussing 32:14, 37:15, 41:16
discussions 17:23
district 1:1, 1:2, 6:8
division 1:3, 6:9
document 12:17, 12:20, 12:22, 12:23, 13:2, 13:5, 15:10, 15:15, 16:4, 16:17, 26:7, 26:11, 26:13, 30:20, 31:7, 31:16, 31:18, 32:5, 32:19, 37:7, 38:10, 39:10, 40:13, 40:25, 41:1, 41:24, 52:8, 52:12, 52:15, 52:22
documents 5:13, 17:6, 17:19, 30:23, 31:2, 32:19, 37:24, 38:6, 39:4, 40:11, 42:12, 46:10, 52:21
done 43:17, 44:7, 44:11, 44:12, 44:23, 45:1, 45:4, 45:7, 46:16
down 8:5, 16:10, 41:10, 49:23
download 39:4
dr 7:7
draft 22:9, 22:11, 23:22, 24:4, 25:15, 49:7, 49:10, 49:13
drive 2:5, 3:16, 6:15
duly 54:6
during 15:2, 15:5, 49:17, 49:18

E

each 23:24, 50:6
earlier 52:6
eastern 1:2, 6:8
educational 9:5
efficiency 14:1
either 50:20, 51:2, 54:18
electrical 9:8, 9:10, 9:13
else 53:8
email 28:3
employee 50:10
employer 13:11, 13:12
end 53:12
ended 44:12
engineering 9:8, 9:11, 9:13, 10:3
engineers 21:19, 21:24, 22:13, 23:5, 23:6, 24:7, 24:15, 24:19, 24:24, 25:5
enter 28:3
entire 19:20
entity 43:16
entries 39:6, 41:4
entry 41:13
et 6:7
ever 16:14
every 16:8, 16:9, 16:11, 18:6
everyone 19:3, 41:25
everything 53:6
evolved 47:11
exact 22:25, 34:10, 49:23
exactly 13:10, 16:19, 24:6, 36:5, 52:5
examination 4:2, 7:5, 43:12
examined 7:2
example 21:6, 32:4, 41:5, 48:3
exhibit 5:3, 5:5, 5:8, 5:11, 12:13, 12:14, 26:7, 26:8, 32:13, 40:5, 40:21, 40:22, 41:17, 46:24, 49:10, 49:14, 51:11, 51:16, 51:19, 52:3, 52:10, 52:11, 52:13, 52:16, 52:17, 52:23
exhibits 5:1
expectation 25:7

expert
10:15, 44:10
explain
22:5, 31:18

F

face
52:17
factors
23:8
fair
21:2, 24:7, 24:23, 47:11, 47:21
fall
49:24, 50:2, 50:6
familiar
22:2, 26:25
familiarity
29:19
far
14:4, 14:21, 16:14, 34:7, 38:20
feature
23:10
features
23:7, 23:12, 23:14, 23:17, 25:8, 48:18, 48:20, 49:2
fee
18:14, 29:9, 29:14, 29:16
feel
8:9
felt
23:12
few
19:9, 42:25
field
51:12
figured
8:19
file
32:8, 32:9, 33:19, 33:20, 41:24
filling
28:24
final
22:14, 23:4, 23:6, 25:19, 42:16
finalized
22:9
find
23:16
finished
47:20, 47:25
firm
45:19
first
8:10, 32:4, 34:12, 39:25, 40:3, 41:5, 47:4, 48:4
flip
31:10
focus
9:15
followed
32:20, 32:21
following
24:8
follows
7:3
foregoing
54:6, 54:13, 54:19
form
47:7, 47:22, 49:21, 51:7
formatting
16:20
forth
17:24
forward
50:4
foundation
23:20, 24:12, 25:3, 27:9, 28:7, 28:22, 29:12, 29:23, 30:25, 31:21, 32:17, 34:16, 35:5, 35:12, 36:18, 37:22, 41:21, 42:10, 42:21
frame
13:5, 15:5, 33:18, 47:5
francisco
3:9
free
8:9, 18:8
front
40:5
ftp
33:17
full
54:13
further
54:17

G

gain
38:24
garnered
50:7
general
7:18, 11:14, 18:20
generally
15:17, 21:23, 23:21
generating
12:20
give
48:3
given
54:14
go
28:11, 50:4
going
8:2, 12:12, 26:6, 26:14, 40:20, 43:5, 43:9
good
7:7, 7:8
grew
14:23
group
12:24, 13:3, 13:4, 13:9, 13:12, 13:13, 13:15, 13:16, 13:17, 14:6, 14:7, 14:14, 14:18, 14:21, 15:6, 16:14, 16:25, 17:1, 17:2, 17:4, 17:7, 17:10, 17:12, 17:21, 20:9, 20:13, 20:20, 21:16, 21:21, 24:17, 25:24, 26:17, 29:21, 33:4, 33:13, 35:14, 35:18, 36:15, 37:18, 39:14, 39:16, 41:8, 48:6, 48:16
groups
15:2
guess
47:10

H

halfway
41:9
hand
12:12, 26:6, 40:20, 54:22
handful
43:14
hansen
1:13, 2:4, 4:3, 6:6, 7:1, 7:7, 53:13
hard
49:22
head
8:4, 44:14
header
52:18
heard
22:4

held
16:7, 18:5, 18:6, 50:3
help
51:4
here
6:4, 7:9, 8:15, 41:4, 42:5, 45:8, 52:7, 52:14
hereby
54:5
hereunto
54:22
hindman
3:14, 4:4, 6:18, 7:6, 10:17, 12:11, 12:16, 15:8, 17:17, 19:5, 22:1, 23:3, 24:1, 24:3, 24:14, 24:22, 25:6, 25:17, 26:6, 26:10, 27:12, 27:17, 28:10, 29:3, 29:18, 30:4, 30:13, 31:5, 32:1, 32:22, 33:2, 33:10, 35:1, 35:7, 35:21, 36:23, 38:1, 38:8, 38:14, 38:17, 39:11, 40:1, 40:4, 40:20, 40:24, 42:2, 42:14, 42:23, 43:2, 45:10, 47:7, 47:22, 49:21, 51:7, 51:12, 51:17, 51:21, 53:9, 53:16
hoping
25:13
host
16:1, 16:2
hp
44:9, 44:11
https
5:12

I

identification
12:15, 26:9, 40:23
ieee
5:5, 5:12, 14:18, 18:2, 20:12, 34:19, 34:23, 35:14, 35:18, 36:10, 36:14, 37:7, 38:19, 49:15, 50:10, 50:11, 50:12, 50:13
implementing
23:13
important
23:9
inc
1:8, 1:9, 6:7
include
37:14, 38:10
included
14:23
including
48:19
incorporated
6:19, 6:20, 25:9, 25:14, 25:19
index
4:1
indicating
28:20
individual
13:16, 14:14, 15:25
industry
12:24, 13:3, 13:4, 13:12, 13:16, 14:6
information
28:25, 29:1
initially
16:8
institute
9:9
institutions
9:5
instruments
14:25
intel
5:9, 44:22, 44:23, 46:22
interest
14:7, 15:2
interested
21:3, 21:20, 24:16, 54:20
internet
33:22
interoperable
23:11
involve
10:4
involved
10:11, 11:3, 12:1, 12:19, 12:21, 15:1, 15:18
involvement
12:5
involves
10:7
itself
17:15, 23:1

J

january
10:25, 12:3
job
1:25
johanna
3:22, 6:13
join
18:9, 28:4
judge
7:23
july
26:16
jury
7:23

K

keep
31:23
kinds
18:21
knew
24:19
know
7:18, 8:9, 11:20, 13:6, 13:24, 14:4, 16:15, 16:19, 16:20, 20:19, 21:10, 22:21, 23:5, 23:6, 25:4, 25:14, 26:21, 27:2, 33:6, 36:3, 36:12, 37:17, 38:21, 39:6, 41:25, 44:13, 45:15, 46:20

L

lack
23:20, 24:11, 25:2, 27:8, 28:6, 28:21, 29:11, 29:23, 30:24, 31:20, 32:16, 34:16, 35:5, 35:12, 36:18, 37:21, 41:21, 42:9, 42:20
lans
5:5
large
15:19
later
33:21, 48:25
latham
3:4, 6:22
law
3:6, 3:15, 45:19
leading
36:17

least
25:4, 25:15
lenovo
44:6, 44:8
let's
28:11
letters
19:13
line
15:11, 51:17, 51:25
list
11:14, 11:17, 19:9, 41:6
listed
15:12
litigation
43:20
llc
1:5, 6:6
llp
3:4, 3:13
local
33:19
locations
16:2
log
34:21
long
9:23, 10:23, 11:9, 14:2, 14:6, 22:8, 22:21
longer
35:22
look
23:16, 41:9, 46:24, 51:16
looked
47:19
looking
51:11
looks
41:6
lopez
3:22, 6:13
lori
1:23, 2:7, 6:24, 54:5, 54:26

M

mac
48:20
made
19:2, 33:4, 33:7, 35:9, 36:15, 36:21, 39:23, 39:24, 41:25
main
19:10, 33:22
maintained
37:18, 50:22, 51:2
maintaining
50:19
make
8:20, 14:15
making
8:15, 18:19, 18:20
makker
3:5, 4:5, 6:21, 17:8, 18:25, 21:22, 22:23, 23:19, 24:11, 24:18, 25:2, 25:11, 27:8, 27:15, 28:6, 28:21, 29:11, 29:22, 30:24, 31:20, 32:16, 32:25, 33:5, 34:15, 35:4, 35:11, 36:17, 37:21, 38:4, 38:11, 39:8, 39:20, 41:20, 42:9, 42:20, 42:25, 43:13, 47:9, 48:2, 48:23, 50:1, 51:10, 52:1, 53:4, 53:18
mandatory
28:25
many
11:21, 19:24, 19:25, 21:23, 24:4, 46:13
march
5:6, 41:10, 42:5, 51:18
mark
12:13, 26:7, 40:21
marked
12:14, 26:8, 40:22
marks
53:12
marshall
1:3, 6:9
massachusetts
9:11
master's
9:10
matter
6:6, 53:1
matthew
3:14, 6:18
maybe
10:9, 47:3, 48:5
md
11:19
mean
13:15, 15:19, 16:20, 25:12, 46:1, 46:2, 47:24, 48:25, 49:2
meant
48:21, 49:1
mechanism
33:11
media
6:4
mediatek
44:25, 45:2
meeting
17:22, 19:3, 25:25, 26:17, 46:3
meetings
15:20, 15:21, 15:22, 15:24, 16:2, 16:7, 18:1, 18:3, 18:5, 18:6, 18:9, 18:24, 20:23, 20:25, 21:4, 29:15, 33:21
member
13:15, 14:18, 14:25, 20:12, 20:16, 20:18, 20:20, 21:1, 21:3, 21:4, 21:7, 21:11, 25:24, 27:3, 27:7, 27:13, 28:3, 28:4, 29:5, 29:10, 34:13, 34:18, 34:19, 34:23
members
16:1, 18:8, 21:13, 21:16, 21:18, 21:21, 21:24, 30:22, 34:12, 35:2, 35:9, 42:16
membership
14:22, 27:14
mentioned
48:4, 49:6
mentor
5:12, 36:10, 36:15, 36:22, 37:1, 37:4, 37:12, 37:19, 38:20, 38:24, 39:6, 41:3, 42:7, 50:16, 51:5
menu
39:15
met
45:10
might
34:9, 35:9,

42:25, 47:4
mischaracterizes
29:22, 51:21
mitsubishi
19:17
monitor
6:12
montgomery
3:7
month
16:8, 16:9
months
16:11, 18:6
morning
7:7
most
23:9, 50:7
much
10:7, 42:24
multiple
20:23

N

n=&is_group=n
5:13
name
15:11, 32:9, 36:8, 36:12
named
54:19, 54:20
necessarily
52:24
necessary
54:15
need
8:9, 34:12, 53:19
networks
14:24
never
46:19, 46:21, 49:14, 50:12, 50:13, 50:19, 50:23, 50:25, 51:1
new
5:8, 26:15, 28:4, 36:8
next
15:9
nod
8:4
noted
53:21
nothing
54:8
november
1:15, 2:6, 6:2, 6:11
number
6:5, 6:9, 15:20, 23:8, 32:5, 32:6, 32:7, 39:10, 50:3, 50:14
numbers
31:7, 31:16, 31:19, 31:23, 38:10
numerous
19:18

O

oath
7:2, 7:19
objection
17:8, 18:25, 21:22, 22:23, 23:19, 24:11, 25:2, 25:11, 27:8, 28:6, 28:21, 29:11, 29:22, 30:24, 31:20, 32:16, 32:25, 34:15, 35:4, 35:11, 36:17, 36:18, 37:21, 39:8, 39:20, 41:20, 42:9, 42:20, 47:7, 47:22, 49:21, 51:7, 51:21
objections
8:15, 24:18, 27:15, 33:5, 38:4, 38:11
offer
8:22
officially
22:19
often
16:6, 18:4
oh
13:14, 40:14
okay
8:6, 8:12, 8:19, 8:24, 9:3, 9:18, 9:23, 10:1, 10:4, 10:10, 10:18, 10:21, 10:23, 11:2, 11:6, 11:12, 11:18, 11:22, 11:24, 12:4, 12:11, 12:19, 13:1, 13:8, 13:18, 13:23, 14:3, 14:17, 14:20, 15:1, 15:17, 15:22, 16:3, 16:6, 16:12, 16:23, 17:5, 17:18, 17:25, 18:4, 18:8, 18:15, 18:22, 19:6, 19:23, 20:4, 20:7, 20:19, 21:2, 21:6, 21:12, 21:19, 22:2, 22:21, 23:4, 23:16, 24:1, 25:7, 25:22, 26:3, 27:3, 27:24, 28:16, 29:4, 30:5, 30:19, 31:6, 31:10, 32:11, 32:23, 33:15, 33:25, 34:4, 35:8, 35:22, 36:7, 36:11, 36:24, 37:10, 38:2, 38:9, 38:14, 39:2, 39:5, 40:1, 40:14, 40:17, 41:9, 42:3, 42:23, 43:5, 46:16, 46:24, 47:18, 53:4, 53:10, 53:20
on-site
33:20
once
17:19, 28:14, 30:17, 31:13
one
19:10, 23:22, 33:8, 33:14, 33:20, 37:9, 39:25, 40:3, 42:5, 46:15, 50:23, 53:19
ones
33:8
only
15:4, 15:6, 20:23
open
18:10, 18:13, 39:2, 39:4
opportunity
54:15
opposing
8:14
order
20:16, 34:7, 34:13
org
5:12
orientation
5:8, 26:15
original
37:18, 38:2, 39:21, 39:22, 42:6, 48:11
originally
14:23
other
11:20, 15:1,

19:6, 23:11, 23:12, 23:17, 23:25, 32:19, 33:8, 33:11, 39:12, 48:17, 53:4
out
39:15
outcome
54:20
over
14:22, 14:23, 16:9, 27:18, 28:11, 31:10, 37:8, 37:19, 44:16, 47:11

P

pacific
2:6
page
5:3, 15:9, 40:6, 41:5, 41:10
pages
1:26, 52:17
palo
1:14, 2:5, 3:17, 6:1, 6:15
parameters
39:12
part
13:8, 13:11, 13:12, 14:20, 17:12, 17:16, 29:6, 49:4
partial
19:19
participant
5:8
participants
17:21, 18:23
participate
18:11, 51:8
participated
15:20
participating
19:3
participation
26:15
particular
16:13, 16:16, 20:1, 39:14, 41:19, 41:24, 51:25, 52:8, 52:22
parties
54:18
parts
12:20
password
28:4
past
10:21, 43:18, 44:23, 45:22, 45:23
patent
43:24
patents-in-suit
46:17
pay
18:12, 18:14
pending
8:11
percent
10:9, 10:10
period
11:25, 16:21, 47:18
perkins
3:13, 6:19, 45:20, 45:21
person
14:17, 28:24
phd
1:13, 2:4, 4:3, 7:1, 9:13
phy
48:20
physically
29:15
pin
49:23
place
6:14, 32:8, 36:6, 54:9
plaintiff
1:6, 3:3, 6:22, 44:19
planet
6:13, 6:24
please
6:16, 8:9, 26:18, 30:14
point
16:10, 23:14, 37:3, 49:17
pointing
52:9, 52:11
polytechnic
9:8
porter
2:5, 3:16, 6:15
portions
19:21, 25:15, 25:18
possible
20:15, 25:18
pre-n
22:3, 22:12, 22:14, 24:8, 24:15, 24:20, 24:24, 25:5
prepare
8:25
present
43:17
presentations
17:22
presented
26:16
president
9:22
previous
47:1, 49:6
printout
5:11, 41:2
prior
36:24, 37:11, 37:17, 50:2
probably
16:10, 22:25, 47:19, 49:23
procedures
25:23, 34:6, 35:19
process
12:5, 17:11, 17:12, 17:16, 18:17, 18:18, 18:20, 19:15, 20:24, 24:10, 29:7, 30:20, 30:23, 31:2, 31:3, 32:15, 32:20, 33:7, 34:10, 34:20, 35:19, 37:6, 49:4
product
23:4, 23:7, 47:20
products
10:19, 10:20, 21:20, 21:24, 22:3, 22:11, 22:12, 22:14, 22:18, 22:22, 23:11, 24:8, 24:16, 24:20, 24:24, 25:5
professor
21:10
promoted
35:15
proposal
12:8, 13:6, 14:8, 14:10, 14:12, 14:15, 16:13, 17:6, 18:23, 19:10, 19:15, 19:16, 20:1, 20:2, 20:5, 20:9, 20:11, 20:13, 20:15, 20:17, 25:13, 25:14, 29:21, 32:3, 32:13, 32:24, 33:12, 37:14, 39:19, 39:22, 39:23, 41:16, 41:19, 42:18,

46:25, 47:3, 47:11, 47:25, 48:11, 48:15, 48:21, 49:12, 49:14, 49:19, 50:3, 50:7
proposals 17:13, 19:7, 19:19, 20:9, 24:16, 24:25, 25:9, 25:20, 48:1, 48:7, 48:9, 48:16, 49:3, 49:4
prosecution 43:24
provide 32:6
provided 46:10
public 18:8, 21:3, 27:13, 34:3, 34:5, 34:12, 35:2, 35:9, 38:20, 39:3, 42:17
publicity 35:14
publicizing 35:20
publicly 34:24
published 22:19
pull 39:15
pull-down 39:15
purpose 16:3, 17:5
put 14:8, 15:22, 23:7, 29:1, 40:12, 52:21

Q

qualcomm 19:15, 45:3, 45:5
question 8:10, 8:11, 8:16, 42:16, 43:25, 44:2, 47:10
questions 8:3, 43:14, 53:5
quick 43:1
quite 11:22

R

raised 46:21
ratified 22:15
read 54:15
reading 24:20
realize 49:19
reason 8:21
recall 11:14, 11:25, 14:21, 14:22, 15:14, 15:17, 18:4, 21:17, 24:5, 24:6, 25:23, 25:25, 28:8, 31:1, 33:19, 33:25, 34:8, 36:4, 36:5, 36:8, 39:18, 44:14, 45:14, 45:17, 47:6, 47:16, 49:8, 50:17, 51:20, 52:5, 52:20
receive 46:13
received 7:14, 9:6, 9:9, 9:12, 9:14, 46:15
recess 43:7
recognize 12:17, 26:11, 26:12, 26:19, 27:20, 28:12, 30:15, 31:11, 40:25
record 8:20, 19:12, 30:5, 38:9, 42:3, 43:6, 43:10, 52:10, 53:11, 54:13
referred 49:7
referring 30:6, 40:5
reflect 52:24
regard 13:2
regarding 7:12, 11:24
register 18:12, 18:14, 20:15
registration 18:12, 29:6
related 43:19, 44:18, 44:20, 45:23
relationship 43:15, 44:4, 44:21, 45:6
remember 11:16, 14:5, 16:18, 22:24, 26:1, 29:25, 33:23, 34:9, 35:6, 35:16
removed 47:15, 47:16
rensselaer 9:8
replaced 36:2
reported 1:22, 54:11
reporter 2:8, 6:23, 8:5, 10:13, 12:6, 15:7, 30:11, 48:22, 54:4
represent 6:17, 26:14
representatives 23:24
representing 6:13, 6:24
request 32:4
required 20:23, 28:25, 38:24, 39:1
requirement 26:1
research 9:16
respect 47:2
responsible 50:19
restrictions 20:21, 20:22, 27:6, 27:11
retained 42:7, 42:12, 44:10
reviewed 11:20, 17:20, 46:19, 46:21
reviewing 24:16, 24:25
revision 47:4, 47:19, 48:4
revisions 39:23
right 8:2, 8:14, 9:15, 11:5, 12:12, 18:2, 18:15, 25:22, 26:5, 27:4,

27:18, 28:11, 29:8, 36:20, 38:12, 38:18, 39:5, 40:19, 41:17, 41:22, 42:15, 46:3, 48:5, 48:6, 48:10, 48:25, 50:4, 50:8, 50:10, 50:20, 50:24, 51:2, 51:6, 51:23, 52:18, 52:20
right-hand 31:6
role 9:21, 9:24, 10:2
rough 53:15
roughly 10:25, 12:2, 16:9, 22:25
rpr 1:24, 2:7
rules 7:18
rush 53:17

S

said 38:6, 43:22, 54:9, 54:10, 54:14, 54:15, 54:21
same 7:22, 22:25, 23:13, 24:18, 27:15, 32:23, 32:25, 33:5, 38:3, 38:4, 38:11, 38:13, 38:15, 41:15, 41:17, 51:19, 52:15, 54:16
san 3:9
say 10:7, 11:9, 18:19, 21:2, 21:10, 24:7, 24:23, 44:1, 49:18
saying 52:9
says 26:24, 30:20, 31:15, 51:13
scheduling 45:25, 46:1, 46:3
scope 12:4
screen 26:22, 27:22, 28:14, 30:17, 31:13
search 39:9
searchable 39:7, 39:13
second 46:25
see 15:11, 28:16, 30:19, 31:8, 31:15, 40:7, 41:11, 41:13, 51:14, 51:23, 51:24, 52:14
seeking 28:2
server 33:20, 41:24
set 27:14, 29:5, 48:8, 48:18, 54:22
shake 8:4
shorthand 2:7
should 38:5, 38:7, 38:13, 49:18
showing 28:24
shown 26:19, 27:4, 27:20, 28:12, 30:15, 31:11, 41:1, 52:3, 52:16
side 31:7
sig 14:7, 15:6
signature-b7fzp 54:24
simultaneously 23:2
since 10:25, 11:10
sir 42:23
site 33:17, 33:22, 38:20
six 18:7
slide 26:18, 26:20, 27:18, 27:19, 27:21, 28:11, 28:13, 30:14, 30:16, 31:10, 31:12
slides 26:16
slowed 16:10
some 8:2, 8:15, 10:6, 10:14, 11:16, 15:19, 16:10, 25:4, 33:21, 33:22, 34:20, 35:8, 35:19, 37:3, 37:6, 41:6, 43:17
someone 21:6, 28:2, 33:12
something 20:25, 34:21, 35:14, 39:17, 48:12, 48:24, 49:7
sometime 12:3, 49:23
sometimes 14:7
somewhat 16:9
special 14:7, 15:2
specific 15:14, 26:13, 53:18
specifically 28:9, 45:18
specifics 26:2, 30:1
spectrum 14:1
speculation 17:9, 19:1, 23:20, 24:12, 25:3, 27:9, 28:7, 28:22, 29:12, 29:24, 30:25, 32:17, 34:16, 35:5, 35:12, 36:19, 37:22, 41:21, 42:21
spell 19:12
spoken 45:15, 45:21
spot 40:12
standard 12:1, 12:9, 12:10, 15:3, 22:9, 22:10, 22:11, 22:15, 22:19, 23:1, 23:6, 25:10, 25:19, 49:7,

49:10
standardization
12:5, 23:18, 24:9
standards
10:12, 11:4, 11:6, 11:10, 11:15, 18:3, 18:11, 22:7, 23:22, 24:4, 25:19, 35:18
stands
13:24
started
22:22, 23:1
starting
19:14
startup
14:24
state
6:17, 54:2
stated
54:10
states
1:1, 6:7
stenographer
53:7, 53:14, 53:20
stenographically
1:22
still
8:16, 21:9, 49:3
stokes
1:23, 2:7, 6:24, 54:5, 54:26
street
3:7
students
21:12, 21:13, 21:15, 21:18
study
39:16
subgroup
17:1
submission
16:24, 30:20, 39:22, 41:19, 42:19
submissions
18:22, 29:20, 33:3, 34:1, 34:2, 34:3, 34:7, 34:13, 36:14, 36:25, 37:4, 37:11, 37:17, 38:19, 42:6
submit
20:8, 20:11, 20:13, 20:15, 20:17, 30:23, 33:12
submitted
12:23, 14:11, 16:14, 17:19, 24:17, 29:21, 32:2, 32:14, 39:19, 48:11
submitting
17:6
subpoena
7:13, 7:14, 45:24, 45:25, 46:11, 46:15
subpoenaed
45:8
subpoenas
46:13
subscribe
54:16
subsequent
52:17
substance
46:4
substantial
11:22
suite
3:8
summarize
9:4
supervision
54:12
supporting
12:8
sure
7:9, 9:7, 47:24, 53:16
sworn
6:25
synchronized
33:21
systems
10:18, 10:24

T

t-g-n-s-y-n-c
19:13
tab
27:3, 31:6
take
8:5, 8:8, 43:1, 43:2, 53:10
taken
2:4, 43:7, 54:9
taking
6:14
talk
23:24
talking
52:12, 52:13
targeted
22:18
task
16:14, 16:25, 17:1, 17:4, 17:7, 17:10, 17:21, 20:9, 29:21, 33:3, 33:12, 37:18, 39:14, 39:15, 41:7, 48:6, 48:16
technical
10:15, 17:14, 17:23, 19:19
technologies
1:8, 6:20
tell
7:23, 18:16, 19:9, 54:7
template
40:11, 52:21
ten
9:25
tend
23:14
term
22:2, 22:4, 22:6, 48:15
testified
7:3, 52:6
testify
52:2
testimony
8:22, 29:23, 46:5, 47:1, 47:6, 49:6, 50:15, 51:22, 52:2, 54:10, 54:14
texas
1:2, 6:8, 14:25
tgn
17:18, 34:14, 37:11, 39:19, 42:7, 49:18, 50:2
tgnsync
19:11, 20:4, 24:25, 25:8, 32:24, 50:7
th
6:11, 42:5, 54:23
thank
42:24, 53:20
themselves
6:17, 35:15
thereafter
54:11
therein
54:10
things
47:13, 47:15, 49:3
think
12:25, 15:4, 15:6, 16:8, 20:14, 20:17, 21:8, 21:9,

28:23, 33:1, 35:24, 37:24, 38:6, 38:7, 38:25, 39:9, 44:11, 47:1, 48:4, 49:24, 50:9, 51:13, 51:16, 53:19
three
20:24
through
12:8, 33:4, 33:7
time
2:6, 6:11, 8:8, 8:15, 8:16, 11:25, 13:5, 13:20, 13:22, 14:2, 14:6, 14:23, 15:2, 15:5, 16:10, 16:21, 17:3, 19:7, 21:15, 22:8, 22:16, 23:1, 25:1, 25:8, 25:12, 27:2, 30:7, 30:10, 31:4, 33:16, 33:18, 35:13, 42:24, 43:6, 43:10, 43:17, 46:7, 47:5, 47:11, 47:18, 48:11, 49:17, 53:5, 53:13, 53:21, 54:9
times
18:7
title
39:10, 40:8, 41:13, 41:15, 51:18
titles
37:18
today
6:13, 6:24, 7:10, 8:21, 36:4, 36:21, 37:1, 45:8, 45:10, 45:13, 45:16, 46:1, 46:3, 46:5, 46:8
today's
6:11, 8:25
together
14:8
took
22:8, 36:5
top
30:19, 31:15, 40:7, 44:14, 51:13
topics
7:12
toward
51:13
track
31:23
transcribed
54:11
transferred
37:19
transition
36:5, 51:5, 51:9
trial
7:22, 53:1
true
54:13
truth
7:24, 54:7, 54:8
turn
15:9, 26:18, 30:14
two
16:11, 18:6
type
35:19
types
10:1, 10:11, 15:17
typical
22:13

U

ucla
9:14, 9:16
uh-huh
8:1, 10:22, 11:23, 31:9, 40:9, 41:12, 41:14, 50:18, 51:15, 52:22
uhm
7:11
ultimately
25:9
under
7:19, 40:8, 48:1, 54:12
understand
7:9, 7:19, 7:25, 8:17, 23:10, 47:24
understanding
22:5, 28:19, 30:22, 34:11, 37:10, 41:23, 44:15
understood
8:19, 13:18
unified
37:8
united
1:1, 6:7
university
9:11
until
12:3
upcoming
21:20
updated
39:23
upload
32:10, 48:8, 52:24
uploaded
41:24, 42:13, 52:4, 52:8
uploading
30:2, 30:9, 30:12, 31:2
uploads
39:24
use
36:22
using
30:23, 32:14

V

vague
21:22, 22:23, 25:11, 39:8, 39:20, 41:20
verbatim
26:15
versions
22:9
versus
6:6
video
6:12, 6:14
videographer
3:22, 6:4, 6:12, 6:23, 43:5, 43:9, 53:6, 53:10
videotaped
1:13, 2:3, 6:5
voice-identify
6:16
vote
20:16
voted
11:20
votes
50:3, 50:6, 50:8
voting
18:17, 18:18, 18:20, 20:16, 20:18, 20:25, 21:9, 21:11, 34:18
vs
1:7

W

want
11:17, 20:8, 43:2, 46:24, 53:14
wanted
8:20, 48:19

watkins
3:4, 6:22
way
23:13, 33:22, 37:25, 48:6, 54:20
ways
35:8
we'll
12:13, 26:7, 40:21, 43:1
we're
43:5, 43:9
we've
32:14, 37:15, 41:16
website
26:22, 26:23, 26:25, 27:1, 27:7, 27:14, 27:23, 28:15, 28:24, 29:2, 29:7, 29:14, 29:17, 29:20, 30:1, 30:2, 30:6, 30:8, 30:9, 30:18, 31:14, 33:4, 34:1, 34:7, 34:21, 35:3, 35:10, 35:22, 35:25, 36:2, 36:3, 36:9, 36:16, 36:22, 37:4, 37:9, 37:20, 39:1, 41:3, 42:1, 42:7, 42:18, 51:6
websites
50:14, 50:20, 50:22, 50:24, 51:2
wednesday
1:15
went
33:7
whatever
39:16
whereof
54:22
whole
11:17, 54:7
wide
39:2, 39:4
wireless
1:5, 5:5, 6:6, 6:22, 9:17, 10:5, 10:8, 11:4, 29:20, 30:6, 30:8, 30:18, 31:14, 33:4, 34:1, 36:1, 36:25, 37:3, 42:17, 44:19, 50:15, 51:5
wirelessworld
26:24
within
14:13
within-entitled
54:8
witness
4:2, 6:25, 10:14, 10:15, 12:7, 17:10, 19:2, 21:23, 22:24, 23:21, 24:2, 24:13, 24:19, 25:4, 25:12, 27:10, 27:16, 28:8, 28:23, 29:13, 29:25, 30:12, 31:1, 31:22, 32:18, 33:1, 33:6, 34:17, 35:6, 35:13, 36:20, 37:23, 38:5, 38:12, 38:15, 39:9, 39:21, 40:2, 41:22, 42:11, 42:22, 43:4, 44:10, 47:8, 47:23, 49:22, 51:8, 51:23, 54:6, 54:10, 54:14, 54:22
word
47:2, 48:17
words
48:18
work
9:18, 9:20, 10:1, 10:3, 10:4, 10:6, 10:8, 10:12, 10:14, 10:15, 10:18, 13:13, 32:2, 43:18, 44:7, 44:11, 44:12, 44:23, 45:2, 45:4, 45:7, 50:11, 51:4
worked
9:23, 10:20, 10:23, 11:10, 11:15, 11:18, 12:7, 13:13, 32:12, 33:24, 48:7, 50:12, 50:13, 51:1
working
13:20, 13:21, 14:14, 14:18, 15:3, 15:6, 17:2, 20:13, 20:20, 21:16, 21:19, 21:21, 21:24, 22:17, 22:22, 23:1, 23:2, 24:8, 24:15, 24:17, 24:20, 24:24, 25:13, 25:24, 26:16, 35:18, 36:14
world
29:20, 30:6, 30:9, 30:18, 31:14, 33:4, 34:1, 36:1, 36:25, 37:3, 42:17, 50:15, 51:5
world-wide
13:25
wouldn't
19:20, 34:18
writing
17:2
wrote
13:6
wwise
12:24, 13:2, 13:4, 13:8, 13:11, 13:24, 14:4, 14:6, 14:13, 14:21, 15:4, 15:6, 15:25, 16:1, 16:13, 17:6, 18:1, 18:23, 20:1, 20:9, 24:25, 25:8, 25:13, 25:14, 29:21, 32:13, 37:14, 39:19, 39:22, 41:15, 42:18, 46:25, 48:11, 49:19

Y

yeah
11:13, 11:16, 11:18, 14:19, 16:16, 19:13, 19:24, 22:7, 22:24, 23:8, 24:2, 24:19, 25:12, 25:21, 26:21, 27:1, 27:2, 27:10, 28:8, 29:6, 29:25, 30:7, 30:8, 31:1, 33:18, 33:19, 34:2, 35:6, 35:24, 36:20, 37:6, 38:5,

38:12, 40:2, 40:18, 41:2, 41:6, 43:2, 43:4, 43:25, 44:10, 44:17, 45:17, 47:23, 48:14, 49:3, 49:22, 50:21, 51:8, 51:24, 52:5, 52:11, 52:14, 52:23, 52:25, 53:16
year
18:7, 39:10
years
9:25, 11:1, 11:13, 37:8
yellow
28:16

.

.0600
3:10
.43
4:5
.4300
3:18
.7
4:4

0

00
43:7
000
5:13
00277
6:10
01
43:6
03
43:8, 51:13
04
43:10
08
2:6, 6:2, 6:12

1

1
1:26
10
2:6, 6:2, 6:12, 54:23
1038
5:9
11
43:6, 43:7, 43:8, 43:10, 53:13, 53:21
12
5:5
12732
1:24, 2:8, 54:26
18
51:13, 53:13, 53:21
19
41:10, 42:5, 51:18
1987
9:9
1989
9:12
1997
9:14
1999
11:11

2

2000
3:8, 10:25
2003
12:3
2004
26:16, 27:2, 38:16, 39:25, 40:2, 47:4, 48:4, 48:8
2005
5:6, 13:5, 41:8, 41:10, 42:5, 49:24, 50:2, 50:7, 51:13, 51:18
2006
12:3
2023
1:15, 2:6, 6:2, 54:23
22
1:7, 6:10
24
11:1
25
11:13, 26:18, 26:20
26
5:8
27
27:19, 27:21
277
1:7
28
15:11
29
1:15, 2:6, 6:2, 6:11, 28:11, 28:13
2:-cv
1:7
2:-cv--rws-rsp
6:10

3

3
52:13
3150
2:5, 3:16, 6:15
35
30:14, 30:16
36
31:10, 31:12
38
5:13

4

40
5:11
415.391
3:10

5

505
3:7
515729
1:25
54
1:26

6

650.838
3:18

8

802
11:3, 21:25, 26:24, 30:6, 30:8, 30:18, 31:14, 51:5
802.11
5:5, 5:12, 10:4, 10:7, 10:24, 11:15, 11:18, 11:19, 11:20, 11:24, 12:5, 12:7, 12:9, 12:18, 13:7, 14:9, 14:16, 15:3, 15:5, 16:24, 17:2, 17:3, 17:4, 17:10, 17:11, 18:2, 18:10, 18:18, 18:20, 19:20, 20:20, 21:11, 21:16, 21:21, 22:7, 22:18, 22:19, 24:5, 24:9, 24:17, 24:21, 25:10, 25:15, 25:24, 30:3, 30:7, 31:23, 34:3, 34:18, 35:14, 35:17, 36:4, 36:14, 36:21, 37:8, 39:1, 48:6, 48:15, 48:19, 50:15, 52:20

9

90
10:9, 10:10