

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

Case: IPR2025-01307

U.S. Patent No. 11,026,088

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners,

VS.

MAXELL, LTD.,

Patent Owner.

_____ /

DEPOSITION OF MICHAEL BLETSAS

Via Videoconference

Friday, August 7, 2026

9:07 a.m. to 11:41 a.m. EDT

Witness appearing remotely from Athens, Greece

Job No. 7202145-001

Pages: 1 to 90

Stenographically Reported By:

LEAH M. WITT, CRR, RPR

Appearing remotely from Nassau County, Florida

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

APPEARANCES

(All appearances via videoconference.)

On Behalf of the Petitioners:
DLA PIPER
701 Fifth Avenue, Suite 6900
Seattle, Washington 98104
(206)839-4857
BY: NICHOLAS PANNO, ESQ.
nicholas.panno@us.dlapiper.com

11911 Freedom Drive, Suite 300
Reston, Virginia 20190
(703)773-4148
BY: JAMES M. HEINTZ, ESQ.
jim.heintz@us.dlapiper.com

On Behalf of the Patent Owner:
MAYER BROWN
1999 K Street, NW
Washington, DC 20006
(202)263-3124
BY: MATTHEW STANFORD, ESQ.
mstanford@mayerbrown.com

1	INDEX OF PROCEEDINGS	
2	Deposition of MICHAEL BLETASAS	Page
3	Direct Examination by Mr. Stanford	4
	Cross-Examination by Mr. Panno	85
4	Declaration	88
	Errata Sheet	89
5	Certificate of Reporter	90
6		
7		
8		
9		
10	PREVIOUSLY MARKED EXHIBITS REFERENCED	
11	Number	Description
12	Exhibit 3	Petition for IPR
13	Exhibit 1001	U.S. Patent No. 11,026,088
14	Exhibit 1004	Iwami
15	Exhibit 1049	Declaration of Michail Bletsas
16	Exhibit 1050	Wi-Fi Display Technical Specification
17		- - - - -
18		
19		
20		
21		
22		
23		
24		
25		

1 Deposition taken before Leah M. Witt,
2 Registered Professional Reporter, Certified Realtime
3 Reporter, and Notary Public in and for the State of
4 Florida at Large, in the above cause.

5 - - - - -

6 THE COURT REPORTER: Mr. Bletsas, would
7 you please raise your right hand.

8 Under penalty of perjury, do you solemnly
9 swear or affirm that the testimony you are
10 about to give today will be the truth, the
11 whole truth, and nothing but the truth?

12 MR. BLETASAS: I do.

13 THEREUPON,

14 MICHAEL BLETASAS
15 having been first duly sworn, was examined and
16 testified as follows:

17 THE COURT REPORTER: Thank you. Counsel,
18 you may proceed.

19 EXAMINATION

20 BY MR. STANFORD:

21 Q. Good morning, Mr. Bletsas.

22 A. Hello.

23 Q. So you mentioned before we jumped on here
24 that you're located in Athens, but where are you
25 physically located at the moment? In your house, in

1 an office space? You know, where are you?

2 A. My apartment in Athens.

3 Q. Okay. And is there anyone else in the
4 room with you?

5 A. No. I'm alone.

6 Q. Do you have any physical documents on the
7 desk in front of you?

8 A. I have nothing on the desk in front of me,
9 nothing on my desk open on my computer.

10 Q. You already got to my next question, so
11 thank you.

12 So -- and if you have a phone in the room
13 with you, if you wouldn't mind just turning it off
14 and putting it to the side, that would be helpful.

15 A. Yes, I have that done already.

16 Q. Excellent.

17 So have you been deposed before?

18 A. Yes.

19 Q. About how many times approximately?

20 A. Once.

21 Q. Once? Okay.

22 And how long ago was that?

23 A. A few years back. I don't recall exactly.

24 Q. Okay. Do you recall what kind of case was
25 it? Was it an IPR proceeding like this is? Was it

1 a patent-related case or something unrelated?

2 A. It was a patent-related case, yeah.

3 Q. Okay. Was it an enterprise review?

4 A. Enterprise review?

5 Q. Was it --

6 A. No.

7 Q. -- an IPR proceeding like we are here for
8 today?

9 A. It was a similar proceeding, yes.

10 Q. Okay. So since it's been a little bit
11 since your last deposition, I'll just go over a few
12 of the ground rules and -- just to make our lives
13 easier and the court reporter's life a little bit
14 easier.

15 So as you likely recall from your last
16 one, this goes in sort of a question-and-answer
17 format. I'll ask you a question, I'll pause and
18 then give you a chance to answer, okay?

19 A. Yes.

20 Q. I will try and let you give your full
21 answer, but if I accidentally start talking before
22 you've finished, just please let me know, I'll stop
23 and I'll let you finish, okay?

24 A. Okay.

25 Q. Okay. And one of the key parts because

1 this is being transcribed by a court reporter is
2 that we don't talk over each other, and so we each
3 take turns so that we can have a nice clean written
4 record at the end of our deposition here today,
5 okay?

6 A. All right.

7 Q. And if I ask you a question and you don't
8 understand it or you need me for any reason to
9 repeat it or clarify it, just please let me know
10 because if you don't and you just answer it, I'll
11 assume that you fully understood it, okay?

12 A. Okay.

13 Q. Mr. Panno, your counsel, may from time to
14 time object to some of my questions, but unless he
15 instructs you not to answer a question based on
16 privilege, you will still answer the question, you
17 know, after his objection, okay?

18 A. Okay.

19 Q. And I'll try and take a break about every
20 hour or so, but if you need a break at any other
21 point, just let us know and, you know, we can
22 certainly accommodate that, okay?

23 A. Okay.

24 Q. All right. And the only thing I ask is
25 when taking breaks is if I've asked you a question,

1 a question is outstanding, you give me your full
2 answer before we stop to take that break, okay?

3 A. Okay.

4 Q. All right. So what did you do to prepare
5 for today's deposition?

6 A. I read my statement, I reviewed the
7 statement that I made, and we went over the ground
8 rules with the answers.

9 Q. You went over the ground rules with the
10 answers?

11 A. Of the deposition. I haven't done that
12 recently, so the counselors gave me pretty much the
13 same introduction that you gave yourself before.

14 Q. Okay. So you said you reviewed your --
15 your declaration.

16 Did you review any other documents?

17 A. I went through the patent very quickly.
18 Very, very quickly.

19 Q. Okay. Any other documents?

20 A. No.

21 Q. Besides your conversation with counsel,
22 did you speak with anyone else about -- in preparing
23 for your deposition today?

24 A. No.

25 Q. Did you speak with anyone for the

1 petitioner, Samsung here?

2 A. No.

3 Q. About how long would you say you spent
4 preparing for today's deposition?

5 A. About three hours.

6 Q. And if you can recall, just a ballpark
7 number, about how many hours would you say you have
8 spent working on your declaration that you prepared
9 and submitted in this IPR?

10 A. It was a full day.

11 Q. The full day?

12 A. Yep.

13 Q. So about eight hours or so you spent on
14 it?

15 A. A little bit more than that.

16 Q. Little bit more? Okay.

17 Maybe ten hours?

18 A. About that, ten to twelve hours.

19 Q. Okay.

20 A. I don't -- I don't recall exactly.

21 Q. Okay. Well, speaking of your declaration,
22 I dropped it into the chat before you joined, so I'm
23 not sure you're going to be able to see it, so let
24 me add that back in.

25 And for any documents that I'll ask you to

1 look at today, I'm going to put them into this chat
2 window here.

3 A. Okay.

4 MR. STANFORD: So for the record, this is
5 Exhibit 1049.

6 BY MR. STANFORD:

7 Q. And, Mr. Bletsas, if you'll just go ahead
8 and open that and let me know when you have it in
9 front of you.

10 A. Okay.

11 Q. And while you're getting that open, I'm
12 also going to add into the chat the patent, which
13 is, for the record, Exhibit 1001, which is U.S.
14 Patent Number 11,026,088.

15 A. Okay.

16 Q. Do you have your declaration open?

17 A. I have my declaration open.

18 Q. Okay. Is that your signature there on the
19 cover page?

20 A. Yes.

21 Q. And you can just briefly scroll through it
22 if you'd like.

23 Does this appear to be the -- an authentic
24 version of the declaration that you submitted?

25 A. Yes.

1 Q. So I'd like to start by scrolling down to
2 appendix A attached to your declaration, and that
3 starts on page 28 of the PDF.

4 A. Yes, that's my -- no, that's not my
5 resumé. Appendix A, yes. I'm there.

6 Q. Okay. And so is this a current version of
7 your CV, resumé?

8 A. More or less. I never looked for a job in
9 my life, so it misses my current engagement that I
10 have here in Greece, but it is very accurate on
11 that. Everything else is pretty accurate, yes. It
12 hasn't been updated for a couple of years, that's
13 what I'm saying.

14 Q. Okay. So are you still --

15 A. I'm still -- it is accurate. Everything
16 in that document is accurate. It's still valid.

17 Q. I understand.

18 A. I'm still -- I'm still the director of
19 computing at MIT Media Lab.

20 Q. Okay. And you said it does not include I
21 believe you phrased it as your current engagement in
22 Greece.

23 A. Yes.

24 Q. So can you tell me what your current
25 role -- or who your current employer is? I guess we

1 should start there.

2 A. My current employer is still MIT. My main
3 employer is still the Massachusetts Institute of
4 Technology, but I'm also working for the Greek
5 government as the governor of the newly established
6 National Cybersecurity Authority.

7 Q. Can you tell me a little bit about what
8 that role entails?

9 A. I am setting up a new authority which is
10 similar to the U.S.'s Cybersecurity and
11 Infrastructure Security Authority, CISA, so it has
12 to do with -- it's a regular -- mostly a regular
13 authority about cybersecurity, so it issues -- it's
14 responsible for the regulations, the government
15 regulations, that have to do with critical entities
16 in Greece that have to take certain measures about
17 their cybersecurity.

18 Q. And what's -- what is your position?

19 A. As I said, I'm the governor.

20 Q. Governor. Okay.

21 A. At the top level. In the Greek word
22 translates to commander, so we don't use that
23 because it points to a military organization. We
24 use governor. For that sounds -- in the U.S. it
25 sounds bigger than it is, let's put it this way.

1 Q. And how long have you been in the role of
2 the governor for this new organization in Greece?

3 A. Two years.

4 Q. Three years. Okay.

5 A. Two years. Two years.

6 Q. And I believe you said during this time
7 you've also still been working at --

8 A. Yes.

9 Q. -- MIT, correct?

10 A. Yes, I'm still having my full-time job at
11 MIT and I commute between the two.

12 Q. That's quite a commute.

13 A. It is quite a commute. I have good
14 airline status, let's put it this way.

15 Q. So then let's switch to your other role at
16 MIT.

17 I believe I see from your CV that you're
18 part of the media lab, correct?

19 A. Yes.

20 Q. And you've been there since January of
21 1996, is that right?

22 A. Yes.

23 Q. And are you still the director of
24 computing?

25 A. Exactly.

1 Q. So what does that role entail?

2 A. It entails being responsible for all the
3 digital infrastructure that the lab uses to do its
4 research and daily operations.

5 Q. So you do the day-to-day research
6 yourself?

7 A. I'm doing research myself too, but my main
8 job is to make sure that everybody else has the
9 equipment and the equipment is functioning to
10 perform their own research.

11 Q. I see.

12 Are you focused on mostly the hardware
13 aspects, the software aspects, or both in your role?

14 A. Both.

15 Q. Both.

16 And for your research, what is that --
17 what is the focus of your research?

18 A. The focus of my research has been mostly
19 networking, and most of my work had to do with
20 wireless communications.

21 Q. Would you mind giving me an example of,
22 say, a current --

23 A. So I --

24 Q. -- research project that you're working
25 on?

1 A. Research project that I worked on had to
2 do with characterizing the performance of MIT's
3 wireless LAN infrastructure and something that
4 resulted in finding certain issues with the
5 implementation of a very large vendor and
6 consequently switching vendors for the whole campus.
7 MIT has one of the largest wireless LAN
8 installations in the world, over 12,000 access
9 points at this point in time.

10 Q. Wow. That -- so your description there,
11 that sounded like it was more like practical based.

12 Are you also doing, you know, research
13 separate from that, or is -- when you refer to
14 research, are you referring to --

15 A. My research.

16 Q. Oh, excuse me. Sorry, Mr. Bletsas.
17 Remember, we need to make sure that we don't talk
18 over each other to make Ms. Witt's life a little
19 easier.

20 A. My --

21 Q. So let me just -- let me ask it again.

22 So do -- the example that you just gave
23 sounded like it was more of like a practical, you
24 know, correction of an issue you're finding, you
25 know, in the infrastructure that's currently at MIT.

1 Do you also do research where you're, you
2 know, conducting the experiments or you're
3 researching theory or something along those lines
4 separate from sort of the everyday running of
5 facilities at MIT?

6 A. My research is very practical because it
7 involves infrastructure that other people have to
8 use. So, for example, one of the things that I have
9 been doing recently is figuring out what's the most
10 economical way to run certain machine learning
11 tasks, for example, how to build -- (inaudible) --

12 THE COURT REPORTER: Say that again? I'm
13 sorry, say that again?

14 THE WITNESS: Yes. How to build the
15 cheapest possible computing system that will be
16 able to accomplish a specific task, machine
17 learning task.

18 So I do these kind of practical things.
19 It's still research because nobody has answered
20 that question before, but I don't consider
21 myself an academic. I consider myself more of
22 an engineer --

23 BY MR. STANFORD:

24 Q. Okay.

25 A. -- if you're asking me.

1 Q. Yes, that -- yeah, that answered my
2 question. Thank you.

3 Have you ever done any consulting outside
4 of your work at MIT?

5 A. A lot.

6 Q. A lot?

7 A. Yes.

8 Q. Have you ever consulted for the
9 petitioner, Samsung?

10 A. No.

11 Q. Have you ever done any work for Samsung
12 outside of this case?

13 A. No.

14 Q. In the prior case that you mentioned where
15 you were deposed from a few years ago, could you
16 tell me a little bit about the subject matter of
17 that case? You mentioned it was a patent case, but
18 do you recall if it was patent infringement that you
19 were consulting on, was it validity? You know, do
20 you recall what the issues were in that case?

21 A. Wasn't streaming. No, that was
22 consulting. That was legal consulting.

23 No, I don't recall. That was several
24 years ago, and I don't recall exactly what it was,
25 but I can tell with certainty that it had to do with

1 networking.

2 Q. Okay.

3 A. Something that had to do with networking.

4 There has been a lot of legal consulting since then,
5 but I don't recall that. It was several years back.

6 Q. When you say legal consulting, what do you
7 mean?

8 A. The last -- so I provided the last -- my
9 last engagement I provided an opinion to a patent
10 holder regarding the applicability of their patent.

11 So I examined other patents and actually
12 mostly whether the mechanisms by which certain
13 things operate, so I examined equipment and I tested
14 equipment and I provided an opinion as to whether
15 the operation of that equipment was covered under
16 their patent.

17 Q. It was an infringement opinion, is that
18 right?

19 A. Probably. I don't know. They asked me
20 and said, "Tell us how this thing works and if it's
21 related to what you see on this patent." I don't
22 know if it resulted in infringement proceedings. In
23 my opinion it was a technical examination as to
24 whether the mechanism that I observed was related or
25 described in the patent.

1 Q. So it sounds like it was not part of an
2 active case.

3 A. No, it wasn't part of an active. Most of
4 my legal work wasn't part of legal proceedings at
5 that point. It was technical opinions.

6 Q. So a technical opinion would be, like you
7 just described, comparing a patent to a product, is
8 that right?

9 A. Yeah.

10 Q. Would you also look at a patent and
11 compare it to prior art?

12 A. Yes.

13 Q. And were you working for a company when
14 you were doing this, or are you self-employed?

15 A. I'm always -- I have been working for
16 the -- for the MIT Media Lab for the past 31 years,
17 so I have always been --

18 Q. Right, but does your work -- when you were
19 giving these technical legal opinions --

20 A. Once my --

21 Q. -- were you doing it through your
22 employer, MIT?

23 A. No, this have nothing to do with my
24 employer. This my own opinions.

25 Q. Okay. And you're doing that

1 independently, or have you created a company that
2 you work --

3 A. No.

4 Q. -- either with yourself or others?

5 A. No. So as an individual.

6 Q. Okay.

7 A. There is no company.

8 Q. Okay.

9 A. I declare all the income and get taxed on
10 top.

11 Q. Don't worry, I won't ask you anything
12 about your taxes.

13 A. No. There is no company involved, so I do
14 it on my own.

15 Q. Okay. About how many times would you say
16 you've provided these types of technical opinions?

17 A. I do one or a couple a year maximum.
18 Sometimes maybe I have done three, but there are
19 years that I have done none. I don't --

20 Q. Okay. So in a total number, can you give
21 me -- like are we talking --

22 A. No.

23 Q. -- 10, 20, 30?

24 A. More than ten.

25 Q. Okay.

1 A. Probably less than 30, but more than 10
2 for sure.

3 Q. Okay. So when did you first hear about
4 this IPR proceeding?

5 A. Couple of months, maybe a little bit --
6 maybe three months ago when the counselors
7 approached me.

8 Q. So would that have been around maybe May
9 or so of --

10 A. Yeah.

11 Q. -- this year?

12 A. I think so.

13 Q. You said you were -- it was counsel for
14 the petitioner that reached out to you, is that
15 right?

16 A. Yes. Actually, let me rephrase that. A
17 colleague of mine that also worked on this case
18 suggested send that email to both of us, said, "Are
19 you interested in this?" I said yes, and then we
20 started talking with the counselors.

21 Q. So someone else had heard of this case and
22 told you about it, is that right?

23 A. No. The counselors told me about it. A
24 colleague of mine made the introduction. I never
25 discussed the case with anybody else but the

1 counselors.

2 Q. Do you recall the name of that colleague?

3 A. Yes. Joe Paradiso.

4 Q. Are you aware that Joseph Paradiso was
5 also working on this case --

6 A. Yes, I am. The counselors informed me
7 about that.

8 Q. Did you ever talk to Dr. Paradiso about
9 this case?

10 A. No.

11 Q. When he -- I believe you said he emailed
12 you about this case, do you recall what he said?

13 A. That "this is a case that I believe falls
14 within your expertise." He made the introduction to
15 the counselors, "talk to them if you are
16 interested."

17 Q. Anything else?

18 A. Excuse me?

19 Q. Did he say anything else?

20 A. No.

21 Q. When you decided to -- or when you were
22 retained for this case, did you review the full
23 record of all the documents that had been filed so
24 far in the case?

25 A. No, I did not do that. My engagement is

1 to provide my opinion on a very -- on a subset of
2 the claims.

3 Q. So did you read the petition?

4 A. I read the petition. I went through the
5 petition very quickly.

6 Q. Okay. Did you read Dr. Paradiso's
7 declaration that he submitted along with that
8 petition?

9 A. No.

10 Q. Did you read the patent?

11 A. I read two patents.

12 Q. Did you read the patent at issue here,
13 which is -- we'll call it the '088 Patent? That's
14 the U.S. Patent 11,026,088.

15 A. I went through the -- through it quickly
16 and focused on the things that involved me.

17 Q. Okay. When you say you went through it
18 quickly, you read it, right?

19 A. Yeah.

20 Q. Did you -- are you aware that there are
21 multiple prior art references that the petitioner is
22 asserting against the claims of the '088 Patent?

23 A. I don't know the exact number. I assume
24 what you're saying is true.

25 Q. Well, if you read the petition, I think

1 you would have seen that there are these prior art
2 references that the petitioner is asserting
3 invalidates claims of the '088 Patent.

4 Did you see that when you reviewed the
5 petition?

6 A. I focused my declaration and my work on
7 very specific questions. I didn't try to address
8 all the questions that are there. I didn't
9 review -- I'm not -- I haven't read Joe Paradiso's
10 declaration. I focused on two very specific
11 questions and two very specific claims.

12 Q. Okay. But that was not my question.

13 My question was: You said you read the
14 petition, so I'm just simply asking did you --

15 A. It was --

16 Q. -- did you realize -- excuse me,
17 Mr. Bletsas.

18 A. Yeah.

19 Q. Did you realize when you were reading
20 through the petition that there are prior art
21 references that are being asserted against claims of
22 the '088 Patent?

23 A. Isn't that always the case when we have
24 cases like that? When -- we are here because there
25 are probably differing opinions.

1 As I said, my engagement was pretty
2 limited, and I tried to provide answers to
3 essentially two claims or counterarguments to two
4 claims, and the rest I didn't spend any time or
5 thought on. They do not concern me. I was asked
6 about two specific things, and as you can see from
7 my declaration, I provided answers on those two
8 specific things.

9 So if you are asking me about prior art in
10 general about this case, I'm not aware of it. It
11 didn't concern me. I wasn't asked to opine on that
12 prior art.

13 Q. Well, so let's -- let's just make sure
14 that I'm following you correctly here.

15 So there -- you said you read the
16 petition.

17 So there are six prior art references that
18 are discussed in that petition, right?

19 A. Yes, I take your word for it.

20 Q. Okay. Did -- so let's just go through
21 them very, very briefly just to confirm your
22 understanding.

23 So one of them is a -- is a reference that
24 is with the inventor's name of Iwami, and that's
25 U.S. Patent Application Publication Number

1 2019/0053149.

2 Do you recall seeing Iwami in the
3 petition?

4 A. Yes, I recall seeing Iwami.

5 Q. And did you read that prior art reference?

6 A. I went through it and --

7 Q. And when you -- oh, I'm sorry.

8 A. I focused, I went through it, and as I
9 said, my declaration is limited in scope, it doesn't
10 cover this whole case. It covers two specific
11 things that have to do with whether communication --
12 under what conditions we can consider a
13 communication session broadly, and everything else
14 you have to ask other technical experts.

15 My declaration is very specific, so if you
16 are going to ask me about everything that is in this
17 case, I cannot answer those. I'm not here to answer
18 that. My declaration is very clear, and so...

19 Q. The reason that I'm asking you these
20 questions is because I want to understand the scope
21 of not only what your opinions are, which you've now
22 stated a few times, but what you considered when you
23 were forming those opinions.

24 So maybe what would be helpful is if you
25 would turn to I believe it's paragraph 21 of your

1 declaration.

2 A. My declaration, yes.

3 Q. Yes. So it's Exhibit 1049 that I dropped
4 into the chat.

5 A. Yes. And paragraph 21. Yes.

6 Q. So paragraph 21 is under the heading that
7 states Other Materials --

8 A. Other Materials Relied Upon, yes.

9 Q. Yes. And, sorry, again, Mr. Bletsas,
10 please remember we can't talk over each other
11 because the reporter will not be able to keep the
12 record.

13 A. Okay.

14 Q. I know it's hard. I know it's not
15 natural. We all have to do it when we do
16 depositions, but we got to try our best.

17 So paragraph 21 then reads, "In forming
18 the opinions set forth in this declaration, I have
19 utilized my own experience and expertise, including
20 regarding the knowledge and capabilities of a person
21 of ordinary skill in the relevant art in the
22 timeframe of the claimed priority date of the '088
23 patent."

24 A. Correct.

25 Q. Do you see that?

1 A. Yeah.

2 Q. So the reason I am asking you about the
3 various documents you reviewed is because in this
4 paragraph it doesn't provide a list of all the
5 documents that you reviewed, and nowhere else in
6 your declaration that I was able to find was there a
7 list of all the documents you reviewed.

8 A. I think my declaration has a list of
9 citations at the end.

10 Q. Could you point me to that? Maybe I
11 missed it.

12 A. I provided citations. Zero exhibits.
13 Excuse me. Where's the exhibit list? I have
14 provided a list of citations. Exhibits. There is
15 the point -- here you are, page 2.

16 Q. The table of exhibits, is that what you're
17 referring to?

18 A. This is the table of exhibits that I'm
19 referring to, and my -- there is a list of exhibits.
20 I don't cite all of those.

21 Q. So did you consider all of these exhibits
22 when you were forming your opinions?

23 A. No. I considered the ones that I'm
24 listing in my declaration.

25 Q. And is that list what is here on page 2?

1 A. That is a superset of that -- of what I
2 considered, and it has to do probably with the whole
3 case at this point in time. But if you look at my
4 declaration, I am not citing all of them, I'm citing
5 a subset of those.

6 Q. So did -- if you did not cite a document
7 in your declaration outside of this table of
8 exhibits, if you did not cite that document, does
9 that mean you did not consider it or review it in
10 preparing your opinions?

11 A. Yes.

12 Q. Okay. So you only considered the
13 documents that you cited in your -- the body of your
14 declaration and not within this table of exhibits.

15 A. Yes.

16 Q. Okay. So let's move back to paragraph 21,
17 if you will.

18 A. Paragraph 21.

19 Q. Of your declaration.

20 So I read this for you before, but I just
21 want to key in on a couple of points here just to
22 make sure that I'm fully understanding, you know,
23 how you based your opinions.

24 In paragraph 21 you state that, "I
25 utilized my own experience and expertise, including

1 regarding the knowledge and capabilities of a person
2 of ordinary skill in the relevant art."

3 Do you see that portion?

4 A. Uh-uh.

5 THE COURT REPORTER: Is that a yes?

6 THE WITNESS: That's a yes, yes. Sorry.

7 BY MR. STANFORD:

8 Q. What is your understanding of the meaning
9 of "a person of ordinary skill in the relevant art"?

10 A. Person of ordinary skill in the relevant
11 art.

12 Q. You also -- if it helps, you also
13 abbreviated this later as POSITA, P-O-S-I-T-A.

14 A. Yeah, that is if somebody reads all that
15 material, what they would understand having a
16 standard level of skill. I'm not a lawyer, so it
17 means -- doesn't mean too much to me in that regard.

18 Q. So when you refer to a person of ordinary
19 skill in the relevant art or you use the phrase
20 POSITA, P-O-S-I-T-A, in your declaration --

21 A. That is --

22 Q. -- who are you referring to?

23 A. Probably somebody with less skill than me
24 in the specific questions.

25 Q. Did you form a definition that you used

1 for --

2 A. No. Those are legal definitions. They
3 were provided to me -- the legal language in this
4 declaration was provided to me by counselors, so
5 I...

6 Q. Okay.

7 A. This is a standard term from what I
8 understand. This is a standard clause.

9 Q. Yes, the word person of ordinary skill in
10 the relevant art is a -- yes, is a known term in
11 we'll call it the patent world.

12 What I would like to know from you is who
13 is this person of ordinary skill in the art in your
14 mind when you were forming these opinions?

15 For example, what qualifications would
16 that person have to qualify as a person of ordinary
17 skill in the relevant art?

18 A. Somebody who has worked with those
19 technologies and is -- and knows how these things
20 operate, the principles that they are based upon.

21 Q. When you were writing your declaration,
22 did you think about and come up with, you know, say,
23 a list of qualifications that would define who this
24 person is as the person of ordinary skill in the
25 relevant art?

1 A. No, I did not. When I was writing my
2 declaration, what I was considering is whether I
3 could form an opinion quickly based on my experience
4 and expertise, and that was my main criteria.

5 If something was totally unknown to me, I
6 would have said that I cannot provide that opinion.
7 If there was something that I had to -- because the
8 questions that were asked of me were very specific,
9 and that was my main criteria, can I answer those
10 questions clearly based on the facts of stated --
11 not the facts, what is stated on the document
12 that -- on the documents that I was provided.

13 Q. Okay. Understood.

14 And just to make sure I'm clear, what were
15 the documents that you were provided?

16 A. I was provided the patents, the relevant
17 patents, Iwami and '088, and -- I don't have the
18 list in front of me right now.

19 Q. Do you recall if you were given the
20 petition? I believe you said earlier you read that.

21 A. I'm pretty sure I was given the petition,
22 yes.

23 Q. Were you given the other prior art
24 references besides Iwami? I can list them off for
25 you if that would be helpful.

1 A. Everything that's on Exhibit A on this
2 list that is written there, no, I wasn't given all
3 of those.

4 Q. But there -- within that list there are
5 six prior art references that are applied here. One
6 of those is Iwami, and then there are five others.

7 A. Yes, I --

8 Q. Do you recall if you were given the other
9 five as well?

10 A. The -- no, I wasn't given the other five.
11 However, the questions that I was asked to answer
12 were not -- I believe the other references are not
13 relevant.

14 Q. Okay. So that's okay.

15 So you reviewed --

16 A. That's the information that I was given,
17 and I reviewed the -- I tried to answer the
18 questions that I was given, including
19 Dr. Pachamanov's statement/declaration.

20 Q. So you reviewed Dr. Pachamanov declaration
21 --

22 A. Yes, I did, exactly, because that's mostly
23 what I'm trying to reply with my --

24 Q. Yes. Yes, I noticed that as well. I was
25 just trying to make sure the record's clear.

1 A. That was my focus. That was my focus. So
2 in order to rebut certain statements that
3 Dr. Pachamanov made, I didn't have to go back to all
4 of the references because Dr. Pachamanov made very
5 general statements that could be rebutted easily in
6 my opinion, in my professional opinion.

7 Q. Okay. And we'll get to what those
8 opinions are in a minute. I just want to understand
9 how you got there is the reason I'm asking these
10 questions right now.

11 A. Yes.

12 Q. So I'm just going to ask you a few more
13 questions about that, though.

14 A. Yeah.

15 Q. So you reviewed now -- let me make sure I
16 have the list correct, please -- the petition, you
17 reviewed Iwami, the prior art reference Iwami, you
18 reviewed the '088 Patent, you reviewed
19 Dr. Pachamanov's declaration that he submitted with
20 the patent owner response.

21 Did you review the patent owner response
22 itself?

23 A. I don't remember to do so. I don't
24 recall.

25 Q. Do you recall if you were provided a copy

1 of it?

2 A. I don't recall that. I was provided with
3 many -- I was provided with quite a few documents.
4 As I said again, I was instructed to look at
5 Dr. Pachamanov's statement, and this is where I've
6 based my response and my opinion.

7 Q. Did you -- were you provided a copy of
8 Dr. Pachamanov's deposition transcript?

9 A. I don't think so. And if I was, I didn't
10 read it.

11 Q. Do you recall if you were provided a copy
12 of -- I believe you answered this, but let me -- I
13 don't recall the answer.

14 Were you provided with a copy of
15 Dr. Paradiso's declaration that he submitted?

16 A. I don't recall so.

17 Q. Okay. Do you recall if you were provided
18 with a copy of Dr. Paradiso's deposition transcript?

19 A. I don't think so.

20 Q. Okay. So to the best of your memory,
21 would the following be a complete list of the
22 documents that you were provided with and that you
23 reviewed: The petition, the '088 Patent, the prior
24 art reference Iwami, the patent owner response, and
25 Dr. Pachamanov's declaration that was submitted with

1 the patent owner response? Is that a complete list?

2 A. I think so.

3 Q. Okay. Now, I saw there were a few other
4 documents -- new documents that you submitted with
5 your declaration.

6 Did you obtain these yourself, or were
7 these also provided to you by counsel or by
8 petitioner, Samsung?

9 A. I was provided with some and I retrieved
10 some myself.

11 Q. Okay.

12 A. So there is certain standards what I think
13 I retrieved myself.

14 Q. And the standards, are you talking about
15 the IEEE standards?

16 A. Yes.

17 Q. So moving back to your paragraph 21 of
18 your declaration, we've talked a little bit about
19 what a person of ordinary skill in the art might be
20 in your understanding, but you used the phrase
21 "relevant art" in paragraph 21.

22 What is the relevant art that you believe
23 is the technology at issue for the '088 Patent?

24 A. There's plenty of technology involved in
25 the '088 Patent. As I said repeatedly, my opinion

1 has to do with a very specific question, and that's
2 the prior art that I considered based on my
3 experience. I didn't try to go to all the prior art
4 that might be involved on the '088 or the Iwami
5 patents.

6 Q. Right, I understand. I'm not asking
7 about --

8 A. As far as -- as far as paragraph 21 is
9 concerned, that's the prior art that I considered,
10 the prior art that had to do with the questions that
11 I answered and the opinions that I provided.

12 Q. Let's look at -- you actually have a
13 statement in here that I believe states what your --
14 I believe it's paragraph -- is it paragraph 2 of
15 your declaration? If you'll go there --

16 A. Yeah.

17 Q. -- and let me know when you're there.

18 Okay. So here you say that -- you were
19 asked to provide an opinion on the question of, and
20 then I'll quote here, "whether any disruption at
21 Layer-2," parenthesis, "(Medium Access Control, or,"
22 quote, "'MAC') of an Open Systems Interconnection
23 (OSI) stack - using WiFi radios in this context -
24 necessarily disrupts connectivity at Layer-4," in
25 parenthetical, "(Transmission Control Protocol or

1 'TCP'/User Datagram Protocol or 'UDP' sessions)."

2 Do you see that?

3 A. Yes.

4 Q. Okay. And you discussed then -- correct
5 me if I'm wrong, but I believe then throughout your
6 declaration then you are discussing how these
7 disruption we'll call it that you refer to here
8 affects claim element 1E of the '088 Patent which
9 relates to maintaining a connection, is that
10 correct?

11 A. Uh-uh.

12 THE COURT REPORTER: Is that a yes?

13 BY MR. STANFORD:

14 Q. I'm sorry, I couldn't hear you.

15 A. Yes. Sorry.

16 Q. Yes, I'm sorry. Again, I'm sorry. I know
17 depositions are a little weird. Everything has to
18 be verbal so she can write -- so Ms. Witt can write
19 it down.

20 So okay. I'm sorry, I was just rereading
21 the transcript to make sure where we were here.

22 So you were providing opinions on claim
23 element 1E and the maintaining the connection
24 portion of that element, is that right?

25 A. Uh-uh. Yes.

1 Q. And is the statement you have here in
2 paragraph 2 that I read, was that the -- does that
3 encompass the task that you were given by
4 petitioner?

5 A. Yes.

6 Q. Is that fully comprehensive?

7 A. Yes.

8 Q. And in forming this opinion, you are --
9 you had to read Dr. Pachamanov's declaration,
10 correct?

11 A. Uh-uh. Yes.

12 Q. And in certain paragraphs within your
13 declaration, you're directly responding to some of
14 his comments, is that correct?

15 A. I believe so, yes.

16 Q. And you're also discussing in other
17 sections the -- this concept of how a connection may
18 be maintained, is that right?

19 A. Exactly.

20 Q. Okay. And you're -- and in doing so,
21 you're comparing what the claim element requires,
22 claim element 1E, to how the technology functions,
23 how the '088 -- excuse me, the '088 Patent
24 functions, and then later on in your declaration how
25 the prior art functions within this context, is that

1 correct?

2 A. I think that you are expounding it a
3 little bit. I think paragraph 2 is very clear as to
4 what I do, what my opinion is.

5 Q. So help -- help correct me then. Where
6 did I go wrong in my summary just now about the
7 scope of your opinion?

8 A. I didn't examine -- as I said multiple
9 times, I haven't examined all the prior art relevant
10 to this case.

11 I was asked to opine on whether -- on a
12 very specific point, on a very specific length, that
13 a disruption at Layer-2 necessarily breaks a
14 connection at Layer-4, and that is what I have
15 opined on.

16 And as -- there are plenty of exhibits in
17 this case in total. I did not read all of them, and
18 I do not have an opinion about every claim of this
19 case. My scope, the scope of my engagement, was
20 very limited to answer that specific question, which
21 and that's what I did.

22 So you are trying to lead me into
23 documents that I might -- you are asking me
24 questions regarding documents that I clearly told
25 you that I haven't read or examined, so that's why I

1 cannot answer those questions.

2 Q. Understood. And let me be clear, and
3 maybe I misspoke. I don't believe I asked you about
4 any documents that you said you haven't read.

5 I was simply asking about the '088 Patent
6 and the one prior art reference Iwami, which you
7 said -- both of which you said you have read,
8 correct?

9 A. Yes. And as you recall, those are quite
10 lengthy documents, and the claims are quite -- there
11 are many claims in there. I'm focusing on very
12 specific ones in my declaration, so that's what I'm
13 prepared to answer.

14 I cannot opine on things that I didn't
15 study as far as this dispute is concerned, this
16 patent dispute is concerned. I didn't examine
17 everything. I focused on a very specific question.

18 Q. Understood. So -- and I don't want to --
19 I'm not trying to ask you about anything that you
20 have not reviewed. This is not -- I'm not trying to
21 catch you or anything like that. I just want to ask
22 you about what you did review to make sure I
23 understand the full scope of it since, as we talked
24 about earlier, there just wasn't a complete list of
25 everything you looked at. That's the reason --

1 A. Yeah.

2 Q. -- again, why we're talking about this.

3 A. And the complete list of what I looked at
4 for the purpose of my declaration is cited in my
5 declaration.

6 Q. You mean they are the documents that are
7 cited in the declaration --

8 A. The documents I cited --

9 Q. -- correct?

10 A. -- in my declaration, and for specific
11 documents I focused on the sections that had to do
12 with the question that I asked. So I cannot cite
13 the '088 Patent or the points of it. I focused on
14 specific claims on my -- the scope of my engagement
15 was very focused and narrow.

16 Q. Understood. So you -- and so I want to
17 ask you about those specific areas that you were
18 asked to look at.

19 So when -- in paragraph 2 when you're
20 talking about this disruption, if I can just sort of
21 shorten it to that concept in general, you're
22 discussing this in the context of claim element 1E,
23 correct?

24 A. I have to look at the document to answer
25 precisely.

1 Q. Okay.

2 A. I trust that you are not misleading me, so
3 I would not say yes under that condition. I don't
4 remember the numbering of the claims.

5 Q. I understand. And actually, I can help
6 you out --

7 A. Yes.

8 MR. PANNO: Did we lose Matt?

9 THE COURT REPORTER: I think we lost you,
10 Matt, for a second.

11 MR. STANFORD: Oh, can you hear me now?

12 THE COURT REPORTER: Yes.

13 MR. STANFORD: Okay. What was -- let me
14 see from the -- what was the last thing? Oh,
15 okay.

16 BY MR. STANFORD:

17 Q. So if you'll go to page 6 of your
18 declaration, there's a table of claims. In that
19 table the claims are broken down by claim element
20 and are labeled.

21 A. One minute. "Wherein, while the
22 communication device" -- (mumbling).

23 Q. So I'll give you a moment. Yeah, please
24 go ahead and read.

25 A. Yes.

1 Q. Okay. And so do you recall reading --

2 A. Yes.

3 Q. -- claim element 1E?

4 A. Yes.

5 Q. Okay. And the opinions you're providing,
6 they're in the context of -- although I'm sure it's
7 the entire claim, I'm sure you, you know, reviewed
8 the entire claim element, you're really focusing on
9 towards the end of element 1E where the claim states
10 that the -- I'm just trying to read the entire
11 portion of it. I guess it's about halfway through.

12 That "upon receiving, by the communication
13 device, the command from the first communication
14 terminal, the communication device is configured to
15 control how to display the data received from the
16 second communication terminal while maintaining" --

17 A. While maintaining --

18 Q. -- "the connection with the second
19 communication terminal."

20 A. Yes.

21 Q. And as you nod along, the "while
22 maintaining" portion of this is what you focused
23 your declaration on --

24 A. Right.

25 Q. -- at least in part, is that right?

1 A. Yes.

2 Q. Okay. So when I refer to claim element
3 1E, you know, later on as we talk today, will you
4 understand that this is what I'm referring to, this
5 claim element?

6 A. Yes. Thank you.

7 Q. Okay. And I apologize. I should have
8 started with that to make sure that we were both on
9 the same page.

10 A. Thank you.

11 Q. Now, we've been going for about an hour
12 now, if I clocked the time correctly. Would we like
13 to take just a short, you know, five-, ten-minute
14 break?

15 A. No.

16 Q. You good?

17 A. That's not to say everybody else is -- I'm
18 fine to keep going.

19 Q. That's okay with me, but --

20 A. No, it's okay.

21 MR. STANFORD: Nick, do you want to take a
22 break?

23 MR. PANNO: Yeah, it's fine with me too.
24 You know, I'm good if everyone else is. It's
25 all right. You know, this is fine.

1 MR. STANFORD: Are you sure?

2 MR. PANNO: Yeah, yeah.

3 THE WITNESS: If Leah is fine with that?

4 THE COURT REPORTER: I'm fine with that.

5 MR. STANFORD: Okay.

6 BY MR. STANFORD:

7 Q. Let me just scroll down through your
8 declaration here.

9 Okay. So if you'll go to page 8 of your
10 declaration, and it's the same page where paragraph
11 21 is, and right after paragraph 21, this is, my
12 understanding, the start of your technical
13 discussion and your opinions, is that right?

14 A. At page 8 of my declaration still has --
15 can you repeat your question?

16 Q. Sure. Were you able to find --

17 A. No, I'm on page 8 --

18 Q. Paragraph 18 of the PDF, page 8 of your
19 declaration.

20 A. Page 8 my declaration. Yes.

21 Q. Okay. So the section heading Section III,
22 Layer-2 Disruption and Layer-4 Session Continuity in
23 WiFi," you see that?

24 A. On page 8? No, I see the --

25 Q. It's on page 18 of the PDF, but your page

1 number --

2 A. 18. Sorry, I was on page 8. I was on
3 page 8. I was getting confused, that's why. Yes,
4 Layer-2 disruption, Layer-4 session. Exactly.

5 Q. Okay. So from here through to the end of
6 your declaration, these are where you provide your
7 technical opinions, right?

8 A. Yes.

9 Q. Okay. So now let's talk about some of
10 those. In the first paragraph of this section,
11 paragraph 22, you refer to the OSI stack.

12 Do you see that?

13 A. Yes.

14 Q. OSI is open systems interconnection,
15 right?

16 A. Yes.

17 Q. And OSI describes a -- the network in
18 multiple layers, in like seven layers, is that
19 correct?

20 A. Yes.

21 Q. Okay. So just to go through a couple of
22 those, the Layer-1 would be your physical layer,
23 right?

24 A. Yes.

25 Q. Layer-2 is the data link layer, which

1 includes the MAC sublayer, is that correct?

2 A. Yes.

3 Q. Okay. Layer-4 is the transport layer
4 which handles TCP and UDP, is that right?

5 A. Yes.

6 Q. Okay. And then I believe then the last
7 layer -- this is not going through all the layers,
8 but then the last layer, Layer-7, is the application
9 layer, is that right?

10 A. Yes.

11 Q. Okay. I just want to make sure that I
12 know it because I'm not the expert here.

13 So in OSI, in general, is it true that
14 higher layers depend on the functioning of lower
15 layers?

16 A. Yes.

17 Q. Okay. And so, for example, if Layer-2
18 connectivity, was lost, then data cannot flow to
19 Layer-4, at least during the period in which, you
20 know, that connection is lost, right?

21 A. In the period that Layer-2 can -- the
22 devices cannot talk to each other, yes. I would
23 like to -- so that we are very clear, at Layer-2
24 when we're talking about internal packet
25 communications, there is no concept of connection.

1 Layer-2 only communicates. The connection is
2 established at Layer-4.

3 Q. And if -- okay. And -- but if you had
4 some sort of connectivity loss that affected
5 Layer-2, data couldn't flow from Layer-2 to Layer-4,
6 could it?

7 A. Data can always flow from Layer-2 to
8 Layer-4 because they are on the same node. Data is
9 flowing between Layer-1 from between -- in between
10 the different nodes.

11 So the fact that, again, we are talking
12 about packet communications here, we are not talking
13 about a continuous stream of beats. Let's assume
14 that everything is digital. We don't have a
15 continuous flow of beats going from node 1 to node
16 2. So that when that continuous beat stream is
17 interrupted, we say that we have loss of
18 communication.

19 We have packets, and depending on the
20 application, packets can arrive late. They don't
21 have to arrive -- we're not talking about
22 synchronized communications here, that the packet
23 has to arrive at the exact time all the time.
24 Depends on the application.

25 And that's exactly the gist of my argument

1 here that I think there is a confusion that because
2 we have an interruption at Layer-2, communication is
3 broken. The whole principle of TCP/IP and the
4 internet, that's why referencing one of the
5 fundamental papers of the internet, the whole point
6 there is that communication persists in the presence
7 of interruptions and unreliable communications
8 mediums.

9 And that's why I found Dr. Pachamanov's
10 argument a little bit, say -- how should I describe
11 it -- too general in that regard that he was trying
12 to generalize in a way that makes his argument
13 mute -- moot. It goes against the principles of the
14 internet, the statement that you made and asking the
15 question like that, like whether Layer-2
16 interruption interrupts communication at Layer-4.
17 The answer to that under general, if you want to
18 answer it generally, is no. Layer-4 is designed to
19 take into consideration such interruptions.

20 Then we can go into further detail and see
21 under which conditions that interruption happens,
22 and that's why I have included 82.11 standards that
23 show how this mechanism could work and prevent the
24 loss of communication under the circumstances
25 described in the patent and Dr. Pachamanov's

1 declaration.

2 Q. So that was a very thorough answer. I
3 want to make sure that I'm picking up on all of
4 that.

5 So in -- let me start with your critique
6 of -- we'll call it of Dr. Pachamanov's general
7 opinions as you phrased it.

8 A. He --

9 Q. His -- hold on. Is his -- is your -- it
10 appears as though what you're saying -- and please
11 correct me if I'm wrong -- is that he made
12 statements in his declaration that were general
13 statements that were true, but in your opinion it's
14 the nuances that were left out of that that are what
15 control whether or not, you know, the claim
16 limitation is met when it discusses -- when the
17 claim discusses maintaining the connection.

18 MR. PANNO: Objection to form.

19 BY MR. STANFORD:

20 Q. Is that correct?

21 MR. PANNO: Objection to form. Objection
22 to form.

23 THE WITNESS: I want to be clear. What I
24 was saying is that he took a very specific
25 case, he described what happens under very

1 specific conditions, and he generalized on
2 that.

3 So he took the conditions out and he said
4 that this is what happens all the time. No,
5 this is not what happens all the time.
6 Actually, the opposite happens most of the
7 time. And this is my main objection --

8 BY MR. STANFORD:

9 Q. Okay.

10 A. -- to his argument.

11 Q. Okay. And just to make sure I understand
12 that then, was he -- let me make sure I use your
13 words.

14 Was the specific case that Dr. Pachamanov
15 described, was his description correct of that case?

16 MR. PANNO: Objection to form. Oh, you
17 can answer.

18 THE WITNESS: Oh, I can answer? Okay.

19 BY MR. STANFORD:

20 Q. You should answer, yes. Unless Mr. Panno
21 says not to answer, you still answer even though he
22 objects.

23 A. Okay. I believe that Dr. Pachamanov
24 focused on a specific WiFi mode of operation that --
25 and considers that to be the only possible mode of

1 operation.

2 So if you accept the fact that the only
3 way for two WiFi radios that communicate like that,
4 yes, then his statement is valid. However, the
5 premise of the way he makes the statement is not
6 valid because those are not the only ways for WiFi
7 radios to communicate, and that's why I provided
8 examples and the standards in the WiFi standards
9 that describe other ways to communicate that will
10 make his statement not valid.

11 Q. Okay. Thank you.

12 So let's talk about some of the
13 alternatives that you provided, and I -- and there
14 was a fair amount of discussion in your declaration
15 about the concept, excuse me, of TCP and UDP,
16 correct?

17 A. Uh-uh.

18 THE COURT REPORTER: Is that a yes?

19 THE WITNESS: That's a yes. Sorry.

20 BY MR. STANFORD:

21 Q. It's okay.

22 So TCP is a connection-oriented protocol,
23 correct?

24 A. Yes.

25 Q. So TCP provides, we'll call it, reliable

1 delivery through acknowledgments and
2 retransmissions, is that right?

3 A. Yes.

4 Q. Okay. And then UDP is connectionless and
5 provides -- I'll just stop there.

6 UDP is connectionless, is that right?

7 A. Yes.

8 Q. Okay. And so UDP doesn't provide any form
9 of guaranteed delivery, is that right?

10 A. Yes.

11 Q. Okay. There's no like built-in
12 transmission -- retransmission mechanism for UDP,
13 correct?

14 A. Yes.

15 Q. Okay. So if a UDP packet is lost due to a
16 disruption, that packet is gone effectively unless
17 the application layer like re-requests it, is that
18 right?

19 A. Yes.

20 Q. Okay. For media content, say like video
21 content, streaming content, they rely on UDP, is
22 that right?

23 MR. PANNO: Object to form.

24 THE WITNESS: Most of the time, yes.

25 Again, depends on the application and the

1 application requirements. If it's reapplying,
2 applications rely on UDP just for the media
3 content. However, all the rest of the
4 negotiations and control information usually
5 flows through TCP.

6 BY MR. STANFORD:

7 Q. Okay. In your declaration, you discuss
8 the WiFi display specifications, correct?

9 A. Uh-uh.

10 Q. So Miracast?

11 A. Miracast as it is known, yes.

12 Q. Right. Okay. And I believe that was
13 Exhibit 1050 that you cited to, which was the WiFi
14 Display Technical Specification.

15 Do you recall that?

16 A. Yes.

17 Q. I'd like to talk just a little bit about
18 the -- actually, you know what? Let me drop that in
19 the chat, and while you're downloading it I'll ask
20 you a couple more general questions about it.

21 MR. STANFORD: So for the record, I'm
22 adding into the chat Exhibit 1050, which was
23 submitted along with Mr. Bletsas' declaration.

24 BY MR. STANFORD:

25 Q. So if you'll open that up.

1 A. Okay.

2 Q. So before we look at any specific section
3 of that, I just want to make sure that I sort of
4 understand like the concepts of Miracast briefly.

5 In Miracast if you're -- if there's -- let
6 me start over.

7 In Miracast when there is a switch from
8 two bands, say from a low frequency band to a high
9 frequency band, that would require a change in the
10 physical operating channel, is that right?

11 A. Yes.

12 Q. Okay. And when -- in Miracast when a
13 device wants to operate on a different channel, it
14 would typically need to form a P2P -- a new P2P
15 group or join an existing P2P group --

16 A. Yes.

17 Q. -- on that channel, is that right?

18 A. Yes.

19 Q. Okay. So the device just couldn't simply
20 switch channels without some sort of negotiation or
21 coordination, correct?

22 A. Coordination is the correct word here,
23 yes.

24 Q. Okay. Thank you. That's good to know.
25 That coordination process takes some

1 period of time, right?

2 A. Yes.

3 Q. Is there a set period of time in which
4 that must occur within?

5 A. Yes. All technical -- the demands on WiFi
6 standards have certain timing parameters that you
7 have to observe in order for communication to
8 continue uninhibited.

9 Q. So -- and during that coordination time
10 period that's specified, data wouldn't be able to
11 flow between the two devices on the original
12 channel, right?

13 A. Depends on where the data coming from and
14 going to, but in general, the coordination time in
15 all those protocols is pretty minimal compared to
16 the data transmission windows.

17 So that is, again, a general statement
18 that generalizes too much I think. So the answer is
19 yes for a couple of frames, but not for all of them,
20 so that's the nature of packet communications. Just
21 because one packet is not able to go through, you
22 don't say -- it's a very small time window.

23 So your statement is technically true, one
24 can answer yes, but that doesn't mean that
25 communication is broken or like nothing will happen

1 to the upper layer because the upper layers won't
2 notice that this is happening. The parameters
3 are -- the timing parameters are fixed, are set so
4 that usually applications don't even notice these
5 kinds of things.

6 There is also buffering, and when those
7 devices are engaged in this kind of setup, they know
8 how to hold traffic back so that there is no loss of
9 packets during that period, so...

10 Q. Okay. Thank you.

11 Going back to UDP and how Miracast
12 functions with UDP, so in Miracast, the content that
13 you're going to be displayed, so say the video
14 content, that's transported using what's called
15 real-time protocol over the UDP, is that right?

16 A. Uh-uh. Yes.

17 Q. And I believe when you were discussing
18 this in your declaration, you were pointing to
19 section 4.10 of the WiFi Display Technical
20 Specification --

21 A. Yes.

22 Q. -- which is Exhibit 1050, right? It's on
23 page 46 of the PDF if you'd like to just quickly
24 scroll down to it.

25 A. Yes, AV Streaming and Control.

1 Q. And I believe this is the section of the
2 specification that you cited to in your declaration
3 when you were discussing RTP.

4 And so I just want to make sure I'm
5 understanding. This is, you know, a little outside
6 my wheelhouse, these technical details here, so I
7 just want to make sure that I understand it
8 correctly.

9 What this is saying in a very, very brief
10 way -- and maybe what would be helpful is scrolling
11 down to the next page. We're on page 47 of the PDF
12 now. There's a figure 4, dash, 7, and then beyond
13 that onto the next -- really this entire section I
14 guess should say, 4.10, that the specification is
15 saying that streams of, say, MPEG-2, if I'm saying
16 that correctly, use real-time protocol, the RTP, to
17 carry those streams of MPEG-2 over UDP, is that
18 right?

19 A. Yes.

20 Q. Okay. So the video that would be
21 displayed by the display device, the sink device, is
22 carried over UDP, right?

23 A. Yes.

24 Q. Okay. And then I believe you mentioned
25 this earlier, that Miracast uses then a different

1 channel for control command, is that right?

2 A. It could, yes.

3 Q. All right. And is that --

4 A. It's not a requirement, but it could, and
5 that's the point.

6 Q. Is -- that separate channel was using TCP,
7 right?

8 A. Yes.

9 Q. For the control commands?

10 A. Yes.

11 Q. The -- if I understood from your
12 declaration correctly and from the specifications
13 here, the channel is called the user input back
14 channel, UIBC, is that right?

15 A. Yes.

16 Q. And that's what's discussed in the
17 specification starting on -- excuse me, in the WiFi
18 Display Technical Specification at section 4.11,
19 which is starting on page 51 of the document, is
20 that right? It's under the heading User Input Back
21 Channel.

22 A. Yes.

23 Q. So we have -- so based on these two
24 sections here then, you have the specification
25 prescribes that there is sort of these two channels

1 at play, right? We've got a media stream coming
2 over UDP and we have the control channel, the UIBC,
3 over TCP, right?

4 A. Yes.

5 Q. Okay. So if you would -- let's see maybe
6 the easiest way to do this would be -- if you would
7 scroll in your declaration to the table of claims.

8 A. Do you have a page number?

9 Q. Yes, it's page 6 of the PDF.

10 A. Yes, I'm there.

11 Q. In claim element 1E --

12 A. Yes.

13 Q. -- the beginning of that claim element
14 says, "Wherein, while the communication device
15 outputs data received from the second communication
16 terminal that has established the connection with
17 the communication device."

18 A. Yes.

19 Q. The outputting of this data is referring
20 to video content that's being displayed, correct?

21 MR. PANNO: Objection to scope.

22 THE WITNESS: Miracast is --

23 BY MR. STANFORD:

24 Q. You can still answer, Mr. Bletsas.

25 A. Yeah, Miracast is about mostly video

1 communications, so -- actually, not video
2 communications, video projection from a different
3 screen, so safe to assume that that's what it refers
4 to.

5 Q. That it's referring to video content
6 that's being output for display?

7 A. From one source device to a sink device.

8 Q. Okay. And as we were just discussing, so
9 that video content would be carried over UDP and not
10 TCP, right?

11 A. RTP, yes.

12 Q. RTP over UDP, right?

13 A. Over UDP.

14 Q. Okay. If you would scroll to paragraph 29
15 of your declaration. It starts on page 20 of the
16 PDF and carries over to the next page. Let me know
17 when you get there.

18 A. Uh-uh.

19 Q. So paragraph 29 you're discussing UDP,
20 correct?

21 A. Correct.

22 Q. And here you say in the first -- or,
23 excuse me, second sentence, you say, "Being
24 connectionless, UDP maintains no retransmission or
25 timeout state of its own."

1 A. Yes.

2 Q. "A brief Layer-2 disruption simply causes
3 packet loss for the duration of the gap," correct?

4 A. Yes.

5 Q. Okay. So let me make sure I'm
6 understanding that. And I think I am, but let me
7 make sure.

8 So if there is a Layer-2 disruption during
9 a frequency band switch, the video data being
10 transmitted during that disruption would be lost,
11 correct?

12 A. Yes, you can make that statement. That
13 statement is correct, but you, again, have to
14 qualify the conditions. So how big are the frames?
15 How fast is the channel switch? So if you have
16 small frames or large frames and the channel switch
17 is very -- takes very little time, you might not
18 lose anything. Depends on the encoding that you are
19 using, if there is correction in the encoding like
20 we do in satellites where, you know, you can lose a
21 lot of things and you still get the old stream.

22 So, again, it depends. But yes, we can
23 answer that your statement is true under certain
24 circumstances.

25 Q. Okay.

1 A. We always have to qualify all the
2 parameters because otherwise there are mechanisms
3 for -- especially there have been mechanisms
4 developed for very fast streams in these days for
5 specific kind of scenario, especially when you are
6 using real-time communications like we do right now.

7 If you're streaming a movie, things are
8 very easy. You can collect in a variety of ways.
9 If we are doing what we're doing right now, which
10 you don't want my video to arrive in five seconds
11 later, then it's a slightly harder problem.

12 Q. So real-time streaming of video content
13 versus, say, like what Netflix would be doing, is
14 that right?

15 A. Yes. Yes.

16 Q. Okay. So in paragraph 29 then you keep
17 going. You actually refer to streaming applications
18 here, and you say, "Streaming applications absorb
19 this" -- this being I presume the packet loss?

20 A. Packet loss.

21 Q. -- okay. The "streaming applications
22 absorb this through jitter buffers and
23 error-concealment techniques," is that right?

24 A. Yes.

25 Q. So an error concealment technique, that

1 would be, I guess the name implies, hiding the
2 effects of the lost data from like the end user's
3 experience, right?

4 A. Yes.

5 Q. Okay. But concealing the loss of the data
6 from the user is different from actually maintaining
7 that connection and data flow, correct?

8 A. Actually, no. That -- this is I would say
9 unequivocally no. The purpose of a communication is
10 to transmit a message. If the receiver gets the
11 message in its entirety, then there was no
12 disruption in communication. That's what TCP does.
13 That's what streaming video does. You lose a lot of
14 packets in streaming video.

15 Nevertheless, most of the times when
16 you're watching a Netflix movie, you have perfect --
17 if you have a decent internet connection, you never
18 notice anything despite the fact that you lost a lot
19 of packets.

20 So, again, that's the essence of
21 communications, and we shouldn't redefine that for
22 the purpose of any patent litigation.

23 Q. So then if I'm understanding you
24 correctly, in your mind there's a distinction here
25 that's important between a disruption in

1 communication versus a disruption in a connection,
2 is that right?

3 A. A disruption of connectivity versus
4 disruption in communication. Communication
5 disruption mean that the message doesn't get
6 through, and the message might not get through
7 because, you know, it's time sensitive. So certain
8 things have to get through in time. Some others
9 don't. Some others, you know, there is a certain
10 room to play.

11 So -- but no, if there's packet loss or
12 frame loss, doesn't mean that we have disruption in
13 communication.

14 Q. Okay. I'm sorry to do this, but I know
15 you kept going through the last break, but I've had
16 a little bit too much coffee today, so if you don't
17 mind us taking like a brief break --

18 A. It's okay.

19 Q. -- I'd really appreciate it.

20 A. It's okay. It's okay, Matthew.

21 MR. STANFORD: So we can go off the
22 record, Ms. Witt.

23 (Recess taken from 10:44 a.m. to
24 10:54 a.m.)

25 BY MR. STANFORD:

1 Q. Okay. Welcome back, Mr. Bletsas.

2 Did you speak with anyone during the
3 break?

4 A. No. No.

5 Q. Did you speak with counsel during the
6 break?

7 A. No.

8 Q. So I just want to round out our discussion
9 about Layer-2 and Layer-4 that we've been sort of
10 going over so far today.

11 So your declaration argues that, and
12 you've stated here today, that Layer-4 TCP sessions
13 persist even despite Layer-2 disruptions.

14 Is that a fair characterization of your
15 opinion?

16 A. Yes.

17 MR. PANNO: Object to form.

18 THE WITNESS: Within certain timing --
19 (inaudible).

20 THE COURT REPORTER: Within certain timing
21 what?

22 THE WITNESS: Restraints. As long as
23 timing restraints aren't violated, they
24 persist.

25 BY MR. STANFORD:

1 Q. Your declaration then goes on to discuss
2 something called CSA and ECSA, which are channel
3 switch announcements and extended channel switch
4 announcements, correct?

5 A. Yes.

6 Q. Did I get those acronyms correct?

7 A. I think so. You got the meaning of them
8 correct, so that's important.

9 Q. And the purpose of these mechanisms, CSA
10 and ECSA, are for coordinated channel switching,
11 right?

12 A. Yes.

13 Q. So this CSA and ECSA are mechanisms where
14 the P2P group owner or the access point announces a
15 target channel and all associated channels would
16 then move together to that target channel, correct?

17 A. Yes. And that goes to rebut the argument
18 that even when we are in infrastructure mode, namely
19 a single client connected to an access point, that
20 changing the channel breaks Layer-2 connectivity.
21 This is a mechanism by which Layer-2 connectivity is
22 maintained.

23 Q. Okay. So in CSA and ECSA then, when that
24 target channel is identified -- or maybe a better
25 way to say it would be announced, is that correct?

1 A. Yes.

2 Q. Okay. So when that -- when that target
3 channel is announced, then all of the stations would
4 move to that target channel, right?

5 A. Yes.

6 Q. Okay. Sorry, that's a rudimentary
7 question. Just trying to make sure that I'm
8 understanding the technical specifications when I
9 read them.

10 A. Yeah, they will move to that channel
11 without moving out of the associated state, which is
12 where Dr. Pachamanov's argument centers, says as
13 long as a WiFi node loses association, that's it,
14 you don't have any communication anymore. So they
15 can move through channels and never lose an
16 association, so that even at Layer-2 connectivity is
17 being maintained during channel switching.

18 Q. Okay. So when -- so if Layer-2
19 connectivity is maintained and you have, say,
20 multiple devices and they're on, for example, you
21 know, different bands, then when this announcement
22 is made through CSA or ECSA, they would then move
23 altogether to that target channel, right?

24 A. Uh-uh.

25 THE COURT REPORTER: Is that a yes?

1 THE WITNESS: Yes.

2 BY MR. STANFORD:

3 Q. You have to say yes.

4 A. Yes.

5 Q. It's okay. Okay. I understand. Okay.

6 So you also talk about in your declaration
7 that there are these various concepts, and excuse me
8 if I, you know, butcher them, but that -- and they
9 are -- hold on one moment.

10 Actually, you know what? Let's do this
11 first. So if -- I'm going to put Iwami into the
12 chat box because I don't believe I have done that
13 yet.

14 A. No, you haven't.

15 Q. So once that shows up, if you would just
16 download it and open that and let me know when
17 you've got it.

18 A. Okay. Give me one sec.

19 Q. Sure.

20 A. Okay. It's open.

21 Q. So in your declaration one of the points
22 that you're making too is regarding Iwami's use of I
23 believe it's Layer-3 and Layer-4 across -- like
24 Layer-3 and Layer-4 states across a switch, and I
25 believe this discussion is in through paragraphs 39

1 to 42 -- well, really 39 through 43 I guess of your
2 declaration.

3 A. Paragraph 40 is about how do you
4 simultaneously communicate on different channels and
5 the -- exactly.

6 Q. Okay. So in -- when you're discussing
7 Iwami, you cite to a couple paragraphs in Iwami, and
8 so if you would go to paragraph 314 of Iwami for me,
9 and let me know when you get there.

10 A. One sec. Do you have a page so that I'm
11 fast?

12 Q. Page 66 of the PDF.

13 A. Thank you. I'm there.

14 Q. These references are long.

15 Okay. Have you gotten there?

16 A. Yeah.

17 Q. Okay. So paragraph 314 is -- under the
18 heading above it, which is just above paragraph 309,
19 it's a Switching Example of Communication Mode.

20 Do you see that?

21 A. Yes.

22 Q. Okay. So in this section, if you'll go to
23 paragraph 312.

24 A. Yes.

25 Q. Paragraph 312 starts with, "When the

1 switching is performed as described above, it is
2 necessary to perform WiFi direct control," and then
3 in parentheses, "(P2P Device Discovery, P2P Service
4 Discovery and GO Negotiation)" -- and that's group
5 owner, is that what GO means?

6 A. Yes.

7 Q. Okay. So group owner negotiation. Then,
8 comma, 4-way handshake for performing the security
9 authentication of the wireless LAN, and then dynamic
10 host configuration protocol (DHCP) access for
11 acquiring an IP address, interchange of a port
12 setting of a real time streaming protocol (RTSP), or
13 the like, which are illustrated in Figure 24.

14 Do you see that long sentence?

15 A. Yes.

16 Q. Okay. So P2P device discovery, service
17 discovery, and GO negotiation, those are steps for
18 establishing a new connection, am I understanding
19 that correctly?

20 A. Yes.

21 Q. Okay. And then the four-way handshake for
22 security authentication, that's also part of
23 establishing this new connection, right?

24 A. Yes.

25 Q. Okay. You wouldn't use that for

1 maintaining an existing one, right?

2 A. No.

3 Q. Okay. Then at the very last sentence -- I
4 guess it's really just the second sentence of
5 paragraph 312, after the sentence I just read, it
6 states, "Thus, when switching from the connection
7 (613) in the standby mode to the connection (614) in
8 the image transmission mode is performed, a
9 connection period D1 of a time of several seconds
10 occurs."

11 Do you see that sentence?

12 A. Yes, I see that sentence. That's an
13 assumption that should be taken -- again, should be
14 qualified. I don't think it's several seconds are
15 necessary, but let's assume that's the case.

16 Q. Several seconds is what this sentence in
17 Iwami states --

18 A. Yes.

19 Q. -- is that correct?

20 A. Yes. I don't think that's necessary, by
21 the way, but --

22 Q. Would you consider --

23 A. That you need several seconds for those
24 negotiations to happen, that's what I'm saying.

25 Q. So you would consider several seconds then

1 to be a significant amount of time in this context?

2 A. Yes.

3 Q. Okay. So then if we go -- if we continue
4 on, let's go down -- let's skip paragraph 313, go to
5 314.

6 And in 314, this is again a long
7 paragraph, so let me find...

8 A. That's what it says in 314 essentially is
9 that sometimes you don't have to do all these things
10 and then you can establish the connection much
11 faster.

12 Q. So if we look at the second sentence of
13 paragraph 314, it starts with "For example." Do you
14 see that? So I'll read that off.

15 "For example, it is possible to divert a
16 process such as IP acquisition of a high-bandwidth
17 digital content protection system (HDCP) and a port
18 setting of" --

19 A. I see.

20 Q. Excuse me?

21 A. Yeah. Yes.

22 Q. -- "and a port setting of real-time
23 transport protocol (RTP)." And then it continues
24 on, "Thus, even when switching to a communication
25 mode having a different connection scheme," in

1 parentheses, "(switching from the standby mode to
2 the image transmission mode and switching from the
3 image transmission mode to the standby mode) is
4 performed, a rapid connection process can be
5 performed. Thus, it is possible to cause the user
6 to feel as if the connection were continuously
7 maintained."

8 Do you see all that?

9 A. Yes.

10 Q. Okay. By using the word in this
11 paragraph -- Iwami used the word "diverting the IP
12 and the port information."

13 Is diverting the IP and port information
14 for a new connection process the same as
15 continuously maintaining the connection?

16 A. As you can see, it says about, you know,
17 don't do IP acquisition. If you don't do IP
18 acquisition and you assume that you have predefined
19 IP addresses, then at Layer-4 the connectivity is
20 there. As far as Layer-4 is concerned, the
21 connectivity has been there all the time.

22 So by this matter you can make the switch
23 much, much faster. That's what it says essentially.
24 So even if we're doing real-time streaming of video,
25 the user won't notice it, won't notice the -- and

1 then -- yeah.

2 Q. So -- oh, sorry. So is paragraph 314 then
3 describing a reconnection -- or a new connection
4 scenario -- well, let me start over.

5 So is paragraph 314 describing a situation
6 where you have a connection that's dropped and then
7 a new one is established quickly so that, as
8 paragraph 314 says, the user doesn't -- the user
9 feels as though that connection was continuously
10 maintained?

11 A. It doesn't describe -- it doesn't talk
12 about a dropped connection. It talks about how you
13 can accelerate the establishment of a connection.

14 Q. Of a new connection?

15 A. Could be a new connection, yes. It
16 doesn't -- could be an existing -- we don't know
17 what the -- it doesn't talk about what the upper
18 layers are doing. It just talks about how you can
19 accelerate the send of video from the source to the
20 sink.

21 It talks specifically about video because
22 it uses the high bandwidth digital content
23 protection system, HDCP, in there. That points to
24 video communications and says that, look, as long as
25 you don't have to use HDCP because you are creating

1 the video and there is no, you know, Hollywood
2 rights involved, then you can do it much, much
3 faster. That's what it says. It says it doesn't
4 have to take several seconds. It can happen almost
5 instantaneously as long as you follow these rules.
6 It doesn't say whether under which circumstances you
7 are going to do that.

8 Q. Okay. In the next paragraph, 315, Iwami
9 says, "Further, when the source device and the sink
10 device supports a tunneled direct link setup (TDLS)
11 function, a TDLS protocol may be used."

12 Do you see that?

13 A. Yes.

14 Q. And I believe you discussed TDLS
15 throughout your declaration too, right?

16 A. Yes.

17 Q. And if I understood it correctly, this is
18 a mechanism -- TDLS is a mechanism that provides
19 connection continuity during a channel switch, is
20 that -- am I understanding that correctly?

21 A. It provides not only during a channel
22 switch. It provides also a mechanism by which you
23 can maintain your connection to the internet through
24 the access point that you might have and at the same
25 time send video directly to your sink device, so

1 it's a little bit more complicated than what you
2 describing there. Let me...

3 Q. Okay. Okay. So let's -- let's look to
4 paragraph 76 of Iwami which also mentions TDLS.

5 A. Paragraph?

6 Q. And it's on -- paragraph 76, and that's on
7 page 46 of the PDF, and then it runs over onto 47.
8 It takes up two pages.

9 A. Okay.

10 Q. Okay. In the second part of paragraph 76,
11 which is on the top of page 47 of the PDF, which is
12 also labeled page 5 of the patent, there's a
13 sentence about four lines down, and it starts with,
14 "Wi-Fi Certified Miracast is a minoring
15 technology" -- although I think that was probably
16 supposed to mean mirroring technology.

17 A. That's wrong. That's mirroring
18 technology.

19 Q. Yeah. "Mirroring technology" --

20 A. "For."

21 Q. -- yeah -- "for transmitting an audio or a
22 display image reproduced with one terminal to
23 another terminal using the technology of Wi-Fi
24 Direct or TDLS and outputting the audio or image
25 data similarly with the other terminal."

1 Do you see that sentence?

2 A. Yes.

3 Q. Okay. So what Iwami is here saying is
4 that WiFi Certified Miracast can be used through
5 either you have the option of WiFi Direct or you
6 have the option of TDLS, is that right?

7 A. Yes.

8 Q. But it's not requiring TDLS, correct?

9 A. No, it's not requiring TDLS, and for TDLS
10 to be used, the access point needs to support it.
11 Not every access point supports TDLS.

12 Q. Okay. If --

13 A. And usually when you only have a source
14 and a sink or multiple sources and a sink, like
15 multiple, for example, cell phones and a display,
16 you are going to use WiFi Direct. When you are in a
17 home environment, you might ends up using -- most of
18 the times you might end up using the TDLS if the
19 access point supports it.

20 Q. Okay. Did you hear my question?

21 A. No.

22 Q. Oh, okay. Sorry. I was waiting for you
23 to answer, but you didn't hear what I said.

24 A. No, I didn't hear the question.

25 Q. Oh, okay. Yeah, yeah.

1 A. I didn't hear the question. Sorry, Matt.
2 You dropped out.

3 Q. No, no. That's okay.

4 A. I didn't hear the question.

5 Q. We were all just sitting here staring at
6 each other.

7 Okay. So TDLS -- so we were talking about
8 Iwami discussing TDLS, right? So Iwami's discussing
9 TDLS in the context of establishing connections,
10 right?

11 A. Uh-uh.

12 Q. Not maintaining those connections, right?

13 A. You cannot separate the two.

14 Q. There is no distinction between
15 establishing a connection and maintaining a
16 connection --

17 A. The communications -- it's a
18 communications method. It's a protocol that has
19 both components. But yes, in the purposes of Iwami,
20 we can assume that they are concerned mostly about
21 how you initially establish the connection.

22 Q. Okay. So then looking at -- taking a step
23 back I guess on your opinions overall then here, am
24 I correct in saying that these mechanisms, such as
25 CSA, ECSA, TDLS that you've described, are

1 alternatives to the -- to the uncoordinated I
2 believe is the correct term re-association of
3 approach that Dr. Pachamanov discussed in his
4 declaration?

5 A. Both CSA, ECSA, and TDLS describe
6 mechanisms by which communication can --
7 communication can happen between different channels
8 can -- we can have channel switch without loss of
9 association, and they are coordinated methods. They
10 are coordination methods. There is coordination
11 involved in the protocols. It's how we do it in a
12 way that prevents packets, frames, from being
13 dropped.

14 And I'm sorry for not doing that earlier,
15 but for the purposes of correctness, when we're
16 talking about Layer-2, we are talking about frames.
17 When talking about Layer-4, we are talking about
18 packets. Frames is what the hardware does. Packets
19 are logical entries that are dealt with by software
20 user, logical entities.

21 Q. And these mechanisms, CSA, ECSA, and TDLS,
22 those are alternative mechanisms to Dr. Pachamanov's
23 uncoordinated mechanism that he discussed in his
24 declaration, is that correct?

25 A. Exactly. So Dr. Pachamanov in his

1 declaration examined how plain old WiFi works
2 without taking into consideration all these other
3 mechanisms that have been developed in order to be
4 able to do things like that, i.e., real-time
5 communication of video and media without having
6 interruptions, and hence why --

7 Q. And for -- oh.

8 A. -- and hence why I included them in my
9 declaration.

10 Q. And from --

11 A. I think he may consider those -- sorry.

12 Q. That's okay. I want to let you finish.

13 A. Yeah, I'm done.

14 Q. And from your review of -- from the
15 documents that you reviewed in preparing these
16 opinions, the petition, to the extent that you
17 reviewed Dr. Pachamanov's declaration, to the extent
18 you reviewed anything from Dr. Paradiso, was there a
19 discussion in those documents about CSA and ECSA and
20 TDLS?

21 MR. PANNO: Objection to form.

22 THE WITNESS: I cannot answer that because
23 I didn't study or -- like I didn't study Joe
24 Paradiso's --

25 BY MR. STANFORD:

1 Q. Okay.

2 A. -- declaration.

3 Q. For the petition then, which you said you
4 did review, did the petition discuss CSA, ECSA, or
5 TDLS?

6 A. I cannot answer that. As I said, the --
7 my reason for mentioning those is to counterargue
8 against Dr. Pachamanov's statement that channel
9 switching breaks connections under all
10 circumstances.

11 Q. But you did read the petition, correct?

12 A. I read the petition. It wasn't -- I
13 wasn't asked to comment on all the points in the
14 petition. I was asked to focus on that -- on those
15 specific statements.

16 Q. And to your recollection of reading the
17 petition, was CSA, ECSA, or TDLS described or
18 mentioned?

19 A. I don't think they were described. If
20 they were mentioned, they were not -- I can't answer
21 that in any definite mode. I have to have the
22 petition in front of me. So if you put --

23 Q. If you like, I can upload it for you.

24 A. If you put the petition in there, I can
25 look for those terms and see how they are discussed,

1 so that I can...

2 MR. PANNO: Yeah.

3 BY MR. STANFORD:

4 Q. Sure. All right. Should be showing up in
5 the chat in just a second.

6 MR. PANNO: Just I'm late to this, but I'm
7 objecting to scope to this question. Sorry.

8 BY MR. STANFORD:

9 Q. Mr. Bletsas, do you see it in the chat
10 box, the petition?

11 A. Yeah, let me -- Tools. Find. TDLS.
12 ESCA. Oh, this is not in its text, but I don't see
13 any mention --

14 Q. Okay.

15 A. -- of those and -- ECSA. No, I don't see
16 any mention of those in the petition.

17 Q. Okay. Well, thank you, Mr. Bletsas. I
18 have no further questions for you today.

19 MR. PANNO: Okay. I guess if you want to
20 go off the record, we can take a break. I'm
21 probably going to do a brief session after
22 this.

23 MR. STANFORD: Okay.

24 (Recess taken from 11:26 a.m. to
25 11:39 a.m.)

1 EXAMINATION

2 BY MR. PANNO:

3 Q. All right. I just want to really quickly
4 go over something in your declaration. If you could
5 go to page 23 of the PDF. It's your paragraph 34
6 under heading section E.

7 A. Section paragraph?

8 Q. Yeah, paragraph 34 of the -- of your
9 declaration.

10 A. Yes.

11 Q. You there?

12 A. Yes.

13 Q. Okay. Great. Yeah, so you say here,
14 heading E, "Why the 'Disruptive MAC Break' Argument
15 is Incorrect," and then in 34 say, "Dr. Pachamanov
16 argues that a channel change necessarily causes a
17 disruptive break of the MAC-layer session, such that
18 the session cannot be 'maintained' across a
19 frequency-band switch [as read]."

20 You're saying that argument is incorrect,
21 is that right?

22 A. Yes, that's exactly what I'm saying
23 because of all these other mechanisms that exist in
24 order to be able to do that.

25 Q. Okay. And has anything you've discussed

1 here today led you to change that opinion?

2 A. Absolutely not.

3 Q. Okay. Well, then that's all I wanted to
4 ask, and so I think we're good.

5 MR. PANNO: We can go off the record.

6 THE COURT REPORTER: Matt, before we go
7 off the record, I have that you need a rough
8 draft and the transcript in two days.

9 Nick, can I get your order?

10 MR. PANNO: We'll do the same, yeah,
11 that's fine, the expedited.

12 THE COURT REPORTER: Do you want the rough
13 draft too?

14 MR. HEINTZ: Hold on, hold on, hold on.

15 MR. STANFORD: And that rough is for
16 today, right?

17 MR. HEINTZ: This is Jim. We don't need
18 it in two days. We don't need a copy or
19 anything else, so we're good.

20 MR. PANNO: I defer to Jim on that.
21 That's fine.

22 - - - - -

23 (The deposition was concluded at
24 11:41 a.m.)

25 (Reading and signing of the

1 deposition was not waived by the
2 witness and all parties.)
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

DECLARATION UNDER PENALTY OF PERJURY

I, MICHAEL BLETAS, hereby certify under penalty of perjury that I have read the foregoing transcript of my testimony taken under oath in my deposition on August 7, 2026; that I have made such corrections as appear noted on the Errata Sheet, attached hereto, signed by me; and that my testimony as contained herein, as corrected, is true and correct.

Dated this ____ day of _____, ____.

County, State

MICHAEL BLETAS

1	ERRATA SHEET
2	IN RE: Samsung Electronics Co., Ltd.
3	vs. Maxell, Ltd.
4	MICHAIL BLETSAS
5	August 7, 2026
6	Page No. _____ Line No. _____
7	Change: _____
8	Reason for change: _____
9	Page No. _____ Line No. _____
10	Change: _____
11	Reason for change: _____
12	Page No. _____ Line No. _____
13	Change: _____
14	Reason for change: _____
15	Page No. _____ Line No. _____
16	Change: _____
17	Reason for change: _____
18	Page No. _____ Line No. _____
19	Change: _____
20	Reason for change: _____
21	Page No. _____ Line No. _____
22	Change: _____
23	Reason for change: _____
24	_____ Dated _____
25	

CERTIFICATE OF REPORTER

STATE OF FLORIDA)

COUNTY OF NASSAU)

I certify that this transcript,
consisting of 90 pages, is a complete, true,
and correct record of the video-conferenced
testimony of MICHAEL BLETSAS held in this case
on Friday, August 7, 2026.

I also certify that prior to taking this
deposition, MICHAEL BLETSAS was duly sworn to
tell the truth.

I further certify that I am not a
relative or employee of any of the parties, nor
am I a relative or employee of any of the
parties' attorneys or counsel connected with
the action, nor am I financially interested in
the action.

Dated this 7th day of August, 2026.



Leah M. Witt, CRR, RPR
Notary Public, State of Florida
Commission No.: HH500239
Commission Expires: May 26, 2028

	12,000 15:8	309 71:18	51 60:19
(	18 46:18, 25 47:2	31 19:16	
(613) 73:7	1996 13:21	312 71:23, 25 73:5	6
(614) 73:7	1E 38:8, 23 39:22 42:22 44:3, 9 45:3 61:11	313 74:4	6 43:17 61:9
0		314 71:8, 17 74:5, 6, 8, 13 76:2, 5, 8	66 71:12
088 23:13, 22 24:3, 22 27:22 32:17 34:18 35:23 36:23, 25 37:4 38:8 39:23 41:5 42:13	2	315 77:8	7
	2 28:15, 25 37:14 39:2 40:3 42:19 49:16	34 85:5, 8, 15	7 59:12
1	20 20:23 62:15	39 70:25 71:1	76 78:4, 6, 10
1 49:15	2019/0053149 26:1	4	8
10 20:23 21:1	21 26:25 27:5, 6, 17 29:16, 18, 24 36:17, 21 37:8 46:11	4 59:12	8 46:9, 14, 17, 18, 20, 24 47:2, 3
1001 10:13	22 47:11	4-way 72:8	82.11 50:22
1049 10:5 27:3	23 85:5	4.10 58:19 59:14	A
1050 55:13, 22 58:22	24 72:13	4.11 60:18	a.m. 66:23, 24 84:24, 25 86:24
10:44 66:23	28 11:3	40 71:3	abbreviated 30:13
10:54 66:24	29 62:14, 19 64:16	42 71:1	able 9:23 16:16 27:11 28:6 46:16 57:10, 21 82:4 85:24
11,026,088 10:14 23:14		43 71:1	above 4:4 71:18 72:1
11:26 84:24	3	46 58:23 78:7	Absolutely 86:2
11:39 84:25	30 20:23 21:1	47 59:11 78:7, 11	
11:41 86:24		5 78:12	

absorb 64:18, 22	affects 38:8	7	arrive 49:20, 21, 23 64:10
academic 16:21	affirm 4:9	anybody 21:25	
accelerate 76:13, 19	ago 5:22 17:15, 24 21:6	anymore 69:14	art 19:11 23:21 24:1, 20 25:9, 12, 17 26:5 27:21 30:2, 9, 11, 19 31:10, 13, 17, 25 32:23 33:5 34:17 35:24 36:19, 21, 22 37:2, 3, 9, 10 39:25 40:9 41:6
accept 53:2	ahead 10:7 43:24	anyone 5:3 8:22, 25 67:2	
access 15:8 37:21 68:14, 19 72:10 77:24 79:10, 11, 19	airline 13:14	apartment 5:2	
accidentally 6:21	alternative 81:22	apologize 45:7	
accommodate 7:22	alternatives 53:13 81:1	appears 51:10	
accomplish 16:16	altogether 69:23	appendix 11:2, 5	
accurate 11:10, 11, 15, 16	amount 53:14 74:1	applicability 18:10	asked 7:25 18:19 25:5, 11 32:8 33:11 37:19 40:11 41:3 42:12, 18 83:13, 14
acknowledgments 54:1	announced 68:25 69:3	application 25:25 48:8 49:20, 24 54:17, 25 55:1	asking 16:25 24:14 25:9 26:19 28:2 34:9 37:6 40:23 41:5 50:14
acquiring 72:11	announcement 69:21	applications 55:2 58:4 64:17, 18, 21	
acquisition 74:16 75:17, 18	announcements 68:3, 4	applied 33:5	aspects 14:13
acronyms 68:6	announces 68:14	appreciate 66:19	asserted 24:21
across 70:23, 24 85:18	answer 6:18, 21 7:10, 15, 16 8:2 26:17 32:9 33:11, 17 35:13 40:20 41:1, 13 42:24 50:17, 18 51:2 52:17, 18, 20, 21 57:18, 24 61:24 63:23 79:23 82:22 83:6, 20	approach 81:3	asserting 23:22 24:2
active 19:2, 3		approached 21:7	associated 68:15 69:11
add 9:24 10:12		approximately 5:19	association 69:13, 16 81:9
adding 55:22		areas 42:17	assume 7:11 23:23 49:13 62:3 73:15 75:18 80:20
address 24:7 72:11	answered 16:19 17:1 35:12 37:11	argues 67:11 85:16	assumption 73:13
addresses 75:19	answers 8:8, 10 25:2,	argument 49:25 50:10, 12 52:10 68:17 69:12 85:14, 20	
affected 49:4		around 21:8	

Athens 4:24 5:2 attached 11:2 audio 78:21, 24 authentic 10:23 authentication 72:9, 22 authority 12:6, 9, 11, 13 AV 58:25 aware 22:4 23:20 25:10	believe 11:21 13:6, 17 22:11, 13 26:25 32:20 33:12 35:12 36:22 37:13, 14 38:5 39:15 41:3 48:6 52:23 55:12 58:17 59:1, 24 70:12, 23, 25 77:14 81:2 besides 8:21 32:24 best 27:16 35:20 better 68:24 big 63:14 bigger 12:25 bit 6:10, 13 9:15, 16 12:7 17:16 21:5 36:18 40:3 50:10 55:17 66:16 78:1 Bletsas 4:6, 12, 14, 21 10:7 15:16 24:17 27:9 61:24 67:1 84:9, 17 Bletsas' 55:23 body 29:13 box 70:12 84:10 break 7:19, 20 8:2 45:14, 22 66:15, 17 67:3, 6 84:20	85:14, 17 breaks 7:25 40:13 68:20 83:9 brief 59:9 63:2 66:17 84:21 briefly 10:21 25:21 56:4 broadly 26:13 broken 43:19 50:3 57:25 buffering 58:6 buffers 64:22 build 16:11, 14 built-in 54:11 butcher 70:8	5:24 6:1, 2 17:12, 14, 17, 20 19:2 21:17, 21, 25 22:5, 9, 12, 13, 22, 24 24:23 25:10 26:10, 17 29:3 40:10, 17, 19 51:25 52:14, 15 73:15 cases 24:24 catch 41:21 cell 79:15 centers 69:12 certain 12:16 15:4 16:10 18:12 34:2 36:12 39:12 57:6 63:23 66:7, 9 67:18, 20 certainly 7:22 certainty 17:25 Certified 4:2 78:14 79:4 chance 6:18 change 56:9 85:16 86:1 changing 68:20 channel 56:10, 13, 17 57:12 60:1, 6, 13, 14, 21 61:2 63:15, 16 68:2, 3,
B back 5:23 9:24 18:5 29:16 34:3 36:17 58:8, 11 60:13, 20 67:1 80:23 ballpark 9:6 band 56:8, 9 63:9 bands 56:8 69:21 bandwidth 76:22 based 7:15 15:11 29:23 31:20 32:3, 10 35:6 37:2 60:23 beat 49:16 beats 49:13, 15 beginning 61:13			
		C call 23:13 31:11 38:7 51:6 53:25 called 58:14 60:13 68:2 campus 15:6 capabilities 27:20 30:1 carried 59:22 62:9 carries 62:16 carry 59:17 case	

10,15,16,20, 24 69:3,4, 10,17,23 77:19,21 81:8 83:8 85:16 channels 56:20 60:25 68:15 69:15 71:4 81:7 characterization 67:14 characterizing 15:2 chat 9:22 10:1,12 27:4 55:19, 22 70:12 84:5,9 cheapest 16:15 circumstances 50:24 63:24 77:6 83:10 CISA 12:11 citations 28:9,12,14 cite 28:20 29:6,8 42:12 71:7 cited 29:13 42:4, 7,8 55:13 59:2 citing 29:4 claim 38:8,22 39:21,22 40:18 42:22 43:19 44:3, 7,8,9 45:2,5 51:15,17 61:11,13	claimed 27:22 claims 23:2,22 24:3,11,21 25:3,4 41:10,11 42:14 43:4, 18,19 61:7 clarify 7:9 clause 31:8 clean 7:3 clear 26:18 32:14 33:25 40:3 41:2 48:23 51:23 clearly 32:10 40:24 client 68:19 clocked 45:12 coffee 66:16 colleague 21:17,24 22:2 collect 64:8 come 31:22 comma 72:8 command 44:13 60:1 commander 12:22 commands 60:9 comment 83:13 comments 39:14	communicate 53:3,7,9 71:4 communicates 49:1 communication 26:11,13 43:22 44:12, 13,14,16,19 49:18 50:2, 6,16,24 57:7,25 61:14,15,17 65:9,12 66:1,4,13 69:14 71:19 74:24 81:6,7 82:5 communications 14:20 48:25 49:12,22 50:7 57:20 62:1,2 64:6 65:21 76:24 80:17,18 commute 13:11,12,13 company 19:13 20:1, 7,13 compare 19:11 compared 57:15 comparing 19:7 39:21 complete 35:21 36:1 41:24 42:3 complicated 78:1 components 80:19 comprehensive 39:6	computer 5:9 computing 11:19 13:24 16:15 concealing 65:5 concealment 64:25 concept 39:17 42:21 48:25 53:15 concepts 56:4 70:7 concern 25:5,11 concerned 37:9 41:15, 16 75:20 80:20 concluded 86:23 condition 43:3 conditions 26:12 50:21 52:1,3 63:14 conducting 16:2 configuration 72:10 configured 44:14 confirm 25:21 confused 47:3 confusion 50:1 connected 68:19 connection 38:9,23 39:17 40:14 44:18 48:20, 25 49:1 51:17 61:16
---	--	---	--

65:7,17 66:1 72:18,23 73:6,7,9 74:10,25 75:4,6,14,15 76:3,6,9,12, 13,14,15 77:19,23 80:15,16,21 connection- oriented 53:22 connectionles s 54:4,6 62:24 connections 80:9,12 83:9 connectivity 37:24 48:18 49:4 66:3 68:20,21 69:16,19 75:19,21 consider 16:20,21 26:12 28:21 29:9 73:22, 25 82:11 consideration 50:19 82:2 considered 26:22 28:23 29:2,12 37:2,9 considering 32:2 considers 52:25 consulted 17:8 consulting 17:3,19,22 18:4,6 content 54:20,21 55:3 58:12, 14 61:20	62:5,9 64:12 74:17 76:22 context 37:23 39:25 42:22 44:6 74:1 80:9 continue 57:8 74:3 continues 74:23 continuity 46:22 77:19 continuous 49:13,15,16 continuously 75:6,15 76:9 control 37:21,25 44:15 51:15 55:4 58:25 60:1,9 61:2 72:2 conversation 8:21 coordinated 68:10 81:9 coordination 56:21,22,25 57:9,14 81:10 copy 34:25 35:7, 11,14,18 86:18 correct 13:9,18 27:24 34:16 38:4,10 39:10,14 40:1,5 41:8 42:9,23 47:19 48:1 51:11,20 52:15 53:16, 23 54:13 55:8 56:21, 22 61:20	62:20,21 63:3,11,13 65:7 68:4,6, 8,16,25 73:19 79:8 80:24 81:2, 24 83:11 correction 15:24 63:19 correctly 25:14 45:12 59:8,16 60:12 65:24 72:19 77:17, 20 correctness 81:15 counsel 4:17 7:13 8:21 21:13 36:7 67:5 counselors 8:12 21:6, 20,23 22:1, 6,15 31:4 counterargue 83:7 counterargume nts 25:3 couple 11:12 20:17 21:5 29:21 47:21 55:20 57:19 71:7 court 4:6,17 6:13 7:1 16:12 30:5 38:12 43:9,12 46:4 53:18 67:20 69:25 86:6, 12 cover 10:19 26:10 covered 18:15	covers 26:10 created 20:1 creating 76:25 criteria 32:4,9 critical 12:15 critique 51:5 CSA 68:2,9,13,23 69:22 80:25 81:5,21 82:19 83:4, 17 current 11:6,9,21, 24,25 12:2 14:22 CV 11:7 13:17 cybersecurity 12:6,10,13, 17 D D1 73:9 daily 14:4 dash 59:12 data 44:15 47:25 48:18 49:5, 7,8 57:10, 13,16 61:15, 19 63:9 65:2,5,7 78:25 Datagram 38:1
--	--	---	---

date 27:22	define 31:23	desk 5:7, 8, 9	77:14 81:3, 23 83:25
day 9:10, 11	definite 83:21	detail 50:20	85:25
day-to-day 14:5	definition 30:25	details 59:6	discusses 51:16, 17
days 64:4 86:8, 18	definitions 31:2	developed 64:4 82:3	discussing 38:6 39:16 42:22 58:17 59:3 62:8, 19 71:6 80:8
dealt 81:19	delivery 54:1, 9	device 43:22 44:13, 14 56:13, 19 59:21 61:14, 17 62:7 72:3, 16 77:9, 10, 25	discussion 46:13 53:14 67:8 70:25 82:19
decent 65:17	demands 57:5	devices 48:22 57:11 58:7 69:20	display 44:15 55:8, 14 58:19 59:21 60:18 62:6 78:22 79:15
decided 22:21	depend 48:14	DHCP 72:10	displayed 58:13 59:21 61:20
declaration 8:15 9:8, 21 10:16, 17, 24 11:2 23:7 24:6, 10 25:7 26:9, 15, 18 27:1, 2, 18 28:6, 8, 24 29:4, 7, 14, 19 30:20 31:4, 21 32:2 33:20 34:19 35:15, 25 36:5, 18 37:15 38:6 39:9, 13, 24 41:12 42:4, 5, 7, 10 43:18 44:23 46:8, 10, 14, 19, 20 47:6 51:1, 12 53:14 55:7, 23 58:18 59:2 60:12 61:7 62:15 67:11 68:1 70:6, 21 71:2 77:15 81:4, 24 82:1, 9, 17 83:2 85:4, 9	depending 49:19	different 49:10 56:13 59:25 62:2 65:6 69:21 71:4 74:25 81:7	dispute 41:15, 16
	depends 49:24 54:25 57:13 63:18, 22	differing 24:25	disruption 37:20 38:7 40:13 42:20 46:22 47:4 54:16 63:2, 8, 10 65:12, 25 66:1, 3, 4, 5, 12
	deposed 5:17 17:15	digital 14:3 49:14 74:17 76:22	disruptions 67:13
	deposition 4:1 6:11 7:4 8:5, 11, 23 9:4 35:8, 18 86:23	direct 72:2 77:10 78:24 79:5, 16	disruptive 85:14, 17
	depositions 27:16 38:17	directly 39:13 77:25	disrupts 37:24
	describe 50:10 53:9 76:11 81:5	director 11:18 13:23	distinction 65:24 80:14
	described 18:25 19:7 50:25 51:25 52:15 72:1 80:25 83:17, 19	discovery 72:3, 4, 16, 17	divert 74:15
	describes 47:17	discuss 55:7 68:1 83:4	diverting 75:11, 13
	describing 76:3, 5 78:2	discussed 21:25 25:18 38:4 60:16	document 11:16 29:6, 8
	description 15:10 52:15		
declare 20:9	designed 50:18		
defer 86:20			

32:11 42:24 60:19 documents 5:6 8:16,19 9:25 22:23 28:3,5,7 29:13 32:12, 15 35:3,22 36:4 40:23, 24 41:4,10 42:6,8,11 82:15,19 doing 14:7 15:12 16:9 19:14, 21,25 39:20 64:9,13 75:24 76:18 81:14 download 70:16 downloading 55:19 draft 86:8,13 drop 55:18 dropped 9:22 27:3 76:6,12 80:2 81:13 due 54:15 duly 4:15 duration 63:3 dynamic 72:9	15:19 easiest 61:6 easily 34:5 easy 64:8 economical 16:10 ECSA 68:2,10,13, 23 69:22 80:25 81:5, 21 82:19 83:4,17 84:15 effectively 54:16 effects 65:2 eight 9:13 either 20:4 79:5 element 38:8,23,24 39:21,22 42:22 43:19 44:3,8,9 45:2,5 61:11,13 email 21:18 emailed 22:11 employer 11:25 12:2,3 19:22,24 encoding 63:18,19 encompass 39:3 end 7:4 28:9 44:9 47:5 65:2 79:18	ends 79:17 engaged 58:7 engagement 11:9,21 18:9 22:25 25:1 40:19 42:14 engineer 16:22 entail 14:1 entails 12:8 14:2 enterprise 6:3,4 entire 44:7,8,10 59:13 entirety 65:11 entities 12:15 81:20 entries 81:19 environment 79:17 equipment 14:9 18:13, 14,15 error 64:25 error- concealment 64:23 ESCA 84:12 essence 65:20 essentially 25:3 74:8 75:23 establish 74:10 80:21 established 12:5 49:2 61:16 76:7	establishing 72:18,23 80:9,15 establishment 76:13 everybody 14:8 45:17 everyday 16:4 everyone 45:24 exact 23:23 49:23 exactly 5:23 9:20 13:25 17:24 33:22 39:19 47:4 49:25 71:5 81:25 85:22 examination 4:19 18:23 85:1 examine 40:8 41:16 examined 4:15 18:11, 13 40:9,25 82:1 examples 53:8 Excellent 5:16 excuse 15:16 22:18 24:16 28:13 39:23 53:15 60:17 62:23 70:7 74:20 exhibit 10:5,13 27:3 28:13 33:1 55:13,22 58:22 exhibits 28:12,14,16, 18,19,21
E			
earlier 32:20 41:24 59:25 81:14 easier 6:13,14			

29:8,14 40:16 exist 85:23 existing 56:15 73:1 76:16 expedited 86:11 experience 27:19 29:25 32:3 37:3 65:3 experiments 16:2 expert 48:12 expertise 22:14 27:19 29:25 32:4 experts 26:14 expounding 40:2 extended 68:3 extent 82:16,17	fast 63:15 64:4 71:11 faster 74:11 75:23 77:3 feel 75:6 feels 76:9 figure 59:12 72:13 figuring 16:9 filed 22:23 find 28:6 46:16 74:7 84:11 finding 15:4,24 fine 45:18,23,25 46:3,4 86:11,21 finish 6:23 82:12 finished 6:22 first 4:15 21:3 44:13 47:10 62:22 70:11 five 33:6,9,10 64:10 five- 45:13 fixed 58:3 Florida 4:4 flow 48:18 49:5, 7,15 57:11 65:7	flowing 49:9 flows 55:5 focus 14:17,18 34:1 83:14 focused 14:12 23:16 24:6,10 26:8 41:17 42:11, 13,15 44:22 52:24 focusing 41:11 44:8 follow 77:5 following 25:14 35:21 follows 4:16 form 30:25 32:3 51:18,21,22 52:16 54:8, 23 56:14 67:17 82:21 format 6:17 forming 26:23 27:17 28:22 31:14 39:8 forth 27:18 found 50:9 four 78:13 four-way 72:21 frame 66:12 frames 57:19 63:14, 16 81:12,16, 18	frequency 56:8,9 63:9 frequency- band 85:19 front 5:7,8 10:9 32:18 83:22 full 6:20 8:1 9:10,11 22:22 41:23 full-time 13:10 fully 7:11 29:22 39:6 function 77:11 functioning 14:9 48:14 functions 39:22,24,25 58:12 fundamental 50:5
F			
facilities 16:5 fact 49:11 53:2 65:18 facts 32:10,11 fair 53:14 67:14 falls 22:13 far 22:24 37:8 41:15 67:10 75:20			gap 63:3 gave 8:12,13 15:22 general 25:10 34:5 42:21 48:13 50:11,17 51:6,12 55:20 57:14, 17 generalize 50:12 generalized 52:1 generalizes 57:18

generally 50:18 getting 10:11 47:3 gist 49:25 give 4:10 6:18, 20 8:1 20:20 43:23 70:18 given 32:19, 21, 23 33:2, 8, 10, 16, 18 39:3 giving 14:21 19:19 goes 6:16 50:13 68:1, 17 going 9:23 10:1, 12 26:16 34:12 45:11, 18 48:7 49:15 57:14 58:11, 13 64:17 66:15 67:10 70:11 77:7 79:16 84:21 good 4:21 13:13 45:16, 24 56:24 86:4, 19 government 12:5, 14 governor 12:5, 19, 20, 24 13:2 Great 85:13 Greece 11:10, 22 12:16 13:2 Greek 12:4, 21	ground 6:12 8:7, 9 group 56:15 68:14 72:4, 7 guaranteed 54:9 guess 11:25 44:11 59:14 65:1 71:1 73:4 80:23 84:19 H halfway 44:11 hand 4:7 handles 48:4 handshake 72:8, 21 happen 57:25 73:24 77:4 81:7 happening 58:2 hard 27:14 harder 64:11 hardware 14:12 81:18 HDCP 74:17 76:23, 25 heading 27:6 46:21 60:20 71:18 85:6, 14 hear 21:3 38:14 43:11 79:20, 23, 24 80:1, 4 heard 21:21	HEINTZ 86:14, 17 Hello 4:22 help 40:5 43:5 helpful 5:14 26:24 32:25 59:10 helps 30:12 hence 82:6, 8 hiding 65:1 high 56:8 76:22 high- bandwidth 74:16 higher 48:14 hold 51:9 58:8 70:9 86:14 holder 18:10 Hollywood 77:1 home 79:17 host 72:10 hour 7:20 45:11 hours 9:5, 7, 13, 17, 18 house 4:25 I i.e. 82:4	identified 68:24 IEEE 36:15 III 46:21 illustrated 72:13 image 73:8 75:2, 3 78:22, 24 implementatio n 15:5 implies 65:1 important 65:25 68:8 inaudible 16:11 67:19 include 11:20 included 50:22 82:8 includes 48:1 including 27:19 29:25 33:18 income 20:9 incorrect 85:15, 20 independently 20:1 individual 20:5 information 33:16 55:4 75:12, 13 informed 22:6 infrastructur e 12:11 14:3 15:3, 25 16:7 68:18
---	--	---	--

infringement 17:18 18:17, 22	36:24 37:4 77:2 81:11	joined 9:22	L
initially 80:21	involves 16:7	Joseph 22:4	lab 11:19 13:18 14:3 19:16
input 60:13, 20	IP 72:11 74:16 75:11, 13, 17, 19	jumped 4:23	labeled 43:20 78:12
installations 15:8	IPR 5:25 6:7 9:9 21:4	K	LAN 15:3, 7 72:9
instantaneous ly 77:5	issue 15:24 23:12 36:23	keep 27:11 45:18 64:16	language 31:3
Institute 12:3	issues 12:13 15:4 17:20	kept 66:15	large 4:4 15:5 63:16
instructed 35:4	Iwami 25:24 26:2, 4 32:17, 24	key 6:25 29:21	largest 15:7
instructs 7:15	33:6 34:17 35:24 37:4 41:6 70:11 71:7, 8 73:17 75:11 77:8 78:4 79:3 80:8, 19	kind 5:24 16:18 58:7 64:5	late 49:20 84:6
interchange 72:11	Iwami's 70:22 80:8	kinds 58:5	lawyer 30:16
interconnecti on 37:22 47:14	J	know 5:1 6:22 7:9, 17, 21 10:8 15:12, 24, 25 16:2 17:19 18:19, 22 23:23 27:14 29:22 31:12, 22 37:17 38:16 44:7 45:3, 13, 24, 25 48:12, 20 51:15 55:18 56:24 58:7 59:5 62:16 63:20 66:7, 9, 14 69:21 70:8, 10, 16 71:9 75:16 76:16 77:1	layer 47:22, 25 48:3, 7, 8, 9 54:17 58:1
interested 21:19 22:16		knowledge 27:20 30:1	Layer-1 47:22 49:9
internal 48:24		known 31:10 55:11	Layer-2 37:21 40:13 46:22 47:4, 25 48:17, 21, 23 49:1, 5, 7 50:2, 15 63:2, 8 67:9, 13 68:20, 21 69:16, 18 81:16
internet 50:4, 5, 14 65:17 77:23			Layer-3 70:23, 24
interrupted 49:17			Layer-4 37:24 40:14 46:22 47:4 48:3, 19 49:2, 5, 8 50:16, 18 67:9, 12 70:23, 24
interruption 50:2, 16, 21	January 13:20		
interruptions 50:7, 19 82:6	Jim 86:17, 20		
interrupts 50:16	jitter 64:22		
introduction 8:13 21:24 22:14	job 11:8 13:10 14:8		
invalidates 24:3	Joe 22:3 24:9 82:23		
inventor's 25:24	join 56:15		
involved 20:13 23:16			

75:19, 20 81:17 Layer-7 48:8 layers 47:18 48:7, 14,15 58:1 76:18 lead 40:22 Leah 4:1 46:3 learning 16:10,17 led 86:1 left 51:14 legal 17:22 18:4,6 19:4,19 31:2,3 length 40:12 lengthy 41:10 level 12:21 30:16 life 6:13 11:9 15:18 limitation 51:16 limited 25:2 26:9 40:20 lines 16:3 78:13 link 47:25 77:10 list 28:4,7,8,13, 14,19,25 31:23 32:18, 24 33:2,4 34:16 35:21 36:1 41:24	42:3 listing 28:24 litigation 65:22 little 6:10,13 9:15,16 12:7 15:18 17:16 21:5 36:18 38:17 40:3 50:10 55:17 59:5 63:17 66:16 78:1 lives 6:12 located 4:24,25 logical 81:19,20 long 5:22 9:3 13:1 67:22 69:13 71:14 72:14 74:6 76:24 77:5 look 10:1 19:10 29:3 35:4 37:12 42:18, 24 56:2 74:12 76:24 78:3 83:25 looked 11:8 41:25 42:3 looking 80:22 lose 43:8 63:18, 20 65:13 69:15 loses 69:13 loss 49:4,17 50:24 58:8	63:3 64:19, 20 65:5 66:11,12 81:8 lost 43:9 48:18, 20 54:15 63:10 65:2, 18 lot 17:5,6 18:4 63:21 65:13, 18 low 56:8 lower 48:14 M MAC 48:1 85:14 MAC' 37:22 MAC-LAYER 85:17 machine 16:10,16 made 8:7 21:24 22:14 34:3,4 50:14 51:11 69:22 main 12:2 14:7 32:4,9 52:7 maintain 77:23 maintained 39:18 68:22 69:17,19 75:7 76:10 85:18 maintaining 38:9,23 44:16,17,22 51:17 65:6	73:1 75:15 80:12,15 maintains 62:24 make 6:12 14:8 15:17,18 25:13 29:22 32:14 33:25 34:15 38:21 41:22 45:8 48:11 51:3 52:11,12 53:10 56:3 59:4,7 63:5, 7,12 69:7 75:22 makes 50:12 53:5 making 70:22 Massachusetts 12:3 material 30:15 Materials 27:7,8 Matt 43:8,10 80:1 86:6 matter 17:16 75:22 Matthew 66:20 maximum 20:17 mean 18:7 29:9 30:17 42:6 57:24 66:5, 12 78:16 meaning 30:8 68:7 means 30:17 72:5 measures 12:16
--	--	---	---

mechanism 18:24 50:23 54:12 68:21 77:18, 22 81:23	31:14 65:24 66:17	moot 50:13	needs 79:10
mechanisms 18:12 64:2, 3 68:9, 13 80:24 81:6, 21, 22 82:3 85:23	mine 21:17, 24	morning 4:21	negotiation 56:20 72:4, 7, 17
media 11:19 13:18 19:16 54:20 55:2 61:1 82:5	minimal 57:15	move 29:16 68:16 69:4, 10, 15, 22	negotiations 55:4 73:24
medium 37:21	minoring 78:14	movie 64:7 65:16	Netflix 64:13 65:16
mediums 50:8	minute 34:8 43:21	moving 36:17 69:11	network 47:17
memory 35:20	Miracast 55:10, 11 56:4, 5, 7, 12 58:11, 12 59:25 61:22, 25 78:14 79:4	MPEG-2 59:15, 17	networking 14:19 18:1, 3
mention 84:13, 16	mirroring 78:16, 17, 19	multiple 23:21 40:8 47:18 69:20 79:14, 15	never 11:8 21:24 65:17 69:15
mentioned 4:23 17:14, 17 59:24 83:18, 20	misleading 43:2	mumbling 43:22	newly 12:5
mentioning 83:7	missed 28:11	mute 50:13	nice 7:3
mentions 78:4	misses 11:9		Nick 45:21 86:9
message 65:10, 11 66:5, 6	misspoke 41:3	N	nod 44:21
met 51:16	MIT 11:19 12:2 13:9, 11, 16 15:7, 25 16:5 17:4 19:16, 22	name 22:2 25:24 65:1	node 49:8, 15 69:13
method 80:18	MIT's 15:2	narrow 42:15	nodes 49:10
methods 81:9, 10	mode 52:24, 25 68:18 71:19 73:7, 8 74:25 75:1, 2, 3 83:21	National 12:6	Notary 4:3
MICHAIL 4:14	moment 4:25 43:23 70:9	natural 27:15	notice 58:2, 4 65:18 75:25
military 12:23	months 21:5, 6	nature 57:20	noticed 33:24
mind 5:13 14:21		necessarily 37:24 40:13 85:16	nuances 51:14
		necessary 72:2 73:15, 20	number 9:7 10:14 20:20 23:23 25:25 47:1 61:8
		need 7:8, 20 15:17 56:14 73:23 86:7, 17, 18	numbering 43:4

o	20 36:3, 11 37:18 38:4, 20 39:20 43:1, 13, 15 44:1, 5 45:2, 7, 19, 20 46:5, 9, 21 47:5, 9, 21 48:3, 6, 11, 17 49:3 52:9, 11, 18, 23 53:11, 21 54:4, 8, 11, 15, 20 55:7, 12 56:1, 12, 19, 24 58:10 59:20, 24 61:5 62:8, 14 63:5, 25 64:16, 21 65:5 66:14, 18, 20 67:1 68:23 69:2, 6, 18 70:5, 18, 20 71:6, 15, 17, 22 72:7, 16, 21, 25 73:3 74:3 75:10 77:8 78:3, 9, 10 79:3, 12, 20, 22, 25 80:3, 7, 22 82:12 83:1 84:14, 17, 19, 23 85:13, 25 86:3 once 5:20, 21 19:20 70:15 one 6:16, 25 15:7 16:8 20:17 25:23 33:5 41:6 43:21 50:4 57:21, 23 62:7 70:9, 18, 21	71:10 73:1 76:7 78:22 ones 28:23 41:12 open 5:9 10:8, 11, 16, 17 37:22 47:14 55:25 70:16, 20 operate 18:13 31:20 56:13 operating 56:10 operation 18:15 52:24 53:1 operations 14:4 opine 25:11 40:11 41:14 opined 40:15 opinion 18:9, 14, 17, 23 19:6 23:1 32:3, 6 34:6 35:6 36:25 37:19 39:8 40:4, 7, 18 51:13 67:15 86:1 opinions 19:5, 19, 24 20:16 24:25 26:21, 23 27:18 28:22 29:10, 23 31:14 34:8 37:11 38:22 44:5 46:13 47:7 51:7 80:23 82:16 opposite 52:6	option 79:5, 6 order 34:2 57:7 82:3 85:24 86:9 ordinary 27:21 30:2, 9, 10, 18 31:9, 13, 16, 24 36:19 organization 12:23 13:2 original 57:11 OSI 37:23 47:11, 14, 17 48:13 output 62:6 outputs 61:15 outputting 61:19 78:24 outside 17:3, 12 29:7 59:5 outstanding 8:1 owner 34:20, 21 35:24 36:1 68:14 72:5, 7 P P-O-S-I-T-A 30:13, 20 p2p 56:14, 15 68:14 72:3, 16 Pachamanov 33:20 34:3, 4 52:14, 23 81:3, 25 85:15
----------	--	--	---

Pachamanov's 33:19 34:19 35:5, 8, 25 39:9 50:9, 25 51:6 69:12 81:22 82:17 83:8 packet 48:24 49:12, 22 54:15, 16 57:20, 21 63:3 64:19, 20 66:11 packets 49:19, 20 58:9 65:14, 19 81:12, 18 page 10:19 11:3 28:15, 25 43:17 45:9 46:9, 10, 14, 17, 18, 20, 24, 25 47:2, 3 58:23 59:11 60:19 61:8, 9 62:15, 16 71:10, 12 78:7, 11, 12 85:5 pages 78:8 Panno 7:13 43:8 45:23 46:2 51:18, 21 52:16, 20 54:23 61:21 67:17 82:21 84:2, 6, 19 85:2 86:5, 10, 20 papers 50:5 Paradiso 22:3, 4, 8 82:18	Paradiso's 23:6 24:9 35:15, 18 82:24 paragraph 26:25 27:5, 6, 17 28:4 29:16, 18, 24 36:17, 21 37:8, 14 39:2 40:3 42:19 46:10, 11, 18 47:10, 11 62:14, 19 64:16 71:3, 8, 17, 18, 23, 25 73:5 74:4, 7, 13 75:11 76:2, 5, 8 77:8 78:4, 5, 6, 10 85:5, 7, 8 paragraphs 39:12 70:25 71:7 parameters 57:6 58:2, 3 64:2 parentheses 72:3 75:1 parenthesis 37:21 parenthetical 37:25 part 13:18 19:1, 3, 4 44:25 72:22 78:10 parts 6:25 past 19:16 patent 8:17 10:12, 14 17:17, 18 18:9, 10, 16, 21, 25 19:7, 10 23:10, 12,	13, 14, 22 24:3, 22 25:25 27:23 31:11 34:18, 20, 21 35:23, 24 36:1, 23, 25 38:8 39:23 41:5, 16 42:13 50:25 65:22 78:12 patent- related 6:1, 2 patents 18:11 23:11 32:16, 17 37:5 pause 6:17 PDF 11:3 46:18, 25 58:23 59:11 61:9 62:16 71:12 78:7, 11 85:5 penalty 4:8 people 16:7 perfect 65:16 perform 14:10 72:2 performance 15:2 performed 72:1 73:8 75:4, 5 performing 72:8 period 48:19, 21 57:1, 3, 10 58:9 73:9 perjury 4:8	persist 67:13, 24 persists 50:6 person 27:20 30:1, 9, 10, 18 31:9, 13, 16, 24 36:19 petition 23:3, 4, 5, 8, 25 24:5, 14, 20 25:16, 18 26:3 32:20, 21 34:16 35:23 82:16 83:3, 4, 11, 12, 14, 17, 22, 24 84:10, 16 petitioner 9:1 17:9 21:14 23:21 24:2 36:8 39:4 phone 5:12 phones 79:15 phrase 30:19 36:20 phrased 11:21 51:7 physical 5:6 47:22 56:10 physically 4:25 picking 51:3 plain 82:1 play 61:1 66:10 please 4:7 6:22 7:9 27:10 34:16 43:23 51:10
---	---	--	---

plenty 36:24 40:16 point 7:21 15:9 19:5 28:10, 15 29:3 40:12 50:5 60:5 68:14, 19 77:24 79:10,11,19 pointing 58:18 points 12:23 15:9 29:21 42:13 70:21 76:23 83:13 port 72:11 74:17, 22 75:12,13 portion 30:3 38:24 44:11,22 POSITA 30:13,20 position 12:18 possible 16:15 52:25 74:15 75:5 practical 15:11,23 16:6,18 precisely 42:25 predefined 75:18 premise 53:5 prepare 8:4 prepared 9:8 41:13 preparing 8:22 9:4 29:10 82:15	prescribes 60:25 presence 50:6 presume 64:19 pretty 8:12 11:11 25:1 32:21 57:15 prevent 50:23 prevents 81:12 principle 50:3 principles 31:20 50:13 prior 17:14 19:11 23:21 24:1, 20 25:9,12, 17 26:5 32:23 33:5 34:17 35:23 37:2,3,9,10 39:25 40:9 41:6 priority 27:22 privilege 7:16 probably 18:19 21:1 24:25 29:2 30:23 78:15 84:21 problem 64:11 proceed 4:18 proceeding 5:25 6:7,9 21:4 proceedings 18:22 19:4	process 56:25 74:16 75:4,14 product 19:7 professional 4:2 34:6 project 14:24 15:1 projection 62:2 protection 74:17 76:23 protocol 37:25 38:1 53:22 58:15 59:16 72:10, 12 74:23 77:11 80:18 protocols 57:15 81:11 provide 23:1 25:2 28:4 32:6 37:19 47:6 54:8 provided 18:8,9,14 20:16 25:7 28:12,14 31:3,4 32:12,15,16 34:25 35:2, 3,7,11,14, 17,22 36:7,9 37:11 53:7, 13 provides 53:25 54:5 77:18,21,22 providing 38:22 44:5 Public 4:3 Publication 25:25	purpose 42:4 65:9,22 68:9 purposes 80:19 81:15 put 10:1 12:25 13:14 70:11 83:22,24 putting 5:14 Q qualification s 31:15,23 qualified 73:14 qualify 31:16 63:14 64:1 question 5:10 6:17 7:7,15,16,25 8:1 16:20 17:2 24:12, 13 37:1,19 40:20 41:17 42:12 46:15 50:15 69:7 79:20,24 80:1,4 84:7 question-and- answer 6:16 questions 7:14 24:7,8, 11 26:20 30:24 32:8, 10 33:11,18 34:10,13 37:10 40:24 41:1 55:20 84:18 quickly 8:17,18
---	---	---	--

23:5, 15, 18 32:3 58:23 76:7 85:3 quite 13:12, 13 35:3 41:9, 10 quote 37:20, 22	real-time 58:15 59:16 64:6, 12 74:22 75:24 82:4 realize 24:16, 19 Realtime 4:2 reapplying 55:1 reason 7:8 26:19 28:2 34:9 41:25 83:7 rebut 34:2 68:17 rebutted 34:5 recall 5:23, 24 6:15 9:6, 20 17:18, 20, 23, 24 18:5 22:2, 12 26:2, 4 32:19 33:8 34:24, 25 35:2, 11, 13, 16, 17 41:9 44:1 55:15 received 44:15 61:15 receiver 65:10 receiving 44:12 recently 8:12 16:9 recess 66:23 84:24 recollection 83:16 reconnection 76:3 record 7:4 10:4, 13	22:23 27:12 55:21 66:22 84:20 86:5, 7 record's 33:25 redefine 65:21 refer 15:13 30:18 38:7 45:2 47:11 64:17 reference 25:23 26:5 34:17 35:24 41:6 references 23:21 24:2, 21 25:17 32:24 33:5, 12 34:4 71:14 referencing 50:4 referring 15:14 28:17, 19 30:22 45:4 61:19 62:5 refers 62:3 regard 30:17 50:11 regarding 18:10 27:20 30:1 40:24 70:22 Registered 4:2 regular 12:12 regulations 12:14, 15 related 18:21, 24 relates 38:9	relevant 27:21 30:2, 9, 10, 19 31:10, 17, 25 32:16 33:13 36:21, 22 40:9 reliable 53:25 Relied 27:8 rely 54:21 55:2 remember 15:17 27:10 34:23 43:4 repeat 7:9 46:15 repeatedly 36:25 rephrase 21:16 reply 33:23 reporter 4:2, 3, 6, 17 7:1 16:12 27:11 30:5 38:12 43:9, 12 46:4 53:18 67:20 69:25 86:6, 12 reporter's 6:13 reproduced 78:22 require 56:9 requirement 60:4 requirements 55:1 requires 39:21 requiring 79:8, 9
R			
radios 37:23 53:3, 7 raise 4:7 rapid 75:4 re- association 81:2 re-requests 54:17 reached 21:14 read 8:6 23:3, 4, 6, 10, 11, 12, 18, 25 24:9, 13 25:15 26:5 29:20 32:20 35:10 39:2, 9 40:17, 25 41:4, 7 43:24 44:10 69:9 73:5 74:14 83:11, 12 read] 85:19 reading 24:19 44:1 83:16 86:25 reads 27:17 30:14 real 72:12			

rereading 38:20	17,18	RTSP 72:12	scroll 10:21 46:7
research 14:4,5,7,10, 16,17,18,24 15:1,12,14, 15 16:1,6,19	right 4:7 7:6,24 8:4 13:21 18:18 19:8, 18 21:15,22 23:18 25:18 32:18 34:10 37:6 38:24 39:18 44:24, 25 45:25 46:11,13 47:7,15,23 48:4,9,20 54:2,6,9,18, 22 55:12 56:10,17 57:1,12 58:15,22 59:18,22 60:1,3,7,14, 20 61:1,3 62:10,12 64:6,9,14,23 65:3 66:2 68:11 69:4, 23 72:23 73:1 77:15 79:6 80:8, 10,12 84:4 85:3,21 86:16	rudimentary 69:6	58:24 61:7 62:14
researching 16:3		rules 6:12 8:8,9 77:5	scrolling 11:1 59:10
responding 39:13		run 16:10	sec 70:18 71:10
response 34:20,21 35:6,24 36:1		running 16:4	second 43:10 44:16, 18 61:15 62:23 73:4 74:12 78:10 84:5
responsible 12:14 14:2		runs 78:7	seconds 64:10 73:9, 14,16,23,25 77:4
rest 25:4 55:3		S	section 46:21 47:10 56:2 58:19 59:1,13 60:18 71:22 85:6,7
restraints 67:22,23		safe 62:3	sections 39:17 42:11 60:24
resulted 15:4 18:22		Samsung 9:1 17:9,11 36:8	security 12:11 72:8, 22
resumé 11:5,7		satellites 63:20	see 9:23 13:17 14:11 18:21 24:4 25:6 27:25 30:3 38:2 43:14 46:23,24 47:12 50:20 61:5 71:20 72:14 73:11, 12 74:14,19 75:8,16 77:12 79:1 83:25 84:9, 12,15
retained 22:22		saying 11:13 23:24 51:10,24 59:9,15 73:24 79:3 80:24 85:20, 22	seeing 26:2,4
retransmissio n 54:12 62:24		says 52:21 61:14 69:12 74:8 75:16,23 76:8,24 77:3,9	
retransmissio ns 54:2	rights 77:2	scenario 64:5 76:4	
retrieved 36:9,13	role 11:25 12:8 13:1,15 14:1,13	scheme 74:25	
review 6:3,4 8:16 22:22 24:9 29:9 34:21 41:22 82:14 83:4	room 5:4,12 66:10	scope 26:9,20 40:7,19 41:23 42:14 61:21 84:7	
reviewed 8:6,14 24:4 28:3,5,7 33:15,17,20 34:15,17,18 35:23 41:20 44:7 82:15,	rough 86:7,12,15	screen 62:3	
	round 67:8		
	RTP 59:3,16 62:11,12 74:23		

self-employed 19:14	side 5:14	60:25 67:9	standard 30:16 31:7,8
send 21:18 76:19 77:25	signature 10:18	sounded 15:11,23	standards 36:12,14,15 50:22 53:8 57:6
sensitive 66:7	significant 74:1	sounds 12:24,25 19:1	standby 73:7 75:1,3
sentence 62:23 72:14 73:3,4,5,11, 12,16 74:12 78:13 79:1	signing 86:25	source 62:7 76:19 77:9 79:13	STANFORD 4:20 10:4,6 16:23 30:7 38:13 43:11, 13,16 45:21 46:1,5,6 51:19 52:8, 19 53:20 55:6,21,24 61:23 66:21, 25 67:25 70:2 82:25 84:3,8,23 86:15
separate 15:13 16:4 60:6 80:13	similar 6:9 12:10	sources 79:14	staring 80:5
service 72:3,16	similarly 78:25	space 5:1	start 6:21 11:1 12:1 46:12 51:5 56:6 76:4
session 26:13 46:22 47:4 84:21 85:17,18	simply 24:14 41:5 56:19 63:2	speak 8:22,25 67:2,5	started 21:20 45:8
service 72:3,16	simultaneousl y 71:4	speaking 9:21	starting 60:17,19
session 26:13 46:22 47:4 84:21 85:17,18	single 68:19	specific 16:16 24:7, 10,11 25:6,8 26:10,15 30:24 32:8 37:1 40:12, 20 41:12,17 42:10,14,17 51:24 52:1, 14,24 56:2 64:5 83:15	starts 11:3 62:15 71:25 74:13 78:13
sessions 38:1 67:12	sink 59:21 62:7 76:20 77:9, 25 79:14	specifically 76:21	state 4:3 29:24 62:25 69:11
set 27:18 57:3 58:3	sitting 80:5	specification 55:14 58:20 59:2,14 60:17,18,24	stated 26:22 32:10, 11 67:12
setting 12:9 72:12 74:18,22	situation 76:5	specification s 55:8 60:12 69:8	statement 8:6,7 35:5 37:13 39:1 50:14 53:4,
setup 58:7 77:10	skill 27:21 30:2, 9,10,16,19, 23 31:9,13, 17,24 36:19	specified 57:10	
seven 47:18	skip 74:4	spend 25:4	
several 17:23 18:5 73:9,14,16, 23,25 77:4	slightly 64:11	spent 9:3,8,13	
short 45:13	small 57:22 63:16	stack 37:23 47:11	
shorten 42:21	software 14:13 81:19		
show 50:23	solemnly 4:8		
showing 84:4	sort 6:16 16:4 42:20 49:4 56:3,20		
shows 70:15			

5,10 57:17, 23 63:12,13, 23 83:8 statement/ declaration 33:19 statements 34:2,5 51:12,13 83:15 states 27:7 37:13 44:9 70:24 73:6,17 stations 69:3 status 13:14 step 80:22 steps 72:17 stop 6:22 8:2 54:5 stream 49:13,16 61:1 63:21 streaming 17:21 54:21 58:25 64:7, 12,17,18,21 65:13,14 72:12 75:24 streams 59:15,17 64:4 study 41:15 82:23 subject 17:16 sublayer 48:1 submitted 9:9 10:24 23:7 34:19 35:15,25	36:4 55:23 subset 23:1 29:5 suggested 21:18 summary 40:6 superset 29:1 support 79:10 supports 77:10 79:11, 19 supposed 78:16 sure 9:23 14:8 15:17 21:2 25:13 29:22 32:14,21 33:25 34:15 38:21 41:22 44:6,7 45:8 46:1,16 48:11 51:3 52:11,12 56:3 59:4,7 63:5,7 69:7 70:19 84:4 swear 4:9 switch 13:15 56:7, 20 63:9,15, 16 68:3 70:24 75:22 77:19,22 81:8 85:19 switching 15:6 68:10 69:17 71:19 72:1 73:6 74:24 75:1,2 83:9 sworn 4:15	synchronized 49:22 system 16:15 74:17 76:23 systems 37:22 47:14 T table 28:16,18 29:7,14 43:18,19 61:7 take 7:3,19 8:2 12:16 25:19 45:13,21 50:19 77:4 84:20 taken 4:1 66:23 73:13 84:24 takes 56:25 63:17 78:8 taking 7:25 66:17 80:22 82:2 talk 7:2 15:17 22:8,15 27:10 45:3 47:9 48:22 53:12 55:17 70:6 76:11, 17 talked 36:18 41:23 talking 6:21 20:21 21:20 36:14 42:2,20 48:24 49:11, 12,21 80:7 81:16,17	talks 76:12,18,21 target 68:15,16,24 69:2,4,23 task 16:16,17 39:3 tasks 16:11 taxed 20:9 taxes 20:12 TCP 48:4 53:15, 22,25 55:5 60:6 61:3 62:10 65:12 67:12 TCP'/USER 38:1 TCP/IP 50:3 TDLS 77:10,11,14, 18 78:4,24 79:6,8,9,11, 18 80:7,8,9, 25 81:5,21 82:20 83:5, 17 84:11 technical 18:23 19:5, 6,19 20:16 26:14 46:12 47:7 55:14 57:5 58:19 59:6 60:18 69:8 technically 57:23 technique 64:25 techniques 64:23
--	--	--	--

technologies 31:19	31:19 41:14	67:10,12	truth 4:10,11
technology 12:4 36:23, 24 39:22 78:15,16,18, 19,23	58:5 63:21 64:7 66:8 74:9 82:4	84:18 86:1, 16	try 6:20 7:19 24:7 27:16 37:3
tell 11:24 12:7 17:16,25 18:20	think 21:12 23:25 28:8 31:22 35:9,19 36:2,12 40:2,3 43:9 50:1 57:18 63:6 68:7 73:14,20 78:15 82:11 83:19 86:4	today's 8:5 9:4	trying 33:23,25 40:22 41:19, 20 44:10 50:11 69:7
ten 9:17,18 20:24	thorough 51:2	told 21:22,23 40:24	tunneled 77:10
ten-minute 45:13	thought 25:5	Tools 84:11	turn 26:25
term 31:7,10 81:2	three 9:5 13:4 20:18 21:6	top 12:21 20:10 78:11	turning 5:13
terminal 44:14,16,19 61:16 78:22, 23,25	time 7:13,14 13:6 15:9 25:4 29:3 45:12 49:23 52:4, 5,7 54:24 57:1,3,9,14, 22 63:17 66:7,8 72:12 73:9 74:1 75:21 77:25	total 20:20 40:17	turns 7:3
terms 83:25	timeframe 27:22	totally 32:5	twelve 9:18
tested 18:13	timeout 62:25	traffic 58:8	two 13:3,5,11 23:11 24:10, 11 25:3,6,7 26:10 53:3 56:8 57:11 60:23,25 78:8 80:13 86:8,18
testified 4:16	times 5:19 20:15 26:22 40:9 65:15 79:18	transcribed 7:1	types 20:16
testimony 4:9	timing 57:6 58:3 67:18,20,23	transcript 35:8,18 38:21 86:8	typically 56:14
text 84:12	today 4:10 6:8 7:4 8:23 10:1 45:3 66:16	transmission 37:25 54:12 57:16 73:8 75:2,3	
thank 4:17 5:11 17:2 45:6,10 53:11 56:24 58:10 71:13 84:17		transmit 65:10	U
theory 16:3		transmitted 63:10	
thing 7:24 18:20 43:14		transmitting 78:21	
things 16:8,18 18:13 23:16 25:6,8 26:11		transport 48:3 74:23	U.S. 10:13 12:24 23:14 25:25
		transported 58:14	U.S.'s 12:10
		true 23:24 48:13 51:13 57:23 63:23	UDP 38:1 48:4 53:15 54:4, 6,8,12,15,21 55:2 58:11,
		trust 43:2	

12,15 59:17, 22 61:2 62:9,12,13, 19,24 Uh-uh 30:4 38:11, 25 39:11 53:17 55:9 58:16 62:18 69:24 80:11 UIBC 60:14 61:2 uncoordinated 81:1,23 understand 7:8 11:17 26:20 30:15 31:8 34:8 37:6 41:23 43:5 45:4 52:11 56:4 59:7 70:5 understanding 25:22 29:22 30:8 36:20 46:12 59:5 63:6 65:23 69:8 72:18 77:20 understood 7:11 32:13 41:2,18 42:16 60:11 77:17 unequivocally 65:9 uninhibited 57:8 unknown 32:5 unrelated 6:1 unreliable 50:7 updated 11:12	upload 83:23 upper 58:1 76:17 user 60:13,20 65:6 75:5,25 76:8 81:20 user's 65:2 utilized 27:19 29:25 v valid 11:16 53:4, 6,10 validity 17:19 variety 64:8 various 28:3 70:7 vendor 15:5 vendors 15:6 verbal 38:18 version 10:24 11:6 versus 64:13 66:1,3 video 54:20 58:13 59:20 61:20, 25 62:1,2,5, 9 63:9 64:10,12 65:13,14 75:24 76:19, 21,24 77:1, 25 82:5 violated 67:23	w waiting 79:22 want 26:20 29:21 34:8 41:18, 21 42:16 45:21 48:11 50:17 51:3, 23 56:3 59:4,7 64:10 67:8 82:12 84:19 85:3 86:12 wanted 86:3 watching 65:16 way 12:25 13:14 16:10 50:12 53:3,5 59:10 61:6 68:25 73:21 81:12 ways 53:6,9 64:8 weird 38:17 went 8:7,9,17 23:4,15,17 26:6,8 wheelhouse 59:6 Wi-fi 78:14,23 Wifi 37:23 46:23 52:24 53:3, 6,8 55:8,13 57:5 58:19 60:17 69:13 72:2 79:4,5, 16 82:1	window 10:2 57:22 windows 57:16 wireless 14:20 15:3,7 72:9 WITNESS 16:14 30:6 46:3 51:23 52:18 53:19 54:24 61:22 67:18,22 70:1 82:22 Witt 4:1 38:18 66:22 Witt's 15:18 word 12:21 25:19 31:9 56:22 75:10,11 words 52:13 work 14:19 17:4, 11 19:4,18 20:2 24:6 50:23 worked 15:1 21:17 31:18 working 9:8 12:4 13:7 14:24 19:13,15 22:5 works 18:20 82:1 world 15:8 31:11 worry 20:11 Wow 15:10
---	--	--	---

write

38:18

writing

31:21 32:1

written

7:3 33:2

wrong

38:5 40:6

51:11 78:17

Y

yeah

6:2 17:1

19:9 21:10

23:19 24:18

28:1 30:14

34:14 37:16

42:1 43:23

45:23 46:2

61:25 69:10

71:16 74:21

76:1 78:19,

21 79:25

82:13 84:2,

11 85:8, 13

86:10

year

20:17 21:11

years

5:23 11:12

13:3, 4, 5

17:15, 24

18:5 19:16

20:19

Z

Zero

28:12