

Nielson - 2-25-2021

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC. AND §
HULU LLC, §

PETITIONERS, §

V. §

DIVX, LLC, §

PATENT OWNER. §

CASE NO. IPR2020-00558

U.S. PATENT NO.
10,225,588

REMOTE DEPOSITION OF

DR. SETH NIELSON

Atlanta, Georgia

Thursday, 25th day of February, 2021

Reported by:

Daniel J. Skur, Notary Public and CSR

Job No. 188463

Nielson - 2-25-2021

25th day of February, 2021

11:02 a.m. Central Standard Time - 6:24 p.m.

Remote Deposition of DR. SETH

NIELSON, located in Atlanta, Georgia,
before Daniel J. Skur, Notary Public and
Certified Shorthand Reporter in and for the
State of Texas located in Waxahachie,
Texas.

Nielson - 2-25-2021

A P P E A R A N C E S:

Sheppard Mullin

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BY: Jeffrey Liang, Esq.

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BY: Parham Hendifar, Esq.

ALSO PRESENT FOR HEARING ONLY:

The Honorable Kevin Turner

Kenneth Weatherwax, Esq

Nielson - 2-25-2021

IT IS HEREBY STIPULATED AND AGREED

by and between the attorneys for the respective parties herein, that filing and sealing be and the same are hereby waived.

IT IS FURTHER STIPULATED AND AGREED

that all objections, except as to the form of the question, shall be reserved to the time of the trial.

IT IS FURTHER STIPULATED AND AGREED

that the within deposition may be sworn to and signed before any officer authorized to administer an oath, with the same force and effect as if signed and sworn to before the Court.

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1 Nielson - 2-25-2021

2 P R O C E E D I N G S

3 REMOTE ORAL AND VIDEOTAPED DEPOSITION OF

4 DR. SETH NIELSON

5 (REPORTER NOTE: This deposition is
6 being conducted remotely in accordance with
7 the Current Emergency Order regarding the
8 COVID-19 State of Disaster.

9 Today's date is the 25th day of
10 February, 2021. The time is 11:02 a.m.

11 Central Standard Time. The witness is -04:-26
12 located in Atlanta, Georgia.) -04:-26

13 DR. SETH NIELSON, -04:-26
14 having been duly cautioned and sworn to tell -04:-26
15 the truth, the whole truth and nothing but the -04:-26
16 truth, testified as follows: -04:-26

17 (11:02 a.m. Central Standard Time) -03:-31

18 EXAMINATION -03:-31

19 BY MR. LIANG: -03:-31

20 Q. All right. Well, good morning, -03:-31
21 Dr. Nielson.

22 A. Good morning.

23 Q. You know, I know you've heard it
24 before, but I'm just going to go over a few
25 ground rules just to get things started.

1 Nielson - 2-25-2021

2 So you understand you're under oath
3 to tell the truth today?

4 A. I do.

5 Q. Okay. And, you know, you can
6 take -- we can take breaks today when you need.
7 I'd just ask that you have no -- there's no
8 question pending.

9 A. Sure.

10 Q. And do you understand you're not
11 allowed to discuss your testimony with -- with
12 your counsel during breaks today?

13 A. I do.

14 Q. If you don't understand a question,
15 let me know and I'll rephrase; otherwise,
16 unless you say otherwise, I'll assume you
17 understood the question; is that fair?

18 A. Yes.

19 Q. You have to answer my questions
20 today unless your attorney instructs you
21 otherwise. Understood?

22 A. Yes.

23 Q. Are you on any medication today?

24 A. I take medicine for blood pressure
25 and cholesterol.

Nielson - 2-25-2021

Q. Okay. Any reason that you wouldn't be able to provide accurate and truthful testimony today?

A. No.

Q. Any -- do you have any documents with you?

A. I have a folder of the petitioner's exhibits and the patent owner exhibits.

Q. Okay. Those are the exhibits that have been stamped and filed in this proceeding?

A. That's my understanding.

Q. Okay. And so, typically, you're here -- so you're here to give testimony today in the inter partes review proceeding involving US Patent Number 10,225,588?

A. I recognize the last three of those, for sure. That sounds like the right one.

Q. Okay. And if we call this "the '588 patent," you'll know that's what I'm referring to?

A. Sure.

Q. All right. And are all of the -- you said you have a folder of documents of exhibits from this proceeding. Are all of

Nielson - 2-25-2021

those documents clean copies?

A. Yes.

Q. Okay. And you are working on your computer today--we're having this Zoom call--and I do ask that you -- I ask that you don't access anything on your computer or other devices unless I ask you to. All right?

MR. HENDIFAR: Objection. That's not -- Dr. Nielson is not -- under no obligation to comply with Counsel's instructions in that respect. So we just want to point an objection on that -- on that part.

BY MR. LIANG:

Q. Well, Dr. Nielson, do you agree today to not access your computer or other devices during this deposition unless I ask you to?

MR. HENDIFAR: The same objection. Dr. Nielson is under no obligation.

Counsel, you're not allowed to provide deposition instructions in that manner.

BY MR. LIANG:

Nielson - 2-25-2021

Q. Dr. Nielson?

A. If I need to refer to my report,
I -- or one of the documents for -- that was
cited, I -- I -- if I needed to use it, I -- I
would.

Q. Right.

So let me -- can you pull out the
folder and let's walk -- that you have and
let's walk through the exhibits that are in it,
just get a list of them?

A. Sure.

Q. Oh. Are you talking about a
physical folder or are you talking about an
electronic folder?

A. It's an electronic folder.

Q. Okay. So let's just -- let's just
walk through just, you know, systematically.

Do you have any physical documents
with you today?

A. No.

Q. Okay. So you have -- you have a
folder of electronic documents.

And can you list the -- can you list
the documents that you have?

1 Nielson - 2-25-2021

2 A. Sure. So let's see. Let me start
3 with -- they're marked with the exhibit
4 numbers, so I just want to make sure that I
5 have this here.

6 Okay. So I have -- under P0
7 Exhibits, I have Exhibits 2002, 2003, 2004, all
8 the way up consecutively to 2024.

9 Q. Okay.

10 A. And let me flip over to Petitioner's
11 exhibits here, and for Petitioner's exhibits, I
12 have 1001 through 1015.

13 Now, because I don't see -- I just
14 want to double-check that I -- because I don't
15 see something numbered 2001. I don't think
16 that was a number that I was reviewing, but
17 just to make sure. (Examined document.)

18 Yeah, I -- these are the documents
19 that I have.

20 Q. Okay. All right. And since we are
21 doing a remote deposition today, due to the
22 pandemic, we aren't in the same room, and so I
23 would -- I would ask you that you not access
24 your computer unless I ask you otherwise, and
25 the reason why is because -- you know, because

1 Nielson - 2-25-2021

2 I don't want you -- I -- we should -- this is
3 treated as a -- as a normal deposition, an
4 in-person deposition; and in an in-person
5 deposition, you would not be allowed to, for
6 example, go on the Internet and search for
7 things. You wouldn't be able to communicate
8 with other people using your computer. You
9 wouldn't be able to call someone up on your
10 phone or message them on your phone.

11 And since I can't necessarily see
12 what you're doing, I ask that you refrain from
13 accessing your computer unless we discuss it
14 first; is that fair?

15 MR. HENDIFAR: Same objection, that
16 Dr. Nielson is under no obligation not to
17 review the matter's exhibits to his pointed
18 questions.

19 A. So I agree that I will not use my
20 computer for anything other than accessing
21 documents that we're discussing.

22 BY MR. LIANG:

23 Q. Okay. And so -- all right. So --
24 yeah. And I think we can -- I think we got on
25 the same page.

1 Nielson - 2-25-2021

2 So you have a folder with
3 exhibits -- the exhibits that you just named,
4 which are exhibits that were stamped and filed
5 in this proceeding?

6 A. Yes.

7 Q. Okay. And aside from reviewing
8 those documents, those that you have in that
9 one (audio distortion) folder, the documents --
10 the exhibits that are -- have been filed in
11 this proceeding, you agree not to use your
12 computer or other devices outside of that
13 context?

14 A. Yes.

15 Q. Okay. Now, one of the things we are
16 probably going to talk today about is the
17 "person of ordinary skill in the art." You're
18 familiar with that phrase, right?

19 A. I use that phrase throughout my
20 report. For sure.

21 Q. And I -- and so today, if we refer
22 to that as "the POSITA" -- so if we refer to
23 the person of ordinary skill in the art as the
24 acronym POSITA, P-O-S-I-T-A, will you
25 understand that that refers to the person of

Nielson - 2-25-2021

ordinary skill in the art?

A. Yes.

Q. Great.

So are there any errors in your Declaration that you -- or anything that you want to change?

A. Nothing that I'm aware of.

Q. How much time did you spend preparing your Declaration?

A. I don't know.

Q. Roughly, is it over -- over ten hours?

A. I don't remember how many hours I -- you know, ballpark, I don't know. Maybe 40 or 50. I don't know. That's my best guess.

Q. Okay. What did you review when preparing your Declaration?

A. I believe I have cited all of the Materials Considered.

Q. Okay. So everything you reviewed when you were preparing your Declaration is cited in your Declaration or Materials Considered?

A. To the best of my knowledge.

Nielson - 2-25-2021

Q. What did you do to prepare for this deposition?

A. I reviewed the documents that I've mentioned that are in these folders, the petitioner's exhibits, and the patent owner exhibits; and I had a review session with counsel for the -- for the patent owner.

Q. How long did you spend preparing for this deposition with your counsel?

A. Let's see. That would have been about -- I guess that would be about seven or eight hours total.

Q. Did you review any -- did you review any documents during your preparation for this deposition?

A. Other than the ones I've already mentioned, no.

Q. Okay. And since I already -- just -- so just to be more clear. So everything you reviewed in preparation for this deposition is something that was cited in your Declaration or Materials Considered?

A. I -- like I said, I also reviewed other exhibits that may not be cited in my

1 Nielson - 2-25-2021

2 Declaration. I don't -- I don't know if
3 they're all -- if all of those exhibits are
4 cited. I don't necessarily think they are, but
5 I thought it would be good to make sure I
6 reviewed them all.

7 Q. So -- and the only other -- so the
8 only other exhibits that you may have reviewed
9 would be Exhibits 1001 through 1015 and 2002
10 through 2024?

11 A. Yes, I believe that is correct.

12 Q. Okay. And aside from Exhibits 1001
13 through 1015 or 2002 through 2024, you didn't
14 review any other documents in preparation for
15 this deposition?

16 A. Correct.

17 Q. Now, did you draft your Expert
18 Declaration in this proceeding?

19 A. So I developed all of the opinions
20 and I drafted some sections. Counsel also
21 assisted with drafting, after I explained my
22 opinions.

23 Q. Who wrote the first draft?

24 A. I wrote parts of it, sections
25 that -- some sections that I did the very first

1 Nielson - 2-25-2021

2 draft on. As I said, others, I explained my
3 opinions and Counsel assisted me in drafting
4 some of the first draft sections.

5 Q. In total, how much time have you
6 spent reading and reviewing the '588 patent?

7 A. I don't know. I couldn't give you
8 an estimate on that.

9 Q. Is it over five hours?

10 A. Well, I don't know, right? Like, I
11 go look at it; I review a section; I do work; I
12 come back. I look at another section. I don't
13 know how to add up all those bits and pieces.

14 Q. Do you believe you have an adequate
15 understanding of the '588 patent?

16 A. I believe that I have an adequate
17 understanding for the opinions that I have
18 expressed in my report.

19 Q. Is there anything you think is
20 unclear about the '588 patent?

21 A. I have not done an analysis on the
22 '588 patent to see if there are parts that are
23 or are not clear. I think that everything that
24 I've needed for the opinions I've expressed
25 is -- is understood.

Nielson - 2-25-2021

Q. So every portion that you provided opinions on is -- is, in your opinion, clear?

A. I guess what I would say is I -- I believe I -- I can provide an opinion on how a person of ordinary skill in the art at the time of the -- of the relevant time period would have understood it.

Q. When were you first retained by DivX for this proceeding?

A. I don't remember when I was retained for this proceeding. (Audio interference.) I was retained -- (audio distortion) --
(Discussion with Court Report held off record.)

BY MR. LIANG:

Q. When were you first retained by DivX?

A. I was retained by DivX in another proceeding last year.

Q. Okay. And when were you first retained by DivX for this proceeding?

A. I don't remember when that took place.

Q. Are you receiving financial compensation for your work in this matter?

1 Nielson - 2-25-2021

2 A. As I have explained in my report,
3 I'm being compensated at my normal rate.

4 Q. What is your normal rate?

5 A. \$500 an hour.

6 Q. How many times have you been
7 retained as an expert for patent litigation?

8 A. It's a fairly large number. I -- I
9 know more how many times I've been deposed, for
10 example. This, I believe, is number 20 or so,
11 20, 21.

12 I don't know how many times I was
13 retained and then it never got all the way to,
14 say, deposition or something like that.

15 Q. Okay. So you've been deposed in at
16 least 20 matters?

17 A. Yes.

18 Q. And you've been retained as an
19 expert in over 20 matters; is that fair?

20 A. Yes.

21 Q. Have you ever charged more than \$500
22 an hour in any other proceeding?

23 MR. HENDIFAR: Objection, relevance.

24 A. Not that I'm aware of. I know that
25 there have been a time or two where I was

Nielson - 2-25-2021

brought in through a service and they may have had markup.

BY MR. LIANG:

Q. Okay. But for those -- but in those instances, you received \$500, and they may have had an extra markup on top?

A. I actually sometimes do a discount to try and offset the markup a little bit, but I pick my rate and then they add on top of it.

Q. Sir, have you ever charged less than \$500 to be an expert in a patent matter?

A. Yes.

Q. When have you charged less than \$500?

A. I --

MR. HENDIFAR: Objection, relevance.

Sorry.

A. I don't have a list of all of my engagements in front of me to give you the various rates that I've charged.

(Exhibit 2012 introduced.)

BY MR. LIANG:

Q. Well, if you go to your CV, which is page, for example, 63 of your Declaration,

1 Nielson - 2-25-2021

2 there's -- there is a list of Expert Testimony.

3 A. I'm sorry. Is there a question
4 pending?

5 Q. Yeah. Let me know when you have it
6 in front of you.

7 A. Oh, I apologize. I -- I'm sorry. I
8 have it now. Thank you.

9 Q. Great.

10 Is this list of Expert Testimony on
11 page -- starting on page 63 of Exhibit 2012, a
12 complete and accurate list of the -- of the
13 patent matters where you've been -- worked on
14 as an expert?

15 A. It was accurate at the time I
16 submitted it. I think there may be one that's
17 needed to be added in. I'd have to check my --
18 my updated CV.

19 Q. Okay. And now -- so let me ask you
20 again. Have -- in these matters that you've
21 worked on previously, when have you charged
22 less than \$500 an hour?

23 MR. HENDIFAR: Objection as to
24 relevance.

25 And I also caution Dr. Nielson not

1 Nielson - 2-25-2021

2 to disclose confidential information of
3 third parties to the extent the rates may
4 have been privileged in those particular
5 matters.

6 MR. LIANG: Parham, let me counsel
7 you against your speaking objections. You
8 know, I think "objection, relevance" is not
9 like beyond the scope, relevance.

10 The long-speaking objections are not
11 for the type that the PTAB was looking for,
12 so I think you should keep your objections
13 to form, if they're about form, and let the
14 Doctor answer the questions appropriately.

15 MR. HENDIFAR: Well, I think it's
16 important for the Doctor to -- because
17 Doctor is not an attorney, so I have to
18 caution him about the potential legal
19 issues in the course of your questions,
20 so...

21 BY MR. LIANG:

22 Q. Let me ask you, Dr. Nielson, when
23 you -- when you submitted your Expert
24 Declaration in this case, your Expert -- your
25 Declaration states, up front, the -- your

Nielson - 2-25-2021

comp -- financial compensation you're receiving, right?

A. Yes.

Q. It states up front for this case, for example, you're getting paid \$500 an hour, right?

A. Yes.

Q. That information is not confidential, right?

A. I assume the Declarations that are published would not be confidential.

Q. Okay. So looking at these past matters where you worked as an expert, which ones have you charged less than \$500 for?

A. I --

(Simultaneous conversation.)

MR. HENDIFAR: Objection, relevance.

Excuse me.

Objection, relevance, and the same caution.

A. I don't have a complete list of the -- of the arrangements that I have with each of these clients in front of me.

BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Why did you charge less than \$500
3 for some of these matters?

4 MR. HENDIFAR: Objection, form,
5 relevance, potential privilege.

6 A. So one of the most obvious answers
7 here is, I have been doing this for a long time
8 and my rates have gone up over time. Sometimes
9 I still have a client that has engaged me in a
10 previous timeframe, and, you know, we have
11 worked out an arrangement where I've kept the
12 same rate, even while my normal rate is
13 increasing.

14 BY MR. LIANG:

15 Q. And why does -- why is your normal
16 rate increasing?

17 A. Well, there's a couple of reasons
18 for that: One is my expertise continues to
19 expand in terms of my technical capacity, and
20 also, that my time is becoming more limited.

21 Q. Are you currently charging less than
22 \$500 an hour for any patent matter that you're
23 currently working on?

24 MR. HENDIFAR: Objection, relevance,
25 and potential privilege.

1 Nielson - 2-25-2021

2 A. Yes.

3 BY MR. LIANG:

4 Q. Now, at Johns Hopkins, you taught
5 Advanced Network Security; is that right?

6 A. I did teach that class, yes.

7 Q. Do you still teach any courses at
8 Johns Hopkins?

9 A. No.

10 Q. Just looking at page 61 of
11 Exhibit 2012, your CV, it says, Johns Hopkins
12 Network Security 2014 to the present.

13 Is your CV wrong on this?

14 A. Yes, actually. That one is
15 incorrect.

16 Q. At Johns Hopkins, did you work on a
17 research project regarding drones?

18 A. I did.

19 Q. What was that project about?

20 A. Well, I actually worked on several
21 projects.

22 MR. HENDIFAR: Allow me to put my
23 objection in. Objection, relevance.

24 THE WITNESS: Yeah, I apologize.

25 There's a delay, I think I've waited and

1 Nielson - 2-25-2021

2 then apparently it's not -- it's -- Zoom
3 throws me off a little bit. I'll try to
4 wait a little longer before answering.

5 A. Yes, there were multiple projects
6 involving drones. One that I think stands out
7 to me was a project relating to collision
8 avoidance protocols, and we tested a couple of
9 matters relating to this and certain solutions
10 using drones.

11 BY MR. LIANG:

12 Q. By "collision avoidance," do you
13 mean collision avoidance in a physical sense or
14 collision avoidance regard -- in terms of the
15 networking protocol?

16 A. Physical collision avoidance.

17 Q. Okay. Was this part of a capstone
18 project?

19 A. This project that I've been talking
20 about was part of a student master's degree
21 capstone project.

22 Q. Can you explain what a "capstone
23 project" is?

24 A. Well --

25 MR. HENDIFAR: Objection, relevance.

1 Nielson - 2-25-2021

2 A. Well, I can only tell you about
3 capstone projects at Johns Hopkins in this
4 particular program.

5 So this program was called M.S.S.I.,
6 Master's of Science and Security Informatics,
7 and it was a master's degree focused entirely
8 on computer security. The students had to take
9 a very wide range of courses in security topics
10 and had to complete a capstone project.

11 With a capstone project, the
12 students would pick a mentor. The mentor and
13 the students would define a scope, a set of
14 objectives. Then the students would do the
15 work under the mentor's supervision and
16 guidance, and at the end, they would have both
17 the actual output of the project, a
18 presentation, and a report.

19 In my case in particular, as I was
20 the director of advanced research projects for
21 the institute, I was also tasked with trying to
22 bring in outside groups to collaborate on
23 these; and in this particular case, we were
24 collaborating with a group that was at the time
25 known as Onboard Security.

Nielson - 2-25-2021

BY MR. LIANG:

Q. So what is Onboard Security?

MR. HENDIFAR: Objection, relevance.

A. Onboard Security is a company that I made contacts with at a conference, actually at multiple conferences, and I engaged them about assisting our students with -- with capstones; and when I say "assisting," what we were looking for is opportunities for the students to have their capstones make use of real-world testing or software or scenarios or interaction with real companies.

BY MR. LIANG:

Q. I see.

And you're at UT Austin now, right?

A. Yes.

Q. Okay. Do you teach network security at UT?

A. The full name of the class is Network Security and Privacy. That's one class that I teach.

And the other class is called Introduction to Cybersecurity Technology.

Q. What students attend your

1 Nielson - 2-25-2021

2 Introduction to Cybersecurity class?

3 MR. HENDIFAR: Objection, form.

4 A. So the -- the -- the class,
5 Cybersecurity of Technology, is a course that
6 is actually offered through the law school,
7 uplifted with a policy program and a business
8 program, and these are students who have had no
9 technical background, generally. Let me
10 rephrase that.

11 The class is designed such that
12 students with little to no technical background
13 can take the class and get an introductory
14 exposure to the technology that is involved
15 with cybersecurity.

16 BY MR. LIANG:

17 Q. Is it right that law students attend
18 your class?

19 A. Some law students attend my -- that
20 particular class.

21 Q. And in that class on cybersecurity,
22 do you teach legal aspects of cybersecurity?

23 A. No. I'm specifically asked not to,
24 both because I'm an attorn -- not an attorney
25 and because there are other courses that cover

Nielson - 2-25-2021

that.

Rather, I am actually supposed to teach it like a technology class as if I were teaching computer science students, just assuming that their backgrounds are often more limited in terms of technical understanding.

Q. What's the -- in terms of the time that you work, what's the allocation between Crimson Vista and UT?

MR. HENDIFAR: Objection, relevance, privacy, privilege.

A. So I put in an awful lot of hours into the teaching; probably more than I should, to be honest. It takes up a lot of time in terms of designing the lectures, the lab materials, grading, et cetera. It's -- it's -- it's a lot.

If I had to make a guess on the numbers, I would put it somewhere between 25 to 30 hours a week.

BY MR. LIANG:

Q. You work full time as a consultant at Crimson Vista?

A. I do.

Nielson - 2-25-2021

Q. And so that means at least 40 hours a week at Crimson Vista?

A. Yes.

Q. So that's a lot of hours when you add it up, huh?

A. It -- I really enjoy teaching and so I -- I've been making a lot of sacrifices to do it.

Q. Okay. So at Crimson Vista, what percentage of your time is spent working as an expert for legal matters?

MR. HENDIFAR: Objection, relevance, privilege, privacy.

A. I have a difficult time estimating that because it changes between timeframes, but I have typically felt that it runs about 50/50.

BY MR. LIANG:

Q. So what do you spend the other 50 percent of your time on at Crimson Vista?

A. I work with a lot of different clients on a number of computer security issues: For example, I'm in Atlanta right now working with a client post data breach. I typically get called in--I don't know quite

Nielson - 2-25-2021

best how to describe it--almost like cleanup --
no, no, no. That's actually wrong. IR was the
cleanup. I'm the cleanup after the cleanup.

So what I mean by that is this data
breach happened a while ago. I obviously can't
disclose who it is or when it happened, but
I'll just say it happened a while ago. They've
already had analyses done, they've already had
cleanup done, and now they are having to do
some additional analysis.

And so part of what I've been doing
is finding all the places people made mistakes.
I have been doing a deeper analysis than
they've done in the past about how critical the
data is and what an attacker might be able to
do with it and how, and, in some ways, helping
them to try and get those processes, even their
audit processes improved.

I do -- I do work like that. I --
the client that basically say: Hey, something
went wrong. We need you to figure out what
went wrong.

I've also worked for clients that
need analyses on things like a cyber insurance

1 Nielson - 2-25-2021

2 company had claims submitted, the claims were
3 interesting, so they needed an opinion on the
4 correctness of the materials being submitted;
5 and then they asked for supervision of the
6 remediation process afterwards.

7 Let's see. I did analyze a
8 company's vendor's security because they were
9 concerned about a financial provider to the
10 company. So the vendor provides certain
11 financial things related to retirement. There
12 are issues with it. I do an analysis on the
13 security that is being used by that.

14 I'm trying to give you as many
15 examples as I can think of. It tends to vary
16 pretty widely in consulting.

17 Q. I see.

18 So you do a variety of consulting
19 work, and it sounds to me, based on those
20 descriptions, it's security-focused consulting
21 work; is that fair?

22 A. Computer security is a big part of
23 it. Some of it is software analyses: So
24 software engineering, understanding the
25 software engineering process, how the project

1 Nielson - 2-25-2021

2 gets completed; even some of the people issues
3 that are involved there. So it's big picture.

4 Q. Okay. So you're -- yeah. So your
5 other work at Crimson Vista, outside of expert
6 witness work, relates to general -- relates
7 generally to security and software consulting;
8 is that fair?

9 A. And I guess I'd have to throw in
10 networking, for sure.

11 Q. Okay. Anything else?

12 A. Well, obviously, those are broad
13 areas. So there's a lot of things that fall
14 under these broad areas. I mean, I didn't even
15 list cryptography. I'm just kind of leaving
16 that under Security. There's a lot of areas
17 that kind of fit under these general themes.

18 Q. Right.

19 And the general themes are
20 cryptography/computer security, networking, and
21 software engineering; is that right?

22 A. That's a lot of my work, yes.

23 Q. And what about -- you said that's a
24 lot of your work.

25 Can you name any other areas of your

1 Nielson - 2-25-2021

2 work that don't fall into those three
3 categories of security, networking, and
4 software engineering?

5 A. So I -- I think that the -- part of
6 the problem here is that these are kind of
7 fuzzy definitions.

8 So, I mean, if there's a specific
9 type of thing you'd like to ask me about or --
10 or, I don't know, something more specific, I
11 can try to answer that, but it's -- these are
12 kind of fuzzy areas. So I'm doing my best to
13 kind of get it --

14 (Simultaneous conversation.)

15 BY MR. LIANG:

16 Q. Well, I'm just -- I'm just trying to
17 get an understanding of the work that you do at
18 Crimson Vista and -- and the areas that you're
19 working on.

20 So it seems like you gave what you
21 believe is a fairly comprehensive list in terms
22 of the general areas that would be computer
23 security, networking and software engineering,
24 right?

25 Do you have any other areas that you

1 Nielson - 2-25-2021

2 would add to that?

3 MR. HENDIFAR: Objection, asked and
4 answered.

5 A. I think that probably in one way or
6 another can at least cover a lot of the
7 different things that I do. I don't know that
8 I have any other umbrella areas that I -- I can
9 think of at this time. But I -- I don't want
10 to say that that's a firm stop. These are
11 fuzzy areas, so I -- this is not a -- this is
12 not a precision list.

13 BY MR. LIANG:

14 Q. Have you ever participated in a
15 cyber standard -- sorry. Withdrawn.

16 Have you ever participated in a
17 cybersecurity standards body?

18 MR. HENDIFAR: Objection, form.

19 A. What level of participation?

20 BY MR. LIANG:

21 Q. Well, I mean, are you -- have you
22 ever attended any standards setting meetings
23 regarding a cybersecurity standards body?

24 A. No.

25 Q. Are you -- are you a member of any

1 Nielson - 2-25-2021

2 committee for standards body regarding
3 cybersecurity?

4 A. No.

5 Q. Are you a member of any committee
6 for a networking standards body?

7 A. No.

8 Q. Have you ever attended any meeting
9 of a standards setting organization for a
10 networking standard?

11 A. No.

12 Q. Have you ever participated in a
13 video standards body?

14 A. No.

15 MR. HENDIFAR: Objection, form.

16 BY MR. LIANG:

17 Q. Let me ask you: What are the MPEG
18 standards?

19 MR. HENDIFAR: Objection, form.

20 A. Well, there's a number of different
21 standards. They typically have to do with
22 video at various levels.

23 What kind of details are you looking
24 for?

25 BY MR. LIANG:

Nielson - 2-25-2021

Q. Have you -- have you ever heard of H.264?

A. Yes. I don't remember the details of that without a technical document, though.

Q. Okay. And what's the relationship between H.264 and the MPEG standard?

MR. HENDIFAR: Objection, form.

A. So there is a relationship between names that kind of get used versus technical numbers that -- that end up being like the standards body number. I don't -- I'd have to see a document to -- to give you the exact connection between all the different ones for the various MPEG standards.

BY MR. LIANG:

Q. Is H.264 one of the MPEG standards?

MR. HENDIFAR: Objection, form.

A. I would have to see the document.

BY MR. LIANG:

Q. Okay. So you're not sure right now?

A. Well, we don't typically -- I mean, typically, when I'm working with standards, I work from documents. So, I mean, I don't know that I have all the different connections

1 Nielson - 2-25-2021

2 between the documents memorized.

3 Q. Okay. Yeah. So sitting here today,
4 you're not sure if H.264 is one of the
5 standards published by MPEG?

6 MR. HENDIFAR: Objection, form.

7 Asked and answered, form.

8 A. I -- I'd have to see -- I'd have to
9 see a technical document.

10 BY MR. LIANG:

11 Q. You'd have to see a technical
12 document to answer the question?

13 A. To make sure that it was accurate,
14 yes.

15 Q. Is Chen limited to using any
16 particular video codec? (Audio distortion.)

17 MR. HENDIFAR: Objection, form.

18 (Clarification by the Reporter.)

19 BY MR. LIANG:

20 Q. Is Chen limited to using any
21 particular video codec?

22 MR. HENDIFAR: Objection, form.

23 BY MR. LIANG:

24 Q. Withdrawn. Let me rephrase -- let
25 me -- let me rephrase it.

1 Nielson - 2-25-2021

2 So Dr. Nielson, you're aware that
3 one of the prior art references used in this
4 proceeding is the patent publication number
5 2011/00968-28, which is Exhibit 1006, and
6 issued to Chen, et al.; is that right?

7 A. Do you mind if I open the exhibit?

8 Q. Go ahead. Yeah, it's Exhibit 1006.

9 A. All right. I have Exhibit 1006.

10 Just -- would you mind just repeating the
11 numbers you said just to make sure that I'm
12 looking at the same thing you are?

13 Q. Sure.

14 Exhibit 1006 is US Patent
15 Application Publication US 2011/00968-28; is
16 that right?

17 A. That is correct.

18 Q. Okay. It's issued to Chen et al.,
19 right?

20 A. Yes.

21 Q. And I believe you may have actually
22 referred to this as "Chen" in your Declaration;
23 is that right?

24 A. I did.

25 Q. Okay. And so if we refer to "Chen"

1 Nielson - 2-25-2021

2 today, again, will you understand we're talking
3 about Exhibit 1006, right?

4 A. Yes.

5 Q. Okay. Is Chen limited to using any
6 particular video codec?

7 MR. HENDIFAR: Objection, form,
8 incomplete hypothetical.

9 A. Do you mind pointing to a place in
10 my report where I discussed video codecs for
11 Chen?

12 BY MR. LIANG:

13 Q. Well, I'm just -- I'm just asking
14 you, you know, is it -- is it -- is it your
15 view that Chen is limited to any particular
16 video codec or do you -- you believe
17 somebody -- a POSITA reading Chen would have
18 known to just use known video codec at the
19 time?

20 MR. HENDIFAR: Objection, form,
21 incomplete hypothetical.

22 A. Well, in my report -- my
23 Declaration, I should say. In my Declaration,
24 I analyze specific things about Chen. I don't
25 know that I necessarily have an analysis on

1 Nielson - 2-25-2021

2 every possible question. So I was -- I wasn't
3 sure if there was a specific part of my report
4 you were referring to.

5 BY MR. LIANG:

6 Q. I'm actually just asking you about
7 Chen here, and I'm asking you if -- I'm asking
8 you if a POSITA reading Chen would have limited
9 Chen to using any particular video codec?

10 MR. HENDIFAR: Objection, form,
11 incomplete hypothetical.

12 A. So I guess what I'm trying to say in
13 my answer is that Chen is a long reference and
14 there's a lot of different ways of analyzing
15 it, which I only did what was necessary for
16 purposes of my Declaration. I don't recall
17 analyzing whether there was -- you know,
18 whether the codec was a specific type or not.
19 I don't remember that being relevant to my
20 opinions.

21 But if there's something that I'm --
22 I'm not remembering, I'm happy to turn to my
23 report and look at it.

24 BY MR. LIANG:

25 Q. So did you apply your opinions in

1 Nielson - 2-25-2021

2 this case under the assumption that a POSITA
3 could have used any variety of video codecs
4 with Chen?

5 MR. HENDIFAR: Objection, form,
6 incomplete hypothetical, asked and
7 answered.

8 A. Well, I'm happy to go through any of
9 the opinions in my report and discuss, you
10 know, what they're supported by. I don't
11 recall seeing a part that needed a specific
12 analysis of the video codec.

13 BY MR. LIANG:

14 Q. Oh, yeah. So your opinions in your
15 Declaration don't rely on analyzing any
16 specific video codec; is that right?

17 MR. HENDIFAR: Objection, form.

18 A. Well, I'll tell you what. Do you --
19 can I open my report? I'll double-check. I'm
20 not remembering any, but I'd have to look.

21 BY MR. LIANG:

22 Q. Okay. Yeah, go ahead and open your
23 report and take a moment to look.

24 MR. LIANG: I note that the time on
25 the record is 9:53 Pacific time.

1 Nielson - 2-25-2021

2 A. (Examined exhibit.) So searching my
3 report, I don't see the word "codec," so I
4 don't think any of my opinions were based on
5 the nature of the video codec.

6 BY MR. LIANG:

7 Q. In forming your opinions, did you
8 read all of Chen?

9 A. I did.

10 Q. Would a POSITA have been able to use
11 different codecs when applying the teachings of
12 Chen?

13 MR. HENDIFAR: Objection, form,
14 incomplete hypothetical, relevance.

15 A. I have not done that analysis.
16 That's not part of my opinions.

17 BY MR. LIANG:

18 Q. So, then, stepping back from just
19 the codec, do you believe that a POSITA reading
20 Chen would have limited Chen to using any
21 particular standard, video standard?

22 MR. HENDIFAR: Objection, form,
23 scope, incomplete hypothetical.

24 A. I'm not sure I see, again, how
25 that's connected to -- to the opinions I gave.

1 Nielson - 2-25-2021

2 I don't -- I don't think that's what I did my
3 analyses on.

4 BY MR. LIANG:

5 Q. Do you have an opinion about whether
6 a POSITA applying Chen's teachings would have
7 been limited to using only the MPEG-4 standard?

8 MR. HENDIFAR: Objection, form,
9 incomplete hypothetical, scope.

10 A. So at the risk of repeating myself,
11 the analysis that I've got here on Chen is
12 based on what I needed to analyze here in my
13 report or -- and what's described in my report.

14 If it's -- if it's not related to
15 that, I don't have an opinion about it, haven't
16 taken the time to do that analysis. But if
17 there's something in my report you think it's
18 related to, I'm happy to discuss it.

19 BY MR. LIANG:

20 Q. Okay. And I'm just asking if you
21 have an opinion, and so, you know, if the
22 answer is "no," that's fine. Let me ask the
23 question again.

24 Do you have an opinion about whether
25 a POSITA applying Chen's teachings would have

1 Nielson - 2-25-2021

2 been limited to using only the MPEG-4 standard?

3 MR. HENDIFAR: Objection, form,
4 scope, incomplete hypothetical, asked and
5 answered.

6 A. The opinions that I have are laid
7 out in my report. If it's related to something
8 of those, then, obviously, I have those
9 opinions. If it's outside of that, then, no,
10 there -- I currently am not aware of any
11 opinions related to other matters in Chen.

12 BY MR. LIANG:

13 Q. Dr. Nielson, I'm asking you a
14 specific yes-or-no question, and you have to
15 answer the question, right?

16 Do you understand that I'm ask -- do
17 you understand that I'm asking you for a
18 yes-or-no question here -- that you have to
19 answer here?

20 A. My understanding is I don't have to
21 answer "yes" or "no" if it doesn't -- isn't
22 appropriate to answer "yes" or "no."

23 Q. Okay. Well, I'm asking you a simple
24 yes-or-no question here, and you can feel free
25 to elaborate on your answer, but I do need an

1 Nielson - 2-25-2021

2 answer to the question. And do you understand
3 that?

4 A. I'm answering your questions as best
5 as I can.

6 Q. Do you have an opinion, yes or no,
7 on whether a POSITA applying Chen's teachings
8 would have been limited to using only the
9 MPEG-4 standard?

10 MR. HENDIFAR: Objection, form,
11 scope, asked and answered, incomplete
12 hypothetical.

13 A. To the extent there's something in
14 my report about it, yes, I have an opinion. If
15 it's not in my report, then I currently don't
16 have an opinion about it.

17 BY MR. LIANG:

18 Q. Okay. What is your opinion
19 regarding whether a POSITA would have -- when
20 applying Chen's teachings, would have been --
21 withdrawn.

22 What is your opinion regarding
23 whether a POSITA applying Chen's teachings
24 would have been limited to using only the
25 MPEG-4 standard?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form,
3 incomplete hypothetical.

4 A. I don't remember discussing that in
5 my report, but I'm happy to look again if you
6 would like me to.

7 BY MR. LIANG:

8 Q. Okay. Go ahead. Please review
9 your -- your report, your Declaration.

10 MR. LIANG: I note the time on the
11 record is 10:01.

12 BY MR. LIANG:

13 Q. Please let me know when you're done
14 reviewing.

15 MR. LIANG: And in the meantime,
16 Counsel, I would -- I would suggest you --
17 I ask that you stop the speaking
18 objections.

19 MR. HENDIFAR: Sure. Which one of
20 my objections were speaking?

21 MR. LIANG: Earlier, your objections
22 regarding privacy and of privilege
23 regarding costs were -- were completely
24 inappropriate and, you know, more recently,
25 your long speaking objections about -- oh,

1 Nielson - 2-25-2021

2 about being--let me just maybe look up
3 here--about being -- yeah, your objection
4 to scope, incomplete hypothetical, asked
5 and answered.

6 If you're -- if you are concerned
7 about the objection to form, I ask you to
8 limit your objection to just form.

9 MR. HENDIFAR: Sure. And I want to
10 make sure we are on the same page. So is
11 it your position for the juris provision
12 that incomplete hypothetical and asked and
13 answered are improper speaking objections?

14 MR. LIANG: Well, the way you're
15 stringing together these long, disruptive
16 objections, and which are now causing the
17 witness not to answer, that is contrary to
18 the PTAB rules.

19 I'm asking about the --

20 (Simultaneous conversation.)

21 MR. HENDIFAR: Okay. I
22 don't quite --

23 MR. LIANG: -- simple question about
24 whether he has an opinion, and after you --
25 you've started objecting, the witness is

1 Nielson - 2-25-2021

2 now not even telling me whether he has an
3 opinion or not.

4 MR. HENDIFAR: Counsel, I'm not
5 limited by the number of objections. I
6 would love to, and I would be happy to,
7 meet and confer about which objections you
8 think are speaking objections so we can
9 agree not to use them, both parties.

10 So I'm specifically asking -- since
11 you are accusing me of making speaking
12 objections, I would like to understand
13 Counsel's position so we can meet and
14 confer and avoid this issue in the future.

15 So my question is: Is it
16 petitioner's position that incomplete
17 hypothetical is a speaking objection so
18 that the parties cannot use it?

19 MR. LIANG: Well, as you know,
20 Parham, in the depositions that I've
21 defended, I have not used that objection.
22 But regardless, I think that it's the
23 length and manner in which you are
24 objecting here that's problematic and
25 causing the witness to not answer basic

1 Nielson - 2-25-2021

2 questions.

3 So the PTAB rules are clear that you
4 should keep your objections short and
5 nonspeaking.

6 MR. HENDIFAR: Sure, and I want to
7 understand. I would like us to come to an
8 agreement so that I will not use speaking
9 objections.

10 So if you're accusing me of using a
11 speaking objection, it's a fair question
12 for me to ask you if "asked and answered"
13 and "incomplete hypothetical" are speaking
14 objections based on petitioner's position?

15 If it is, then we can agree not to
16 use them. If it is not, then I don't see
17 why you're objecting to those speaking
18 objections.

19 MR. LIANG: Well -- well, Counsel, I
20 believe we've gone for several minutes on
21 the record. We can go off the record if
22 you want to have this discussion.

23 The point is that you are injecting
24 long speaking objections that are causing
25 the witness not to answer basic questions,

1 Nielson - 2-25-2021

2 which is -- basic question about whether he
3 even has an opinion on something.

4 So we can go off the record and
5 talk, Mr. Hendifar, in a moment, but I do
6 have a question pending with the witness
7 and we're going to proceed.

8 BY MR. LIANG:

9 Q. So --

10 MR. HENDIFAR: Sure. Since you
11 state, Mr. Liang -- I said for the record,
12 since you gave your opinion, that I have
13 been -- I am trying to meet and confer to
14 establish what Counsel believes to be a
15 speaking objection so we can avoid it, and
16 I have not been able to get an answer. So
17 please, continue.

18 MR. LIANG: Okay.

19 BY MR. LIANG:

20 Q. So Dr. Nielson, you've had several
21 minutes to review your Declaration, so let me
22 repeat my question.

23 Do you have an opinion, yes or no,
24 on whether a POSITA applying Chen's teaching
25 would have been limited to using only the

1 Nielson - 2-25-2021

2 MPEG-4 standard?

3 MR. HENDIFAR: Objection, form,
4 incomplete hypothetical.

5 A. I don't see any opinions in my
6 report that are based on that, so I -- to the
7 extent that that's not part of my opinions in
8 my report, no, I don't.

9 BY MR. LIANG:

10 Q. Now, I want to talk about video
11 codecs, specifically. And when Chen discusses
12 video encoding, is your understanding that Chen
13 is specifically referring to the H.264
14 encoding?

15 MR. HENDIFAR: Objection, form.

16 A. Would you mind pointing me to the
17 section of Chen you're referring to?

18 BY MR. LIANG:

19 Q. Well, I'm just asking you, you know,
20 when -- is it your understanding that Chen
21 discusses video encoding?

22 MR. HENDIFAR: Objection, form.

23 A. Chen describes a lot of things that
24 could be part of the video encoding process.
25 With respect to a specific codec or a specific

1 Nielson - 2-25-2021

2 standard, I'd want to be pointed to the part
3 that's being discussed in Chen.

4 BY MR. LIANG:

5 Q. Okay. So when you were reviewing
6 Chen in the video encoding process described in
7 Chen, were you reading them with any particular
8 video standard in mind?

9 MR. HENDIFAR: Objection, form.

10 A. When I was reading Chen, I did not
11 approach it with any particular -- I did not
12 come with a predisposition to any particular
13 standard. I read Chen for what Chen says and
14 what Chen describes.

15 BY MR. LIANG:

16 Q. And after you were done reading
17 Chen, you did not have the impression that it
18 was limited to any particular video standard,
19 correct?

20 MR. HENDIFAR: Objection, form,
21 asked and answered.

22 A. Well, the impressions that I had
23 after I reviewed Chen are in my report. I talk
24 about issues relating to scalability layers,
25 FEC, et cetera.

1 Nielson - 2-25-2021

2 I did not do an analysis as to
3 whether or not those were limited to any
4 particular codec or standard.

5 BY MR. LIANG:

6 Q. Is it your view that a POSITA
7 looking to apply Chen's teachings regarding
8 scaleability layers would have used any known
9 video standard codec at the time?

10 MR. HENDIFAR: Objection, form,
11 incomplete hypothetical.

12 A. Just to clarify your question. Do
13 you mean to implement the feature of how you
14 create the scaleability layers?

15 BY MR. LIANG:

16 Q. Yes.

17 A. Well, Chen describes an example
18 where an existing -- I can't -- I'd have to
19 look at Chen to see the exact terminology, but
20 it refers to an existing algorithm for
21 calculating them. It doesn't say that it's a
22 required algorithm. It says it's one algorithm
23 you could use to create these kind of layers.

24 Q. Okay. Let's go to Chen. And what
25 example are you pointing to?

1 Nielson - 2-25-2021

2 A. Sure. Let me bring up...

3 Okay. I have Chen again. Okay.

4 This is in paragraph 376 --

5 Q. Uh-huh.

6 A. -- and starting in -- well, let's
7 see. Does it give me line numbers? It doesn't
8 give me line numbers.

9 Starting in about one-third of the
10 way down it says: For example, the well-known
11 techniques of scaleable video encoding may be
12 used. Examples of such video encoding methods
13 include H.264 scaleable video coding, SVC, or
14 the temporal scaleable of H.264 advanced video
15 coding AVC.

16 Q. It's your opinion that a POSITA
17 could have applied Chen's teachings using
18 either of these two scaleable-layered video
19 standards or other known techniques for
20 scaleable-layered video?

21 MR. HENDIFAR: Objection, form,
22 incomplete hypothetical.

23 A. So I think if you look at how I
24 discuss things in my report, I am discussing
25 the concepts of scaleable video layers.

Nielson - 2-25-2021

It's -- my analysis is not based in any one standard or algorithm, so, certainly, the opinions I presented were not limited to that.

BY MR. LIANG:

Q. I see.

You didn't limit Chen to just these two examples of scalable-layered video because Chen teachings aren't limited to just these two examples, correct?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. So if you look at Chen, Chen describes the scalability layers a number of times where it is described as a conceptual layer -- level, it is described conceptually. This -- this part here in -- in 376 appears to just be describing example implementations of how you would do that.

BY MR. LIANG:

Q. I see.

And you're calling these "example implementations" referring to H.264, SVC, and H.264, AVC because they're examples and they're not required by Chen; is that fair?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form.

3 A. Well, I'm saying when you read the
4 totality of Chen, it is clear that scaleable
5 video layers are talked about without referring
6 to specific implementations. So when I read
7 the entire reference, it -- it makes it clear
8 that there are -- that the concept is what
9 matters, not a particular implementation.

10 In fact, if I can add to that, one
11 thing that is important is that Chen also says
12 that it is suggesting improvements and
13 modifications. So that also suggests that it's
14 not going to stick with just the base
15 implementation because it has to modify it.

16 Q. I see.

17 So Chen isn't strictly limited to
18 following video standards because it's actually
19 suggesting improvements and modifications on
20 top of it, correct?

21 A. Well, I don't -- I don't know
22 about -- I'm sorry. That question sounded
23 really broad.

24 Just to make sure we're talking
25 about the same thing. Specifically relating to

1 Nielson - 2-25-2021

2 the scalability layers, Chen discusses
3 improvements that it describes as novel, the
4 novel improvements for making -- for making
5 scalability layers even more effective. So at
6 the very least, it's going to be adding to
7 whatever you're starting with.

8 Q. So your analysis of
9 scaleable-layered video in Chen is based on the
10 expressed teachings in Chen as opposed to the
11 details of how scaleable video is used in any
12 particular video standard.

13 MR. HENDIFAR: Objection, form.

14 A. Yeah, I think that if you go look at
15 my report, I talk about scaleable layers both
16 with spacial and temporal. Like Chen says,
17 they're examples of that.

18 But yes, those -- those concepts --
19 the problems that I identify with those
20 concepts with combining them, that's -- that's
21 not tied to any specific standard or
22 implementation. That -- it's general to the
23 underlying theory.

24 MR. LIANG: Okay. We've been going
25 about an hour. Do you need a break or do

1 Nielson - 2-25-2021

2 you want to keep going for another hour?

3 MR. HENDIFAR: I need a break. I'll
4 take a break, if that's okay since you're
5 offering.

6 MR. LIANG: Okay. Sure.

7 (Recess held.)

8 BY MR. LIANG:

9 Q. Dr. Nielson, did you communicate
10 with anybody during your -- on the break we
11 just had?

12 A. No.

13 Q. Do you know what an FFT is?

14 MR. HENDIFAR: Could you repeat the
15 question? I didn't get the acronym. I
16 apologize.

17 BY MR. LIANG:

18 Q. Do you know what an FFT is?

19 A. I know what the acronym stands for.

20 Q. What does it stand for?

21 A. If I remember correctly, it stands
22 for Fast Fourier or Four--I can't remember his
23 name--Fourier Transform.

24 Q. Is an FFT used in machining
25 standards?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, relevance
3 and scope.

4 A. I believe it is used in most video
5 coding, but I'd have to see the technical
6 specification for the details.

7 BY MR. LIANG:

8 Q. How is an FFT used in video coding?

9 MR. HENDIFAR: Objection, relevance,
10 scope.

11 A. I -- I can't give you a description
12 without consulting documentation.

13 BY MR. LIANG:

14 Q. You're free to consult any of the
15 documentation in the folder of exhibits you
16 have in front of you.

17 A. Sure. Is there something you would
18 like to point me to in particular?

19 Q. No. I'm just saying you're free to
20 consult the documentation in front of you. I'm
21 just asking you the question.

22 A. Would you like me to start looking
23 through exhibits to see if I can find something
24 about it?

25 Q. Well, I'm asking you the question:

1 Nielson - 2-25-2021

2 How is an FFT used in video coding -- video
3 encoding? And if you don't know the answer
4 sitting here today, then that's fine.

5 I mean, do you believe that the
6 answer is in one of the exhibits -- let me --
7 let me rephrase.

8 Do you recall reading the answer to
9 that in one of the exhibits in your folder that
10 you have in front of you?

11 MR. HENDIFAR: Objection, form.

12 A. I don't think that any of my
13 opinions were based on FFT, so it's unlikely
14 that there's much in there about it.

15 BY MR. LIANG:

16 Q. Do you know what a DCT is?

17 MR. HENDIFAR: Objection, form,
18 relevance, scope.

19 A. I -- not without -- not without
20 being able to refer to the documentation.

21 BY MR. LIANG:

22 Q. What documentation would you need to
23 refer to?

24 A. Well, either one of the standards,
25 but then I might need to be able to actually

Nielson - 2-25-2021

look up the math for how you do one of those transforms.

Q. Okay. And you didn't refer to those standards when forming your opinions in this matter, correct?

A. So I think I've cited the things that I refer to in my report. I don't think my reports deal with DCT or FFT. I don't remember using those at all.

Q. And, in fact, your Declaration does not cite to any -- withdrawn.

Let me ask you this: Do you know what the difference is between a DCT and an FFT?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. So I'm assuming that we're talking about this within video encoding?

BY MR. LIANG:

Q. Correct.

A. Yeah, I don't have the -- I don't have the different math formulas memorized or the places they're used in the standard memorized.

1 Nielson - 2-25-2021

2 Q. Can you describe at any level the
3 difference between an FFT and DCT?

4 MR. HENDIFAR: Objection, form,
5 scope, relevance, incomplete hypothetical.

6 A. So I think my answer is the same,
7 which is I don't have those kind of things
8 memorized for -- and they weren't used, to the
9 best of my knowledge, in my report.

10 BY MR. LIANG:

11 Q. How are FFT coefficients used for
12 motion compensation? Well, withdrawn.

13 Let me even ask you: Do you know
14 whether FFT coefficients are used with motion
15 compensation?

16 MR. HENDIFAR: Objection, form,
17 scope, relevance, incomplete hypothetical.

18 A. I do not have those details
19 memorized, no.

20 BY MR. LIANG:

21 Q. And Dr. Nielson, let me -- let me
22 also just clarify, too, that at any point in
23 this deposition, you are free to refer to your
24 Declaration and to the exhibits in the folder
25 that we described earlier today. So I do just

1 Nielson - 2-25-2021

2 ask that you tell me what you are looking at
3 when you're reviewing a document.

4 A. Sure. I'm -- it's very possible
5 that some of these things are discussed in one
6 of the references. I mean, if you -- if you
7 want me to look at one, I'm happy to look at a
8 citation.

9 Q. Well, I'm just asking -- I'm asking
10 you some questions and, you know, I'm just
11 letting you know that if you feel that it would
12 be helpful to your answer to refer to any
13 specific exhibit that we discussed or your
14 Declaration, you're free to do so. All right?

15 A. Sure. I think that, in general, I'm
16 going to be discussing the opinions I set forth
17 in my report, and I generally won't feel the
18 need to go look things up that are outside my
19 opinions unless you specifically ask me to.

20 Q. Okay. Great.

21 Do you know whether DCT coefficients
22 are used for motion compensation?

23 MR. HENDIFAR: Objection, form,
24 scope. Excuse me. Form, scope, relevance,
25 and incomplete hypothetical. I'm done.

1 Nielson - 2-25-2021

2 Please answer.

3 A. Again, I do not have these kind of
4 details memorized, no.

5 BY MR. LIANG:

6 Q. Do you know whether the MPEG
7 standards use an FFT or DCT?

8 MR. HENDIFAR: Objection, form,
9 scope, relevance, incomplete hypothetical.

10 A. Well, I mean -- I guess, first of
11 all, I would have to -- I mean, which MPEG
12 standard?

13 BY MR. LIANG:

14 Q. Do you know -- do you know whether
15 any of the standard -- withdrawn.

16 Can you identify any particular MPEG
17 standard and explain whether it uses an FFT or
18 DCT?

19 MR. HENDIFAR: Objection, form,
20 scope -- excuse me.

21 Objection, form, scope, relevance,
22 incomplete hypothetical. Please answer.

23 A. I don't --

24 THE WITNESS: Sorry. Was there
25 something -- was somebody else talking? I

1 Nielson - 2-25-2021

2 thought I heard something for a minute.

3 No? Okay.

4 MR. LIANG: Just a really long
5 objection.

6 A. I do not have any of the MPEG
7 standards memorized, so I don't know those kind
8 of details without the documentation.

9 BY MR. LIANG:

10 Q. Do you know whether DCT coefficients
11 are used by H.264 during the motion
12 compensation process?

13 MR. HENDIFAR: Objection, form,
14 scope, relevance.

15 A. I don't think this is in my report,
16 but I'd just like to check really fast, if you
17 don't mind.

18 BY MR. LIANG:

19 Q. Sure.

20 A. Thank you. (Examined exhibit.)

21 Oh, I'm sorry. I should also tell
22 you I'm looking at Chen as well.

23 Q. Okay. Thank you.

24 A. Yes. (Examined exhibit; examined
25 document.)

1 Nielson - 2-25-2021

2 Okay. I was just checking. I -- I
3 was checking what I was discussing in my
4 report. So I do discuss motion compensation,
5 but the sections of Chen that I cite to are not
6 referring to FFT or DCT, so I have no --
7 nothing else to offer about those.

8 Q. Okay. So you don't know whether DCT
9 coefficients are used by H.264 during the
10 motion compensation process?

11 MR. HENDIFAR: Objection, form,
12 scope, relevance.

13 A. Once again, I don't have the
14 standards memorized. So without the
15 documentation of how those things work, I don't
16 have those details.

17 BY MR. LIANG:

18 Q. What is the group of pictures which
19 I believe are abbreviated with the letters GOP?

20 MR. HENDIFAR: Objection, form,
21 scope, relevance, incomplete hypothetical.

22 A. So "GOP" is a term that is used
23 informally, and so it has kind of an informal
24 usage across a lot of video encoding. But I
25 don't remember if there are details in the

Nielson - 2-25-2021

specifications to -- to the -- you know,
that -- like if MPEG-2 adds anything particular
into their specific definition of group of
pictures or if MPEG-4 does.

But I can tell you what it's used
for generically.

BY MR. LIANG:

Q. Okay. And what's that?

A. So typically, group of pictures in a
lot of cases, and most of the different ways
that you're going to use it in a video
standard, represents the pictures that are
grouped together.

So, for example, like you'll
have like a base picture and then a series of
pictures that are derived from it, and,
collectively, they're called a "group of
pictures."

Q. What's your basis for that answer?

A. I don't remember where I learned it.

Q. Is it something you've just always
known?

A. No. I mean, obviously, when I was
five years old, I did not know that.

1 Nielson - 2-25-2021

2 Q. Did you -- did you look it up
3 recently?

4 A. I've looked it up --

5 MR. HENDIFAR: Objection.

6 A. -- sometime recently.

7 BY MR. LIANG:

8 Q. Within the past few weeks?

9 A. Maybe. There was a -- there was a
10 time that I saw a group of pictures used and I
11 was curious what the other -- for more
12 information about it.

13 Q. But you didn't know -- withdrawn.
14 You didn't -- you didn't remember
15 what a group of pictures was in January 2021,
16 right?

17 A. Well --

18 MR. HENDIFAR: Objection to form,
19 scope.

20 Excuse me. Excuse me. Allow me
21 to --

22 THE WITNESS: Sorry.

23 MR. HENDIFAR: Excuse me. Thank
24 you.

25 Objection, form, scope, relevance.

1 Nielson - 2-25-2021

2 A. If you're asking if there was ever a
3 time where I couldn't, off the top of my head,
4 say what it was, I'm sure there was.

5 BY MR. LIANG:

6 Q. Did you know what a group of
7 pictures was in January 2011 -- 21?

8 MR. HENDIFAR: Could you repeat the
9 question, please. I got disconnected.

10 BY MR. LIANG:

11 Q. Did you know what a group of
12 pictures was in January '21 -- withdrawn,
13 January 2021?

14 MR. HENDIFAR: Objection, form,
15 relevance, scope.

16 A. What do you mean by did I know what
17 it was? Did I understand the concept, or did I
18 have the term memorized?

19 BY MR. LIANG:

20 Q. Did you recognize the term "GOP" --
21 withdrawn.

22 Before or after, did you have
23 knowledge in January 2021 about what the term
24 "GOP" meant?

25 MR. HENDIFAR: Objection, form,

1 Nielson - 2-25-2021

2 scope, relevance, asked and answered.

3 A. Well, I'm sure that I have seen GOP
4 in a number of different times in my career.
5 If I knew, without any technical documentation
6 in front of me, what GOP referred to in a
7 situation where I didn't have access to those
8 materials, I may not have known the exact
9 details.

10 BY MR. LIANG:

11 Q. But sitting here today, you do --
12 you do know what a GOP is, correct?

13 A. I had a chance --

14 MR. HENDIFAR: Objection --

15 A. -- recently to --

16 THE WITNESS: Sorry. I'm sorry. I
17 apologize.

18 MR. HENDIFAR: It's okay. Thank
19 you. If you would wait a few moments, I
20 can put on my objections. I would ask you
21 to do that.

22 Objection, form, scope, relevance,
23 please continue.

24 A. Yes, I had a chance recently to
25 refresh my understanding.

Nielson - 2-25-2021

BY MR. LIANG:

Q. "Recently" meaning within the past few weeks, correct?

A. So recently within the past --

MR. HENDIFAR: Objection, form.

THE WITNESS: Sorry. I thought I waited -- I thought I waited. Okay. I'll wait even longer. Do you want to say "objection" again in case I talked over you?

MR. HENDIFAR: Objection, relevance.

And please answer the question.

Thank you.

A. Within the last few weeks, I've had a chance to re-review about GOP.

BY MR. LIANG:

Q. Do you remember exactly how entropy encoding works?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. I don't think entropy encoding is in my current report, and I don't remember off the top of my head how it works.

BY MR. LIANG:

Nielson - 2-25-2021

Q. You don't remember which compression mechanism it is?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. So I typically don't have all of the different terms, standards, et cetera memorized in my head at any given time.

If there's something you would like me to analyze about any of these terms, I'm happy to do so.

BY MR. LIANG:

Q. Does MPEG video encoding use binarization?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. So I'll give my same answer, which is: I don't have all of these memorized, but I'm happy to analyze a document.

BY MR. LIANG:

Q. What's the difference between a B- and a P-frame?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. So similar to group of pictures,

1 Nielson - 2-25-2021

2 these terms also have a generic use, and then
3 there may be a more specific definition within
4 the standard.

5 Generically, P-frames are
6 one-directional derivations, meaning that
7 they're predictive based on things before;
8 whereas, B-frames are bidirectional.

9 BY MR. LIANG:

10 Q. What's the basis for that answer?

11 A. I was reading about it when I was
12 refreshing about GOP.

13 Q. And that was with -- sometime within
14 the past few weeks?

15 A. Well, just to reemphasize. These
16 are concepts I've been well aware of for many
17 years, but in terms of refreshing meaning into
18 my short-term memory, yes, within the last few
19 weeks.

20 Q. And you didn't remember the
21 difference between a B-frame and a P-frame in
22 January 2021, correct?

23 MR. HENDIFAR: Objection, form,
24 scope, relevance.

25 A. I may not have had that distinction

1 Nielson - 2-25-2021

2 in my short-term memory at a certain point in
3 January 2021.

4 BY MR. LIANG:

5 Q. Would you agree that the --
6 withdrawn.

7 Would you agree that video
8 compression algorithms operate by removing
9 redundancy in the temporal spacial or frequency
10 domains?

11 MR. HENDIFAR: Objection, form,
12 scope, relevance, incomplete hypothetical.

13 A. I'm sure there are a lot of video
14 encoding and compression mechanisms, and I
15 can't give a tight answer on how all of them
16 work.

17 BY MR. LIANG:

18 Q. Would you agree that the general
19 point of video compression is to remove
20 redundancy?

21 MR. HENDIFAR: Objection, form,
22 scope, relevance, incomplete hypothetical.

23 A. No, I would not say that is its
24 general purpose.

25 BY MR. LIANG:

Nielson - 2-25-2021

Q. Why not?

A. Well, I would generically say
that the --

MR. HENDIFAR: Same objection.

THE WITNESS: Sorry. Is somebody
talking?

MR. HENDIFAR: Yeah. I said "same
objection."

THE WITNESS: Yes.

A. I would say that the general purpose
behind compression is reducing size.

BY MR. LIANG:

Q. Right.

And in terms of video compression,
the way to reduce size is to remove redundancy,
correct?

MR. HENDIFAR: Objection, form,
scope, relevance, incomplete hypothetical,
asked and answered.

A. No. There are a number of ways of
doing compression.

BY MR. LIANG:

Q. How can video be compressed without
reducing redundancy?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form,
3 scope, relevance, incomplete hypothetical.

4 A. What do you mean by "redundancy" so
5 we're on the same page there?

6 BY MR. LIANG:

7 Q. Sure.

8 It -- was it your understanding that
9 a raw, uncompressed video data would have some
10 amount of redundancy in its information?

11 MR. HENDIFAR: Objection, form,
12 scope, relevance.

13 A. Well, this is why I was wanting to
14 make sure we clarified what we meant by
15 "redundancy."

16 All information, unless it's truly
17 random or, you know, like an encrypted where it
18 appears to be random, has some amount of
19 redundancy in its information.

20 BY MR. LIANG:

21 Q. How can you compress video data and
22 reduce its size without reducing the redundancy
23 in the -- in the video information?

24 MR. HENDIFAR: Objection, form,
25 scope, relevance, incomplete hypothetical.

Nielson - 2-25-2021

A. So -- so once again, what do you mean by "redundancy" in this particular thing you're asking me? Do you mean "redundancy" like I was just talking about, that all information has redundancy?

BY MR. LIANG:

Q. Yes.

A. Then, yes, all compression works by -- by removing redundancy, if we're talking about it at that broadest -- at that broadest level.

Q. Do you know what a "slice" is?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

And I want to meet and confer with Counsel -- I don't want to be accused of giving speaking objections, but I want to meet and confer on this line of questioning, because that's something I will ask the witness not to answer.

So I'll allow him to answer this question, but if you are going to go this route, I would like us to meet and confer maybe, if you could, in the absence of the

1 Nielson - 2-25-2021

2 witness. That's fine.

3 MR. LIANG: Counsel, let's ask the
4 witness -- so you -- I'm asking the witness
5 about his opinions, and, you know, I would
6 appreciate it if you'd stop interjecting.

7 If you want to instruct the witness
8 not to answer, that's fine. We can have a
9 call with the board. And if you keep up
10 with speaking objections, we're going to
11 have a call with the board anyway. So
12 the -- I believe --

13 (Simultaneous conversation.)

14 MR. HENDIFAR: I (audio distortion)
15 speaking objection. I told you if you
16 would like us to meet and confer in the
17 absence of the witness so there wouldn't be
18 any speaking objection. I didn't make an
19 objection. I'm offering that we meet and
20 confer in the absence of the witness, so
21 then there is no speaking objection in
22 front of the witness.

23 I've expressed the offering up to
24 meet and confer without the presence of the
25 witness. So there is no issue with the

Nielson - 2-25-2021

witness being coached or being (audio distortion).

MR. LIANG: Well, Counsel, you are free to instruct the witness not to answer, if that is what you're going to do.

I am asking questions about video encoding in a case involving streaming video, and so if you want to instruct the witness not to answer, go ahead. Anyway, I will re-ask my question.

BY MR. LIANG:

Q. Do you know what a "slice" is?

MR. HENDIFAR: Objection, scope, form relevance, incomplete hypothetical.

Witness may answer this question.

If it continues, then I would instruct the witness not to answer. Please.

A. I assume we're talking about in the context of video coding?

BY MR. LIANG:

Q. Correct.

A. All right. So what is a slice in the context of video encoding in some standard? That's -- that's the -- that's the question?

1 Nielson - 2-25-2021

2 Q. Well, I mean, before we get to any
3 specific standard, just in the context of video
4 encoding, do you remember what a slice is?

5 A. Yes. A slice is used -- a slice is
6 a way of dividing up data -- well, actually,
7 rather than -- I'm not going to try and guess
8 out the details.

9 I am familiar with a slice. I can't
10 walk you through it off the top of my head
11 without the -- without the documentation.

12 Q. Have you recently looked up what a
13 slice is?

14 MR. HENDIFAR: Objection, scope,
15 relevance, and privilege.

16 And Counsel, at this point, if you
17 want to call the board, let's call the
18 board. This line of questioning is
19 obviously directly related to IPR, and this
20 is an abuse of the deposition. If you want
21 us to call the board and discuss this
22 issue, I will be happy to do that right
23 now.

24 MR. LIANG: Are you instructing the
25 witness not to answer?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: I am telling you that
3 if you like to continue this line of
4 questioning, then call the board right now.

5 MR. LIANG: I'm going to ask these
6 questions and you're free to instruct the
7 witness not to answer.

8 MR. HENDIFAR: Or we can -- I can
9 ask you that we're going to call the board
10 and ask for guidance, and if it is proper
11 to use the deposition for one matter as a
12 back door to the deposition in another
13 matter. After, we can confer. We can call
14 the board and ask for guidance. That's --
15 that is also an option that I can use.

16 MR. LIANG: Well, Counsel, I'm
17 asking these questions. If you want to
18 have a call with the board, that's fine,
19 but I'm asking these questions. You can
20 also instruct the witness not to answer.
21 That's fine, also. The questions are being
22 asked. So what do you want to do?

23 MR. HENDIFAR: I would like us to
24 take a break so I can discuss with our
25 partners if we want to call the board now.

1 Nielson - 2-25-2021

2 MR. LIANG: Okay. Sure. Let's take
3 a five-minute break. We'll be back at
4 11:10.

5 MR. HENDIFAR: Ten minutes. I need
6 a few minutes to discuss. So ten minutes,
7 please.

8 MR. LIANG: Okay.
9 (Recess held.)

10 MR. HENDIFAR: Great okay. So this
11 is Parham Hendifar, Counsel for patent
12 owner, and the parties just called the
13 board at 571-272-7822 to request a panel
14 regarding the native line of questioning.

15 It is patent owner's position that
16 those questions are an abuse because
17 they're directed at issues in a different
18 matter between the parties and no relevance
19 to the current matter, and they're so
20 outside of this scope that they would be
21 abuse. Petitioner disagrees.

22 So the parties on both line of
23 questioning are currently awaiting the
24 board calling back at the deposition and
25 making a ruling and guidance on that issue.

1 Nielson - 2-25-2021

2 With that, Counsel, please continue.

3 MR. LIANG: I'd like to state for
4 the record that, of course, petitioner
5 disagrees with that characterization.

6 We are asking about video encoding
7 technology for a patent involving video
8 encoding and an expert that has offered
9 experts regarding video encoding. So we
10 are entitled to ask the questions and we're
11 entitled to answers. So with that, we will
12 proceed.

13 BY MR. LIANG:

14 Q. All right. Hello again,
15 Dr. Nielson.

16 A. Hello.

17 Q. During this break, did you have any
18 communications with any person?

19 A. Other than being called to rejoin,
20 no.

21 Q. Did you review any materials during
22 this break?

23 A. No.

24 Q. Does MPEG-2 perform motion
25 compensation on a frame as a single unit?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, scope,
3 form, relevance.

4 A. Can you be more specific, please.

5 BY MR. LIANG:

6 Q. Well, sure. I mean, you know -- do
7 you know what the MPEG-2 standard is?

8 A. I'm familiar with the technology in
9 MPEG-2 and including the motion compensation.
10 But your question is a little odd. When you
11 say is it performed on a single frame, that
12 doesn't make a lot of sense to me.

13 Q. Why not?

14 A. Well, maybe it is I don't understand
15 what you're asking. If there was only a single
16 frame of video, then you couldn't do any motion
17 compensation.

18 Q. Sure.

19 Well, in MPEG-2, is -- for motion
20 compensation, is a frame predicted entirely
21 using a single other frame?

22 MR. HENDIFAR: Sorry. Could you
23 repeat the question? For some reason, I'm
24 getting disconnected and I missed a few
25 words. I apologize.

1 Nielson - 2-25-2021

2 MR. LIANG: Sure.

3 BY MR. LIANG:

4 Q. In MPEG-2 for motion compensation,
5 is a frame predicted entirely using a single
6 other frame?

7 MR. HENDIFAR: Objection, form,
8 scope, relevance, incomplete hypothetical.

9 A. So in MPEG-2 with the motion
10 compensation, you can base motion compensation
11 off multiple frames.

12 BY MR. LIANG:

13 Q. And is that motion compensation
14 performed on a frame as a whole to say that,
15 hey, this frame looks a lot like this other
16 frame, and so I'm going to use that other frame
17 as a reference for this entire current frame?

18 MR. HENDIFAR: Objection, scope,
19 form, relevance, incomplete hypothetical.

20 A. I'm not sure I understand that.
21 There were a lot of words you used there that
22 were not -- I mean...

23 Okay. Let me try and ask for some
24 clarification. When you say it looks like this
25 other frame, what -- what does that mean?

1 Nielson - 2-25-2021

2 BY MR. LIANG:

3 Q. Sure.

4 I'm just trying to get a sense of
5 how motion compensation works. And when you --
6 let me ask you: How does motion compensation
7 work?

8 MR. HENDIFAR: Objection, form,
9 scope, relevance, incomplete hypothetical.

10 A. Well, I can tell you how the theory
11 of motion compensation works. I can't tell you
12 exactly which features were put into which
13 standards without looking at the standards.

14 Do you want the conceptual
15 discussion?

16 BY MR. LIANG:

17 Q. Sure.

18 A. So motion compensation can be done
19 in a number of different ways, at a number of
20 different levels. It's -- it's very complex
21 and there's a lot of--no pun intended--moving
22 parts.

23 So, for example, you typically have
24 a starting point. But see, even this has been
25 changing some, and I don't remember when they

Nielson - 2-25-2021

changed it, but let's go with the default.

The kind of classical example: The classical example is you start with an anchor point. Okay? And the anchor point, which is typically called your I-frame, is then used as like a -- and it's like an anchor point because it will usually have a complete picture or sometimes that's called a frame, but you have a complete piece of data that in the classical example is not based on anything else.

Then -- now, just to be clear. That doesn't mean that there can't be any compression within the image. But in terms of the video motion compensation and the video compression, it stands by itself.

Then you have other frames that are based as derivatives in some way from that. Now, how that derivation happens can depend. You can have frames or pictures where it's not just a derivative from the anchor point, it's a derivative even from one of the other derivatives; and that goes -- that's the -- the P-frames are the ones that just go backwards in

Nielson - 2-25-2021

time.

And then bidirectional or B-frames can actually -- they can have their derivation actually be related to things even in the future, like other -- other frames, other derivative frames in the set.

So when you do these, there are calculations about deltas, like what exactly has changed; and in terms of motion compensation, you're looking for something that it hasn't changed within its boundaries, but it's moving.

So if I'm on screen moving my hand like this (indicating)--where, for the record, I'm moving my hand up and down on the Zoom screen--there are parts of this picture that are going to be the same whether it's here or here (indicating), and you just have to compensate for motion.

Q. So you mentioned that motion compensation can be done at different levels. What do you mean by that?

MR. HENDIFAR: Objection, relevance.

A. So as I was saying, when we talk

1 Nielson - 2-25-2021

2 about motion compensation, the exact details of
3 how you do that, how you predict and make the
4 predictions do vary from one standard to
5 another. I could not get into the concrete
6 details of how a particular standard does it
7 without reviewing documentation for that
8 standard.

9 BY MR. LIANG:

10 Q. Right.

11 And I was just asking that you
12 mentioned that motion compensation can be done
13 at different levels, and I just wanted to know
14 what you meant by "different level"?

15 A. Well, I can give you an example.

16 MR. HENDIFAR: Objection, form --
17 excuse me. Thank you.

18 Objection, asked and answered,
19 relevance. Please answer.

20 A. So here is an example: There's
21 actually a concept, and it's more recent, so --
22 well, I don't know. I'd have to think about
23 when it first came into use.

24 You can actually subdivide the image
25 and do some interpicture analysis between

1 Nielson - 2-25-2021

2 subparts of the image. I use that as an
3 example of how there are a lot of different
4 ways this is done, and -- you know, but the
5 general concept is as I described it.

6 BY MR. LIANG:

7 Q. Okay. Now, for MPEG-2, what
8 information is needed to perform motion
9 compensation?

10 MR. HENDIFAR: Objection, form,
11 scope, relevance, incomplete hypothetical.

12 A. I don't -- without having the MPEG-2
13 standard, I -- I can't answer that question.

14 BY MR. LIANG:

15 Q. What information is needed to
16 perform motion compensation in MPEG-4?

17 MR. HENDIFAR: Objection, scope,
18 relevance, incomplete hypothetical.

19 A. And I would have the same answer,
20 which is: Without the standard, I can't do
21 those kind of details.

22 BY MR. LIANG:

23 Q. For H.264, what information is
24 needed to perform motion compensation?

25 MR. HENDIFAR: Objection, scope,

1 Nielson - 2-25-2021

2 relevance, incomplete hypothetical.

3 A. Without the standard, I cannot give
4 you those kind of details.

5 BY MR. LIANG:

6 Q. Beyond specific video standards,
7 what specific information is needed to perform
8 motion compensation?

9 MR. HENDIFAR: Objection, form,
10 scope, relevance, incomplete hypothetical.

11 A. So on the -- on the more conceptual
12 level, the way that you do motion compensation
13 is based on mathematical algorithms that are
14 able to identify regions and identify the
15 movement. I don't know the details of the
16 mathematical algorithms from memory.

17 BY MR. LIANG:

18 Q. Is it your understanding that motion
19 compensation uses information regarding
20 movement of a region of a frame from one frame
21 to another?

22 MR. HENDIFAR: Objection, form,
23 scope, relevance, incomplete hypothetical.

24 A. There is some -- there are at least
25 some methods that use that approach.

Nielson - 2-25-2021

BY MR. LIANG:

Q. What other approaches are there?

MR. HENDIFAR: Objection, scope, relevance, and form.

A. I --

THE WITNESS: Sorry. Thought you were done.

MR. HENDIFAR: Sorry about that.

A. I -- I don't know that I have a comprehensive list.

BY MR. LIANG:

Q. Okay. Can you identify -- identify any -- any other approach other than the one we just discussed?

A. I don't --

MR. HENDIFAR: Objection, scope.

THE WITNESS: Sorry.

MR. HENDIFAR: Okay. Objection, scope, relevance, form.

A. I don't have any others off the top of my head. I'm sure there are various -- I mean, I've already been describing a number of different conceptual approaches. I'm sure, in practice, there are a number of implementations

Nielson - 2-25-2021

as well.

BY MR. LIANG:

Q. Okay. So one piece of information you've described for motion compensation is information regarding how one region of a frame moves from one frame to the next.

Can you identify any other pieces of information that are involved with motion compensation?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. I know that there are other mathematics that can go into predicting a movement. I don't have those committed to memory.

BY MR. LIANG:

Q. Okay. So the -- for the information that you have described that's used for motion compensation, that information is stored for each frame inside that video frame, correct?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. Well, I mean, I don't know that that's accurate. Again, I'd have to look at

1 Nielson - 2-25-2021

2 details for an individual specification.

3 Conceptually, if it's not an
4 independent frame, you have to draw information
5 from the other frames to be able to put the
6 frame together.

7 BY MR. LIANG:

8 Q. Okay. So, for example, let's talk
9 about a P-frame. Would you agree that a
10 P-frame is predicted from a previous frame?

11 MR. HENDIFAR: Objection, form,
12 scope, relevance, incomplete hypothetical.

13 A. So, again, leaving out how a
14 standard may modify the kind of general
15 concepts, a P-frame is usually predicted from
16 previous frames.

17 BY MR. LIANG:

18 Q. And the information about how that
19 P-frame is predicted from previous frames, it's
20 stored in the P-frame itself, right?

21 MR. HENDIFAR: Objection, form,
22 scope, relevance, incomplete hypothetical.

23 A. That question is very, kind of,
24 loosey, loosey, wishy. There's just too many
25 unspecific things there.

1 Nielson - 2-25-2021

2 So let me ask a couple of clarifying
3 questions: What do we mean by "information"?

4 BY MR. LIANG:

5 Q. Well, sure. I mean, you know, if we
6 can talk about the information that you -- you
7 described earlier, you know, I asked you to try
8 to identify all the information you can think
9 of that's needed to perform motion
10 compensation, right?

11 A. Well, part of the problem is these
12 two questions are disconnected, because there
13 is the information you need in order to
14 compute, and then there's the information that
15 you need in order to display.

16 So what is stored in a frame is the
17 information that's necessary to display, but
18 that's not necessarily the same information
19 that was analyzed when you were computing the
20 frame when you were encoding it.

21 Q. Does an I-frame contain within
22 itself all the information that's needed to
23 decode and then display a frame?

24 MR. HENDIFAR: Objection, scope,
25 relevance, incomplete hypothetical.

1 Nielson - 2-25-2021

2 A. Once again, that's -- that's a very
3 imprecise question. So when you say "the
4 information needed to display it," that's very
5 broad in terms of even like the algorithm
6 that's needed to compute it.

7 So when we say "the information
8 needed," what are you referring to?

9 BY MR. LIANG:

10 Q. Let me ask it a different way. When
11 you are decoding an I-frame, can you decode it
12 based just on all the information that's stored
13 inside the I-frame itself or do you need
14 external information beyond that?

15 MR. HENDIFAR: Objection, scope,
16 relevance, incomplete hypothetical, and
17 form.

18 A. So once again, conceptually, I'd
19 have to refer to a given standard to see
20 specifically how they describe its decoding,
21 its decoding mechanism, and what inputs and
22 outputs it has.

23 Conceptually, an I-frame is
24 independent in terms of needing other frames,
25 but it is not necessarily independent of any

1 Nielson - 2-25-2021

2 other information, and I don't even know how
3 you would do that.

4 BY MR. LIANG:

5 Q. Okay. And a P-frame is decoded
6 based on a previous frame like we just
7 discussed, right?

8 A. It may be multiple previous frames,
9 but it's not going forward in time; and, again,
10 this is general. I'm not going to say this
11 holds for necessarily every specification.

12 Q. What information is stored inside a
13 P-frame then?

14 MR. HENDIFAR: Objection, form,
15 scope, relevance, incomplete hypothetical.

16 A. So conceptually, with the
17 information stored in a P-frame, which
18 represents some kind of a delta, that's -- the
19 concept is that it is a delta, a difference, a
20 change. You combine those differences, those
21 deltas, and that information with what you have
22 from previous frames to infer the entire image
23 or picture.

24 BY MR. LIANG:

25 Q. I see.

1 Nielson - 2-25-2021

2 So a P-frame -- a portion of a
3 P-frame might be copied over from a previous
4 frame; is that accurate?

5 MR. HENDIFAR: Objection, form,
6 scope, relevance, incomplete hypothetical.
7 BY MR. LIANG:

8 Q. Let me -- let me withdraw that
9 question. Let me ask it a different way.

10 So in a P-frame, some portion of it
11 might be copied over from a past frame, but
12 you're saying that, then, a delta is applied
13 to -- on top of that portion when decoding the
14 P-frame?

15 MR. HENDIFAR: Objection, form,
16 scope, relevance, incomplete hypothetical.

17 A. I actually -- I don't know that
18 you're characterizing my previous statements
19 correctly. Let me -- let me try and -- and
20 answer that and correct something you're saying
21 there.

22 It would be incorrect to necessarily
23 think of a P-frame as storing a specific
24 picture, a specific portion of the picture.
25 While that may happen, conceptually, there's a

Nielson - 2-25-2021

lot of information that is stored in there that just depends on what it is you're trying to do.

You can have a P-frame that could just provide delta information, change information from previous frames, without having to have any portion copied over.

BY MR. LIANG:

Q. Hmm. What is that delta information that you're referring to?

MR. HENDIFAR: Objection, form, scope, relevance, incomplete hypothetical.

A. So, again, with the same caveats that I would have to see a specific implementation to tell you the details for a -- or a specific standard to tell you how that standard is choosing to do it.

The concept is you can identify regions and you can talk about deltas in those regions without -- without containing those same pixels again. So if you identify a video object, which is a -- the subportion of the screen, and then you describe that object as moving, you may not need to record any additional pixels because you've identified an

1 Nielson - 2-25-2021

2 object that you're now talking about con --
3 that this -- this subpiece is in motion.

4 BY MR. LIANG:

5 Q. When that subpiece is in motion, the
6 pixels for that object are identical between
7 the frames where it appears.

8 MR. HENDIFAR: Objection, form,
9 scope, relevance, incomplete hypothetical.

10 A. I'm saying that is a possibility.

11 BY MR. LIANG:

12 Q. So in order to decode a P-frame --
13 withdrawn. Let's start with an I-frame.

14 To become an I-frame, do you need to
15 have any other frames?

16 MR. HENDIFAR: Objection, form,
17 asked and answered, scope, relevance,
18 incomplete hypothetical, and form.

19 A. So I think I already discussed this,
20 and with -- again, with reference to the
21 concept whether or not there's a standard that
22 may do it differently, the typical way you talk
23 about an I-frame is it is independent of other
24 frames; and so, yes, in the -- in the -- you
25 know, the concept behind an I-frame, yes, is

1 Nielson - 2-25-2021

2 that you can de -- you can -- you have all the
3 information. You don't need information from
4 any other frames in order to display it.

5 Q. If you lose an I-frame...

6 MR. HENDIFAR: I'm sorry. What was
7 that word?

8 BY MR. LIANG:

9 Q. If you lose an I-frame, can that
10 missing I-frame be predicted based on other
11 frames in the video stream?

12 MR. HENDIFAR: Objection, incomplete
13 hypothetical, form, scope.

14 A. Maybe. It would depend on if you
15 had an algorithm for doing that.

16 BY MR. LIANG:

17 Q. Can you identify any specific
18 algorithms to fill in a missing I-frame?

19 A. Sure. So I think this is actually
20 discussed here in my report. I'm going to look
21 at my report real fast.

22 Q. Sure.

23 A. (Examined exhibit.) All right. So
24 now I'm going to look at Chen. I'm in
25 paragraph -- I'm going to come back to

1 Nielson - 2-25-2021

2 paragraph 61 of my report, but I'm going to
3 look up the citation in Chen here.

4 Okay. So I'm looking in my report
5 at paragraph 61, and in the cited paragraphs of
6 Chen, 529 to 533, and I don't see reference to
7 the term "I-frame" specifically, but it is
8 definitely included in these -- in these
9 sections here where we would be recreating lost
10 data.

11 Q. And to be clear, paragraphs 529 to
12 533 discuss forward error correction, correct?

13 A. Correct. Yes.

14 Q. Now, I want to make sure we're clear
15 on some terminology. I think you provided some
16 opinions about scaleable-layered video, right?

17 A. Let's see. I believe there's a
18 couple of terms. There's independent -- let me
19 just -- I want to -- because there's a couple
20 of terms here.

21 So we have scaleable layers,
22 scaleable video coding, and I believe there is
23 also independent -- independent -- I just want
24 to find the reference here.

25 Independent -- yeah, independent

1 Nielson - 2-25-2021

2 scaleable layers, and then we have SVC, and we
3 have scaleable layers. Yeah, that.

4 Q. Okay. Yeah. So I want to just make
5 sure we're clear on a lot of the terminology
6 that you just brought up.

7 A. Okay.

8 Q. In your mind, is there a difference
9 between scaleable layers and independent
10 scaleable layers or are those, in your mind,
11 synonymous?

12 A. Well, let me just --

13 MR. HENDIFAR: Objection, form.

14 THE WITNESS: Sorry.

15 MR. HENDIFAR: Excuse me, Doctor.

16 Thank you. Sorry.

17 Objection, form, incomplete
18 hypothetical.

19 A. So within Chen, let me show you a
20 couple of things to help answer that, because
21 I'm going to show you a couple of places where
22 it's used to -- to show some of the different
23 way it's used.

24 If you look at the Abstract and you
25 look at the last two -- two sentences, it talks

Nielson - 2-25-2021

about -- in the second to last sentence, it talks about "scaleable blocks" such that the quality of the presentation increases as more of the block is downloaded; and then it also talks about "multiple independent scaleability layers."

So just -- just as a starting point, Chen definitely has a concept of making the transmission scaleable, where as more is downloaded, the quality improves. Independent scaleability layers are one way that is done.

I have a couple of others, but I thought I'd pause and let you -- if you have any questions about these two before I went on.

BY MR. LIANG:

Q. Yeah, I -- let me just make sure I got it.

So independent scaleable layers is one way to do scaleable layers?

A. Yeah. It doesn't use the term "layer" here; it uses "scaleable blocks." But there are other places where it kind of seems to use that maybe a little bit interchangeably. There is -- the only reason I'm pausing with

Nielson - 2-25-2021

all of this is there's also a difference between the independent scaleability layers and scaleability layers that are like SVC, and we'll come back to that once we've kind of broken out these two.

Q. Is it correct that "scaleable layers" is the broader term and "independent scaleable layers" is one way of using scaleable layers?

MR. HENDIFAR: Objection, form.

A. Oh, just -- you know, I'm looking at my report right now before I answer. (Examined exhibit.)

So, I -- I -- I mean, maybe broader. I guess I want to be more precise, though, just so that we're clear.

Chen definitely describes scaleability layers and independent scaleability layers as having distinctions, so they are not completely synonymous.

Q. What are the distinctions between scaleability layers and independent scaleability layers?

A. Sure. In the Chen reference, let me

1 Nielson - 2-25-2021

2 show you an example of this. Let's see. It's
3 going to be -- this is a big document. Give me
4 just a minute. It's in the middle, of course.
5 I actually probably have a citation in my
6 report, so just a second. (Examined exhibit.)

7 Yeah, let's go to 379. I think
8 that's about the right spot.

9 Q. (Complied.)

10 A. Okay. Yes. Okay. This is perfect.

11 So to -- we -- the paragraphs that
12 are helpful here are -- start with
13 paragraph 375, actually, with the section
14 entitled Scaleable Blocks, and going down
15 through at least 380 or 381 --

16 Q. Give me --

17 A. Sure.

18 Q. Can you give me the paragraphs
19 again?

20 A. Yeah, absolutely.

21 So starting in 375 and going through
22 at least 381.

23 Q. Okay. And to be clear, you're
24 talking about Chen here, Chen paragraphs 375 to
25 381?

Nielson - 2-25-2021

A. I am.

Q. Okay.

A. So the paragraph that I'd like to start -- I mean, it -- well, do you want a minute to look this over before I show you where I want to start?

Q. No. Go ahead.

A. Okay. So if you look at paragraph 380, 380 is very helpful on understanding independence.

So in 380, Chen says: To handle such situations, the block-streaming system, described herein, must be configured to handle multiple scalability layers independently such that a receiver can make layered requests and a transmitter can respond to layered requests.

The key distinction here is, of course, scalability layers are known.

One of Chen's suggestions for how this can be done is to now have them independently requestable so that the client can have some choice over -- over which layers it's going to request or not, rather than just having to make due with whatever it gets.

Nielson - 2-25-2021

Q. What makes the layers described in
Chen 380 independent from each other?

THE WITNESS: I turned my phone back
on to get the message for when to rejoin
and it's making noise. Do you mind if I
shut it off?

MR. LIANG: No, no. No problem.

THE WITNESS: I guess I didn't...
Mode. Okay. Thank you.

A. The independence here in 380 is in
the request -- in how you can request them.

BY MR. LIANG:

Q. What do you mean by that?

A. Well, I mean, I think the paragraph
is -- well, what Chen says is the receiver can
request the layers independently.

Q. And these requests are made over
HTTP, right?

A. Chen describes using HTTP as one
method for requesting them.

Q. And so the layers could be requested
over HTTP using their URLs, regardless of
whether they're independent or not, right?

MR. HENDIFAR: Objection, form.

1 Nielson - 2-25-2021

2 A. Well, what Chen is disclosing here
3 is that that's -- I mean, that -- what you just
4 said is actually part of the Chen disclosure,
5 making them addressable by URL, therefore, you
6 can independently request a layer or a second
7 layer or a third layer based on the receiver's
8 knowledge of the conditions of the receiver
9 rather than not having control over which
10 layers are being sent.

11 BY MR. LIANG:

12 Q. So the difference, then, between
13 independent scalability layers and just
14 scalability layers is that the independent
15 scalability layers, the receiver can
16 individually request layers; whereas, in just
17 normal scalability, the receiver does not have
18 control over which layers are being sent,
19 correct?

20 MR. HENDIFAR: Objection as to form
21 and then asked and answered. Please.

22 A. So the only thing I want to make
23 sure we're clear on here is that scalability
24 layers is not necessarily about the
25 transmission process, right? When we talk

1 Nielson - 2-25-2021

2 about scalability layers, we're talking about
3 an encoding, and, of course, that's often used
4 in transmission, but scalability layers is
5 typically self-contained and not necessarily
6 saying, Here's how you must transmit us.
7 Right?

8 One -- one way you might transmit
9 scaleable layers, for example, is that, you
10 know, you -- the receiver makes -- somehow, the
11 receiver's going to have four independent
12 connections and, therefore, one is more
13 overloaded than the other, then it can just
14 kill that one and go with the other three.
15 Right?

16 Scaleability layers doesn't define
17 how you transmit; it just defines how the data
18 is related to the other data. Right?

19 BY MR. LIANG:

20 Q. Uh-huh.

21 A. What -- what -- what Chen is saying
22 here in 380 is that to -- you -- you can have
23 them be treated independently in that you can
24 say, I'm just going to ask for this layer.
25 I'll ask for Layer 1 or I'll ask for Layer 1

Nielson - 2-25-2021

and 2.

And -- and so it's not change -- this particular thing is not necessarily changing the scalability computations that produce the layers, but it is giving a mechanism for how you're going to request them.

Q. So the difference between independent scalability layers and normal scalability layers isn't in the layers themselves, but rather in the way they are requested?

MR. HENDIFAR: Objection, form.

A. In Chen, I don't think that there was any discussion of changing how the layers are computed. I don't recall any. But, yes, it does suggest that part of the novelty of Chen is how you use them.

BY MR. LIANG:

Q. Okay. And is it your opinion that Chen uses scalability layers or independent scalability layers?

MR. HENDIFAR: Objection, form.

A. I'm looking at my report right now just so you know what I'm looking at.

1 Nielson - 2-25-2021

2 (Examined exhibit.)

3 Okay. So as I say in my report,
4 Chen uses scaleable encodings of which
5 independent scaleability layers and FECs are
6 examples.

7 Q. Okay. You also mentioned a term
8 "scaleable video coding." How did that relate
9 to scaleability layers?

10 A. Sure. So if we go back to Chen,
11 Chen mentions SVC itself. So if you look at
12 paragraph 376 -- in fact, I think I read this
13 earlier in the deposition.

14 Starting about one-third of the way
15 down it says: For example, the well-known
16 techniques of scaleable video encoding may be
17 used. Examples of such video encoding methods
18 include H.264 scaleable video coding, SVC, or
19 the temporal scaleability of H.264, advanced
20 video coding.

21 Q. So are you saying that scaleable
22 video coding is the specific technique used in
23 H.264?

24 MR. HENDIFAR: Objection, form.

25 BY MR. LIANG:

Nielson - 2-25-2021

Q. Withdrawn. Let me -- let me re-ask.

Is it your view that "scaleable video coding" refers to the specific technique used in H.264?

A. So SVC definitely refers to H.264s. Uh. Oh, what's it called? Spatial scaleability? It's a scaleability concept. I don't know if nobody else has ever used that acronym before, but I think in Chen, that's what it's referring to.

Q. And is -- is AVC an acronym that refers to temporal scaleability?

A. Again, here in this sentence in Chen, it is saying H.264 is advanced video coding; but no, because -- no, no, no. No, no.

AVC -- uh. AVC, I'm pretty sure, is actually -- oh, it must be some subset of it, I guess.

But certainly here, Chen is -- is calling that -- is naming the temporal scaleability that term.

Actually, I -- I don't think that's right for the AVC. I even think Chen uses it differently in another paragraph here.

1 Nielson - 2-25-2021

2 (Examined exhibit.)

3 Eh, it's a little ambiguous. 382
4 describes: Temporal scalability layers
5 provided in that standard. So AVC may be --
6 may be broader than just the temporal
7 scalability layers, but the scaleable video
8 coding was, as I remember, fairly specific to
9 the scalability stuff.

10 MR. LIANG: Okay. It's 12:22. Just
11 wondering if you guys want to stop for a
12 short lunch break. We can or we can keep
13 going.

14 MR. HENDIFAR: Let's make it a short
15 lunch break, unless Dr. Nielson prefers a
16 longer one. I think a half hour should
17 suffice.

18 MR. LIANG: Okay. So we'll be back
19 at 12:55 -- 53?

20 MR. HENDIFAR: Let's make it --
21 let's make it top of the hour just so
22 there's no confusion. Let's come back at
23 the top of the hour.

24 MR. LIANG: All right. Let's come
25 back at 1.

1 Nielson - 2-25-2021

2 (Recess held.)

3 (Honorable Kevin Turner joined the
4 Proceedings.)

5 (Mr. Kenneth Weatherwax, lead counsel for
6 the patent owner, joined the Proceedings.)

7 JUDGE TURNER: Mr. Hendifar, you
8 have the floor.

9 MR. HENDIFAR: Thank you very much,
10 Your Honor, and thank you for your time.

11 And the issue may be moot as Counsel
12 didn't follow with the questions that were
13 the topic of -- or the direction that was
14 the topic of the dispute, but, in general,
15 the issue is that the Counsel was asking
16 questions that were grossly out of the
17 scope of this deposition with a particular
18 strategy, and if you would allow me to
19 elaborate.

20 The parties have multiple IPRs that
21 are in dispute. These are the same parties and
22 same counsel and overlapping experts, and there
23 is a pending IPR, which is at its preliminary
24 stages, and the Counsel was -- in this
25 deposition, was asking questions from our

Nielson - 2-25-2021

expert which have no bearing on this matter. They don't even fall within the field of the patent as their experts have defined it, but they were clearly directed as a strategy to get accidental sound bites from our expert to be used in the future IPR, which is currently pending between the parties; and I asked the Counsel to not go in that direction.

Obviously, if an issue is relevant, I offered to meet and confer what the possible relevance could be, and I did not get a response. But after we left the message for the board, Counsel did not follow up on those line of questions, so I'm not sure if the issue is moot at this point.

JUDGE TURNER: Okay. Thank you.

And Mr. Liang.

MR. LIANG: Yeah. So the specific questions -- well, let me just clarify that this is -- this is a deposition involving a '588 patent, which is directed to streaming video.

The expert in this case has provided opinions regarding streaming video and

1 Nielson - 2-25-2021

2 specifically about scaleable video and
3 motion compensation, and so the line of
4 questions that was objected to relate to
5 the basic building blocks of video encoding
6 that are used for motion compensation and
7 scaleable video including, for example,
8 frame, frame types, you know, I-, B-, and
9 P-frames, and motion prediction, things
10 like that, and they're just basic questions
11 about video encoding in a case about video
12 encoding.

13 And the opposing Counsel actually
14 shut down that line of questioning for the
15 reason I -- you know, I -- so I stopped
16 asking it because he said he would instruct
17 the witness not to answer, and I think we
18 are entitled to ask the witness about his
19 video encoding.

20 That's what -- this -- this matter
21 is about, and I think that whether this has
22 overlaps with other -- whether, you know,
23 questions about basic video encoding may
24 overlap with other matters, I mean, the
25 parties do have several IPRs between them,

1 Nielson - 2-25-2021

2 and many of them relate to video, but I
3 think that shouldn't preclude us from
4 asking questions about video encoding when
5 that's the subject of this deposition.

6 JUDGE TURNER: Okay. And
7 Mr. Hendifar, I -- it --

8 (Simultaneous conversation.)

9 MR. HENDIFAR: And because of --
10 (indiscernible) --

11 JUDGE TURNER: Oh, yeah. And just
12 let me direct you just slightly.

13 It seems the petitioner's counsel
14 is -- if I understand--and he can certainly
15 correct me--that the -- basically, the
16 questioning is incidental to this other
17 related IPR and is more basic to the
18 underlying technology of this particular
19 IPR. So please go ahead and respond,
20 unless I've mischaracterized.

21 MR. HENDIFAR: Thank you. That is
22 petitioner's Counsel's argument, but that
23 is incorrect.

24 So this particular IPR, and as their
25 expert has defined the field in

1 Nielson - 2-25-2021

2 paragraph 67, is about video streaming and
3 security. It is not about particular
4 encoding mechanisms. It's not in the
5 claim, it's not in the argument.

6 And questions that Counsel asked,
7 for example, what is a Fast Forward Fourier
8 Transformation in encoding or what is a
9 slice in a frame, they -- those words do
10 not even appear anywhere in any of the
11 references, the patents, none of the expert
12 reports, none of them. Where they do
13 appear is in the other IPR which is pending
14 between the parties. So I disagree with
15 the notion that they are relevant in any
16 way to this IPR.

17 And, also, this is not a fact
18 witness. This is an expert witness. So
19 the questions would have some relevance to
20 the scope of that expert's Declaration.

21 We just ask Counsel to point us
22 at -- in the general direction where in the
23 expert's opinion these matters may be related,
24 and we did not get a response.

25 So -- so we disagree with the

Nielson - 2-25-2021

argument that the Counsel is making at that point, and they don't even fall within the scope of the patent's technology, even based on their own expert's definition of what the field of the patent is.

JUDGE TURNER: Okay. And let me go back to Mr. Liang, and let me direct you a little bit as well.

So how do you respond to the fact that -- you know, that what they're arguing is that this is outside the scope of his testimony, which is what I -- I think Mr. Hendifar is arguing.

MR. HENDIFAR: Yes.

MR. LIANG: Sure. And I can -- let me just point to the two things that he identified: The two things being "slices" and "Fast Fourier Transforms."

So the expert in this case has offered opinions about motion compensation, and slices are, you know, the basic coding unit for motion compensation; and FFTs or the related -- and related transformations are the coefficients that are used in

1 Nielson - 2-25-2021

2 motion compensation.

3 And I guess it's kind of -- I --
4 it's a bit unfair now because I can get the
5 expert maybe on the line and I'd be happy
6 to just reveal that information to him.

7 But, you know, it's a bit unfair
8 that I have to try to justify asking video
9 encoding questions when the expert has
10 specific opinions about motion compensation
11 and video encoding.

12 JUDGE TURNER: Okay. I think I
13 understand the point.

14 Let me go back to Mr. Hendifar.

15 MR. HENDIFAR: Yes, Your Honor. So
16 I have -- I do have a response. The first
17 response is: Our expert did answer
18 questions about what slices and Fast
19 Fourier Transforms were. So what he
20 discussed afterwards is moving further in
21 that direction, not these particular
22 questions which were answered, and I don't
23 believe --

24 MR. LIANG: Which you objected to.

25 MR. HENDIFAR: -- Counsel --

1 Nielson - 2-25-2021

2 MR. LIANG: You objected to the
3 scope.

4 (Court Reporter cautioned parties.)

5 MR. LIANG: Apologies. Apologies.

6 JUDGE TURNER: That's true. We'll
7 come back, certainly, and I'll -- I'll --
8 I'm -- I'm here, as I said, for -- for a
9 certain duration and I can -- I can listen
10 as long as it takes, so...

11 I'm sorry. You were -- you were
12 speaking, Mr. Hendifar.

13 MR. HENDIFAR: I apologize. Yes.
14 Thank you.

15 So while we did -- our expert did
16 answer the questions, as Mr. Liang was pointing
17 to, which is: What is a slice? What is a Fast
18 Fourier Transform?

19 But what I pointed to that we called
20 the board for was future questions in that
21 direction, and Counsel still has not pointed us
22 to any paragraph or portion of our expert's
23 Declaration, which would make these questions
24 to be within the scope.

25 And I want to point out again that

Nielson - 2-25-2021

37 CFR 42.53 specifically says that the cross-examining has to be within the scope.

So all we ask Counsel is to point us to which portion of our expert's Declaration these questions would be responsive to, to make it fall within the scope, and we did not get a response prior to this call; and -- and so, clearly, that's where the dispute comes from.

But I don't believe there are any particular questions that Mr. Liang is asking about that was not answered. The slices, Fast Fourier Transform, they were all answered. So this is really at this point a hypothetical dispute regarding future questions that are not related to this matter.

JUDGE TURNER: Sure. And let me -- before I go back to the petitioner, I understand the citation that -- you're -- you're reading from, but in additional -- in any deposition, if, indeed, the expert were to raise an issue that's not in their Declaration and, you know, if you have an expert who's suddenly spouting off like, oh, slices never work, well, of course

Nielson - 2-25-2021

you're -- you're allowed followup within --
so it's not -- the confines here aren't --
you know, you're not allowed to say
anything beyond your deposition --
original, you know, Declaration because,
well, then, we wouldn't have a deposition.

So I understand. I take your point,
and -- and I understand that there's --
there's probably a line here, but I -- I
also want to, you know, remind the parties
that -- you know, that line may be flexible
depending upon, you know, the actual
testimony of the declarant in this case.

Let me go back to petitioner's
counsel. I -- I think there was an additional
issue that was raised?

MR. LIANG: Well, yes, Your Honor.
You know, I -- in terms of -- you know, as
I mentioned, for example, that a lot of
this discussion is relevant to the opinions
about motion compensation and temporal
scaleability which, for example, appear in
paragraph 59 of Dr. Nielson's report, among
other places. There's actually many

1 Nielson - 2-25-2021

2 paragraphs on it.

3 And so, I -- you know, I don't see
4 how I can conduct a deposition without
5 asking, you know, in terms of how temporal
6 scaleability and motion compensation work
7 if I'm restricted from asking even just
8 basic questions. I think the lines of
9 questions that Counsel actually stopped
10 were just basic questions about, you know,
11 What is a slice? And what is -- and a
12 slice is actually one of the units that's
13 used for motion compensation and they
14 relate to temporal scaleability. So I just
15 need to be able to ask those questions.

16 I don't see -- if Counsel's right
17 and he thinks it's irrelevant, then I don't
18 see the harm in asking, but -- and I
19 also -- but, in fact, it's highly relevant
20 because it's directly related to these
21 opinions, and if I'm not allowed to ask
22 about these opinions, if I'm not allowed to
23 ask about the video concepts, then how --
24 then we can't talk about how the opinions
25 that this expert has offered works.

1 Nielson - 2-25-2021

2 JUDGE TURNER: Okay. Mr. Liang,
3 I -- let me ask, hopefully, a very
4 straightforward question: Did you ask your
5 questions about -- about a slice or slices,
6 and did you get an answer?

7 MR. LIANG: I -- I got one answer,
8 and then Counsel stopped the line of
9 questioning.

10 And, you know, throughout the line
11 of questions about just the basic, you
12 know, What is -- you know, What is a slice,
13 you know, what is -- you know, that kind
14 of -- what are FFT coefficients, that sort
15 of thing, he -- you know, Counsel
16 interrupted and -- with lengthy speaking
17 objections; and then eventually after I
18 asked what a slice is, threatened to shut
19 down the line of questioning; and that's
20 where the call with the board resulted.

21 So I got one answer. I'm not sure I
22 was satisfied with it, but I wasn't really
23 allowed to follow up.

24 JUDGE TURNER: Okay. What I'm --
25 what I'm -- and before I let anybody speak,

1 Nielson - 2-25-2021

2 what I'm sort of getting here is that one
3 side's sort of telling me that this -- this
4 is hypothetical, and the other one is
5 saying that it's not. So I'm -- I'm --
6 I -- that's what I'm trying to resolve. Is
7 this -- is this a hypothetical concern
8 because additional questions will be asked
9 and you're going to get me back on the
10 phone, or is this -- is there an actual
11 dispute that must be resolved here?

12 And let me -- let me -- let me hear
13 from patent owner first.

14 MR. HENDIFAR: Thank you. To the
15 questions that Counsel did ask about slices
16 and Fast Fourier Transform, they were
17 answered. I never instructed the witness
18 not to answer. I did not interrupt either
19 a question or an answer. Once the question
20 was asked and answered, I asked Counsel
21 that if he intends to continue, I would
22 like to get guidance from the board. At
23 each point, Counsel stated that he will ask
24 the questions he wants, and I can instruct
25 not to answer, which I didn't.

1 Nielson - 2-25-2021

2 So my understanding is that Counsel
3 did ask any questions that he wanted. So
4 that is my understanding of where the issue
5 is at this point.

6 I don't believe there was any
7 question that was asked which the expert --
8 or I instructed the witness not to answer,
9 which that may be the source of confusion.

10 JUDGE TURNER: Okay. Let me -- let
11 me stop you there and let me go back to
12 Mr. Liang for petitioner.

13 Is -- is his statement that he just
14 made, is that -- is it correct or is it
15 slightly incorrect for some reason?

16 MR. LIANG: I think -- I think he --
17 it's fairly correct. He did -- he said --
18 at one point, he said he would stop -- he
19 would instruct the witness not to answer
20 and we can have a discussion with the
21 board, and we went offline, and we had a
22 discussion.

23 And he said -- or he told me that he
24 would stop the line of questioning, and so
25 I decided that rather than ask the

1 Nielson - 2-25-2021

2 questions and then get the questions
3 stopped and then have to come back later, I
4 would just hold off.

5 So I do think there is a dispute
6 between the parties because I am planning
7 to ask more questions following about
8 slices and coefficients, and I don't think
9 I can -- I can ask questions about the
10 expert's opinions regarding video encoding
11 while being restricted about the portions
12 of video encoding that were talking about.

13 So -- and I don't think I can ask
14 him about his motion compensation opinions
15 if I'm not allowed to -- if we're not
16 allowed to discuss the underlying units on
17 which motion compensation is performed on.

18 JUDGE TURNER: Okay. I think I
19 understand the positions of the parties,
20 and I appreciate your indulgence in helping
21 me understand where we're actually at.
22 Because when I first got on this call, I
23 think there was some confusion whether the
24 witness was told to not answer, and it
25 sounds like that was a hypothetical, you

1 Nielson - 2-25-2021

2 know, threat that could be made if
3 questioning went on.

4 Is that -- is that fair from both
5 sides?

6 MR. HENDIFAR: Yes.

7 JUDGE TURNER: Anybody can speak if
8 they want.

9 MR. LIANG: Yes.

10 JUDGE TURNER: Okay. And that's
11 part -- that's part of the joy of doing
12 these is trying to understand what the
13 status is, but you're doing much better.

14 I've had -- I've had these
15 incidences where I've actually had to go to
16 the court reporter and get actual things
17 recited back to me. So -- so I -- I
18 applaud the parties for actually being on
19 the same page.

20 And, I mean, I'm happy to rule, but
21 at the same time, I'm also happy -- as I
22 said, I have another ten minutes.

23 Anything else that either patent
24 owner's counsel or petitioner's counsel
25 wants to raise?

1 Nielson - 2-25-2021

2 MR. LIANG: Yeah. I mean, I think I
3 it (audio distortion) --

4 (Simultaneous conversation.)

5 JUDGE TURNER: I'm sorry. Go ahead.
6 Whoever wants to speak.

7 MR. HENDIFAR: This is counsel for
8 patent owner, Your Honor.

9 JUDGE TURNER: Uh-huh.

10 MR. HENDIFAR: I -- well, I just
11 want to highlight. If there's a question
12 that has a potential relevance, I did go
13 off the record and asked the Counsel in the
14 absence of the expert, so there wouldn't be
15 any coaching, that this -- provide some
16 baseline of what the relevance of the
17 question is, and Counsel refused.

18 Even in district court litigation,
19 if there's a question that doesn't have any
20 apparent relevance to the matter, the party
21 has to establish some sort of a baseline,
22 so he can say this is related motion
23 compensation in paragraph 59 or it's
24 related to such and such.

25 And we did try to discuss it with

1 Nielson - 2-25-2021

2 Counsel, and Counsel said he's not
3 comfortable providing any -- any point
4 about what the relevance is.

5 If there is a question that Counsel
6 wants to ask and Counsel can, in the absence of
7 the expert, tell me this is relevant because it
8 relates to motion compensation in paragraph 59,
9 then that's all I need to hear, and that's
10 fine; and then we can -- we can go on.

11 But if the question has no apparent
12 or is in tangential relevance to the issue and
13 it seems to be directed at a different IPR
14 where all these issues are actually in dispute,
15 and Counsel refuses to meet and confer even in
16 the absence of the expert or in the -- to tell
17 me what the relevance is, that seems to be a
18 bit unfair. So all I ask is if Counsel wants
19 to continue this line of questioning, we can go
20 off the record without the expert present, and
21 he can give me just a baseline of what the
22 relevance or which paragraphs this may relate
23 to, and then we can continue with the
24 questioning.

25 MR. LIANG: And, Your Honor, I think

Nielson - 2-25-2021

it would be -- if Counsel has an objection to relevance, he can lodge that objection. I don't -- it would not be fair if I have to explain how each of my questions relates to the eventual arguments that I want to make. I mean, I think I am -- you know, Counsel keeps saying that there's no apparent connection between the questions that I'm asking and the opinions that we're talking about, but we're talking about video encoding, and I'm asking about video encoding, and specifically I'm asking about, you know, there's opinions about motion compensation which we are actually in the middle of now, and it's -- and I'm asking about the units of motion compensation.

Now, whether Counsel is not aware of that connection, that technological connection, you know, I mean, you know he can object relevance, but to stop a line of deposition questionings that are entirely directed to the opinions that the expert has offered I think is inappropriate, and I do -- and I do think we

Nielson - 2-25-2021

want some guidance about whether I can ask about motion compensation and video encoding in this deposition or whether I'm going to get interrupted or shut down in the future.

JUDGE TURNER: Okay. Mr. Hendifar, do you have anything further?

MR. HENDIFAR: Yes. So this is not a case that I don't know what the technology is. Even our expert, who is the expert, was at a loss about what those terms are. They don't appear anywhere in any of these matters. So these are particular terms, "Fast Fourier Transformation" or "slices."

So when nobody knows what the relevance of the question is, as I mentioned, the typical approach, even in the District Court, is Counsel has to have his -- even in the absence of expert, give some modicum.

I'm not asking Counsel to give us what his argument is, but just to say this is relevant to motion compensation in paragraph 59 so that we have that

1 Nielson - 2-25-2021

2 established.

3 This is not a case where we don't
4 know what the technology is and then we're
5 at a loss. This is a case where Counsel is
6 asking about particular terms, terms that
7 don't appear anywhere in the record in this
8 case, have no relevance, but they
9 coincidentally appear in the other case,
10 and that's the strategy that I'm troubled
11 by.

12 MR. LIANG: I think it's unfair that
13 I have to explain my -- my -- I have to
14 actually reveal this information that -- I
15 mean, you know, if an expert is offering
16 opinions on motion compensation, he should
17 be expected to know that motion
18 compensation is performed on slices, for
19 example, in the -- in some of the standards
20 we've been discussing.

21 So it's -- it's entirely -- it's
22 entirely direct -- it's squarely within the
23 opinions that he's offered, and the fact
24 that the expert and opposing counsel aren't
25 aware of that is -- I mean, that's actually

1 Nielson - 2-25-2021

2 my attack, and it's somewhat unfair that
3 I've actually had to reveal that to some
4 degree.

5 And I think it's -- when we're
6 talking about video encoding and the
7 underlying parts of it. I should be
8 allowed to ask about it since that's the
9 opinion that the expert has raised.

10 JUDGE TURNER: Okay. And any --
11 anything from either side additional?

12 MR. HENDIFAR: Yes, Your Honor.
13 This is counsel for patent owner. I
14 just -- the -- the notion that motion
15 compensation is an issue that is in dispute
16 here --

17 (Clarification by the Reporter.)

18 MR. HENDIFAR: Sure. I apologize.

19 I just want to point out that the
20 notion that motion compensation is an issue
21 that is in dispute here is not true. It's
22 not one of the central issues that the
23 parties are fighting about. It is not one
24 of the facts that are in dispute.

25 And, again, Counsel refused to even

1 Nielson - 2-25-2021

2 say before this call his question relates
3 to motion compensation. But it happens
4 that motion compensation is at issue in the
5 other IPRs.

6 MR. LIANG: That is -- that is not
7 correct, Parham.

8 MR. HENDIFAR: It is not --
9 (Simultaneous conversation.)

10 MR. LIANG: Motion -- motion
11 compensation --

12 MR. HENDIFAR: Yeah.

13 MR. LIANG: -- is --

14 MR. HENDIFAR: Counsel, if you allow
15 me to finish -- sir, yeah if you would
16 allow me to finish, please.

17 With the Counsel's line of
18 reasoning, a party can ask any question
19 without ever having to justify anything to
20 anybody, and that's really not what the
21 rule is.

22 Again, we are fine with the meet and
23 confer about the relevance being in the
24 absence of the expert so there is no
25 coaching, but that threshold should be

1 Nielson - 2-25-2021

2 satisfied.

3 MR. LIANG: Okay. And Parham had
4 the first word, so let me just get in one
5 quick last word.

6 Motion compensation is mentioned in
7 multiple paragraphs of the Expert
8 Declaration, and it -- and is referenced as
9 the way that scaleable layers works, which
10 is rel -- which is mentioned in an entire
11 section of this Declaration in -- and pages
12 and pages.

13 So it -- I -- I shouldn't have to
14 foreshadow all of my arguments and the --
15 you know, when I'm asking about the topics
16 that are directly in multiple pages of the
17 Expert Declaration in this matter.

18 JUDGE TURNER: Okay. I, again,
19 appreciate the parties' attendance, and I
20 believe that I understand, I think, the
21 issue sufficiently.

22 In this case, I think, you know,
23 there's a little bit of difficulty on both
24 sides, and I think I understand that. In
25 terms of -- you know, of providing a ruling

Nielson - 2-25-2021

so that the deposition can continue, you know, certainly if -- if petitioner is asking questions about any sort of foundation, that's one thing; but if they are properly founded and they are relevant and even tangential to what's discussed in the declarant's Declaration, they should be allowed to ask those questions.

If, indeed, they are about topics of which the declarant doesn't know, you know, the declarant is certainly able to say: I don't know. I can't speak to that. That seems like that's readily apparent. You know, if indeed he doesn't know these terms, okay, that may go later on and be something that could be additionally used.

But also, you know, with respect to the patent owner's counsel, yes, if it seems that the -- that there are arguments that are not related at all, you certainly may object to those questions that aren't all related. But if they do have to do with the basic technology, then he should be able to ask. And if the deponent doesn't -- doesn't know,

Nielson - 2-25-2021

certainly the deponent is capable of saying "I don't know" or, you know, "I don't -- I don't have an opinion because, you know, there's nothing in my Declaration about that."

And please know that the Panel will have the ability to look at this, including seeing my own words in print and understanding from -- from the transcript of the deposition what was going on, what was the concern.

So I think sometimes parties on both sides are fearful that, you know, we're going to have experts who are going to be thrown out because they're not experts. I -- I think that's clearly not the case in this case. So overall, that's my ruling; a little bit muddled.

Let me ask before I depart if there's any questions, either side?

MR. LIANG: No, Your Honor. Thank you very much for your time.

MR. HENDIFAR: Not from patent owner, and we appreciate Your Honor dialing in and providing guidance.

JUDGE TURNER: Okay. And I do hope

1 Nielson - 2-25-2021

2 I have provided guidance because it took me
3 a little bit of time to understand, but,
4 you know, I think there's -- there's
5 probably a rule of reason that's available
6 here.

7 You know, as much as I hate jumping
8 on these calls, if, indeed, there's further
9 issues, I'm happy to come back and am
10 available, but hopefully, we've -- we've
11 ironed out some of the difficulties.
12 Hopefully, you can settle your deposition.

13 I thank the parties' attention.

14 This is Judge Kevin Turner, and I'm
15 going to drop off the call unless there's any
16 additional issue.

17 Let me ask first for petitioner's
18 counsel. Mr. Liang, any additional issue?

19 MR. LIANG: No, Your Honor. Thank
20 you for your time.

21 JUDGE TURNER: And for patent
22 owner's counsel, Mr. Hendifar, any
23 additional issue?

24 MR. HENDIFAR: No, Your Honor. I
25 really appreciate your time.

1 Nielson - 2-25-2021

2 JUDGE TURNER: Okay. I appreciate
3 the parties' attendance. I am going to
4 drop off, and you may continue. Thank you
5 very much.

6 MR. LIANG: Thank you.

7 MR. HENDIFAR: Thank you.

8 (Honorable Kevin Turner left the Proceedings.)

9 MR. LIANG: Let's go off the record.

10 (Discussion held off the record.)

11 BY MR. LIANG:

12 Q. Hello again, Dr. Nielson.

13 A. Hello.

14 Q. Did you communicate with anybody
15 during this past break?

16 A. I called my wife.

17 Q. Did you talk at all about the --
18 anything related to the topic or contents of
19 this deposition?

20 A. No.

21 Q. Okay. And did you communicate with
22 anyone else during this break?

23 A. I was chatting with Parham before
24 waiting for you, but it was not related to the
25 case.

1 Nielson - 2-25-2021

2 Q. Okay. If you could turn to the '588
3 patent, I believe that is Exhibit 1001.

4 A. Yes, I have it.

5 Q. Okay. If you can turn to the end,
6 column 27, line -- around line 54. It is Claim
7 1. Let me know when you get there.

8 A. Okay. I have Claim 1. Give me just
9 a minute to look it over. (Examined exhibit.)

10 Okay. I've had a chance to review
11 it. Go ahead.

12 Q. Okay. So Claim 1 is a limitation
13 that says: Locating the encryption information
14 that identifies encrypted portions of frames of
15 video within the requested portions of the
16 selected stream of protected video.

17 Do you see that?

18 A. I do.

19 Q. Okay. Now, if you could turn to
20 column 5 of Exhibit 1001 and look at line 4.
21 Let me know when you're there.

22 A. Yeah, I'm there. I'm just looking
23 it over for just a minute. Hold on.

24 Q. Let me know when you're ready for a
25 question.

1 Nielson - 2-25-2021

2 A. (Examined exhibit.) Okay. I've had
3 a chance to review it.

4 Q. Okay. Column 5 starting around
5 line 4 says: The further embodiment of the
6 method of the invention. The alternative
7 streams of protected content are alternative
8 streams of protected video. Each of the
9 alternative streams of protected video includes
10 DRM information indicating portions of frames
11 of video that are encrypted in identifying at
12 least a portion of the common cryptographic
13 information used to access the encrypted
14 portions of the frames of video.

15 Do you see that passage?

16 A. I do.

17 Q. Is the DRM information described
18 here in column 5 the encryption information
19 that's recited in the challenged claims?

20 A. Are you referring back to the
21 encryption information from Claim 1 that we
22 read before we went to this paragraph?

23 Q. Yes.

24 A. Okay. Let me reread that and then I
25 will answer your question. (Examined exhibit.)

1 Nielson - 2-25-2021

2 And then we were in column 5, right?

3 Q. Column 5, lines 4 through 11.

4 A. (Examined exhibit.) Let's see. So
5 it says that the DRM information indicates
6 portions of frames of videos that are
7 encrypted.

8 So I believe--I'm just checking the
9 language here--the claim requires locating
10 encryption information that identifies
11 encrypted portions of frames of video. So let
12 me see. Just making sure my language lines up
13 here. (Examined exhibit.)

14 Yes, I would say that that is
15 encryption information that indicates portions
16 of frames of video that are encrypted.

17 BY MR. LIANG:

18 Q. Okay. So yeah, this embodiment
19 described around column 5, lines 4 through 11,
20 the DRM information described in this passage
21 is the encryption information that's recited in
22 Claim 1?

23 A. I guess my only hesitation is I'm --
24 I haven't looked through the embodiments to see
25 if it has all of the other limitations of Claim

Nielson - 2-25-2021

1, but I don't disagree that it is encryption information indicating portions of frames of videos that are encrypted.

Q. Okay. Now, let me ask you -- you've done a lot of consulting work in networking, right?

A. Yes.

Q. So you're aware of the OSI model, correct?

A. Are you talking about the 7 layer?

MR. HENDIFAR: Objection, relevance.

A. Are you talking about the OSI model for the network layers, the 7 layer stack?

BY MR. LIANG:

Q. Yes.

A. Yes, I'm familiar with it.

Q. Okay. And what is the OSI model?

MR. HENDIFAR: Objection, scope, relevance.

A. So the OSI model that I am referring to is a -- it is a conceptual model for an idealized network system. I don't know -- is there a specific question about it? There's a lot of things I could say about it, so I don't

1 Nielson - 2-25-2021

2 know what you're looking for.

3 BY MR. LIANG:

4 Q. Yeah. So specifically, what are the
5 layers of the OSI model?

6 MR. HENDIFAR: Objection, form,
7 scope, relevance.

8 A. Well, there's 7 of them. Sometimes
9 we actually just call them by their numbers:

10 So Layer 7, Layer 3, Layer 4...

11 Layer 7 is application; Layer 4 I
12 think is session; and Layer 3 is network; and
13 Layer 2 is link. Those are the ones that are
14 used most often.

15 5 and 6 don't actually get used in
16 practice.

17 One of them is called
18 "presentation." I don't remember what the
19 other one is called off the top of my head.
20 They don't get used very much.

21 BY MR. LIANG:

22 Q. Would it be correct that Layers 1
23 through 7, respectively, would be the physical,
24 data link, network, transport, session,
25 presentation, and application layers,

1 Nielson - 2-25-2021

2 respectively?

3 MR. HENDIFAR: Objection, scope,
4 relevance, form.

5 A. That sounds correct. I'd have to
6 see the chart to verify, but it sounds right.

7 BY MR. LIANG:

8 Q. Okay. What layer is the HTTP
9 protocol?

10 MR. HENDIFAR: Objection, form,
11 scope, relevance.

12 BY MR. LIANG:

13 Q. Withdrawn. Let me re-ask the
14 question.

15 What OSI layer is the HTTP protocol?

16 MR. HENDIFAR: Objection, form,
17 scope, relevance.

18 A. So in the --

19 THE WITNESS: Sorry. Were you all
20 done? I thought I heard something.

21 MR. HENDIFAR: Done.

22 THE WITNESS: There's a delay --
23 Parham, there's something delaying between
24 your video and your sound, and so it's --
25 anyway, it just threw me off for a minute.

1 Nielson - 2-25-2021

2 Okay. Is there another objection
3 that needed to go on before I started
4 talking?

5 BY MR. LIANG:

6 Q. Let me -- let me ask the question
7 again and -- just to make sure we're on the
8 same page.

9 In what layer is -- withdrawn.

10 In what OSI layer is the HTTP
11 protocol?

12 MR. HENDIFAR: Objection, scope, and
13 relevance.

14 MR. LIANG: Okay.

15 A. So we would -- we would typically
16 say that HTTP is an application layer protocol
17 and would be at the Layer 7 in the OSI model.

18 BY MR. LIANG:

19 Q. In the OSI model, what layer is the
20 TCP protocol?

21 MR. HENDIFAR: Objection, scope,
22 relevance.

23 A. The TCP layer is typically Layer 4
24 in the OSI model.

25 BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Right. So that's the transport
3 layer, right?

4 A. Correct.

5 Q. Okay. And in what layer --
6 withdrawn.

7 In what OSI layer is the IP
8 protocol?

9 MR. HENDIFAR: Objection, scope,
10 relevance.

11 A. The IP layer is typically a Layer 3
12 protocol.

13 BY MR. LIANG:

14 Q. That's the network layer, right?

15 A. Yes.

16 Q. HTTP is most commonly used with TCP,
17 right?

18 MR. HENDIFAR: Objection, incomplete
19 hypothetical, scope, relevance, form.

20 A. The original versions of HTTP, up to
21 the present, are pretty much all based on TCP.
22 There is a newer version of HTTP coming out
23 right now that is designed to work over UDP.

24 BY MR. LIANG:

25 Q. When we talk about operations on

1 Nielson - 2-25-2021

2 video frames, those operations would be in the
3 application layer or higher; is that right?

4 MR. HENDIFAR: Objection, incomplete
5 hypothetical, form, scope, relevance.

6 A. Well, that's a little bit broad. I
7 only -- so let me see if I can ask a clarifying
8 question.

9 When you say "operations," do you
10 mean operations that are specifically aware of
11 the video format or content?

12 BY MR. LIANG:

13 Q. Correct.

14 A. Yes. Most -- I can't -- well,
15 actually, no. I should -- I should not say
16 that. Let me think carefully for a minute.

17 In HTTP, where we have HTTP over a
18 TCP stack, TCP, IP, and, say, your MAP protocol
19 like Ethernet or WiFi will not, as far as I'm
20 aware of, have any video-specific processing.

21 (Pause.)

22 BY MR. LIANG:

23 Q. Now, would you agree that forward
24 error correction should not be applied to the
25 application layer of data streams which are

1 Nielson - 2-25-2021

2 transmitted via partial encryption?

3 A. What do you mean by "should not,"
4 like what type of "should"?

5 Q. Well, should not be done because
6 it's a bad practice.

7 MR. HENDIFAR: Objection, incomplete
8 hypothetical, form.

9 A. So that would depend entirely on
10 the -- I mean, I'd have to see the application.

11 BY MR. LIANG:

12 Q. Would you agree that applying
13 forward error correction to the application
14 layer of data streams that are transmitted via
15 partial encryption would introduce security
16 vulnerabilities?

17 A. Sorry. I believe I've described in
18 my report that that is entirely possible.

19 Q. So rather than apply FEC at the
20 application layer, it's a more secure practice
21 to instead apply it at a lower layer, correct?

22 A. That -- that's -- you can't -- you
23 can't do that with security. That's -- that's
24 not a way -- that doesn't work that way.

25 When you're going to look at a

Nielson - 2-25-2021

security system, you have to analyze the system. You can't -- I mean, that -- that sentence is not -- that assertion doesn't make any sense without a system to analyze.

Q. Would you agree that applying FEC to data that has already been partially encrypted does no harm with respect to data security?

MR. HENDIFAR: Could you repeat that question? I think I missed a few words. I would have to see that.

BY MR. LIANG:

Q. Would you agree that applying FEC to data which has already been partially encrypted does no harm with respect to data security?

MR. HENDIFAR: Objection, incomplete hypothetical, form.

A. So I would have to see how the system was constructed, but conceptually, that could potentially be fine, but it would depend on details.

BY MR. LIANG:

Q. Now, let me -- let me ask you about -- let me go back to the topic of independable -- independent scaleable layers.

1 Nielson - 2-25-2021

2 And I want to ask you. Before this
3 litigation, were you aware of the details of
4 independent scaleable video layers?

5 MR. HENDIFAR: Objection, form.

6 A. I don't recall if I had worked with
7 them before or not, but I've worked with
8 similar concepts.

9 BY MR. LIANG:

10 Q. In preparing your Declaration, did
11 you review any materials other than the
12 exhibits that have been -- well, withdrawn.

13 Let me ask it this way: I think
14 earlier we discussed you have a folder full of
15 exhibits, and I believe that the numbers of
16 those exhibits are 1001 through 1015, and 2002
17 through 2024; is that right?

18 A. That's correct.

19 Q. Okay. Did you review any materials,
20 other than those exhibits we just identified
21 that you have access to here, to learn more
22 about scaleable -- independent scaleable layers
23 while you were drafting your Declaration?

24 A. I may have looked up reference
25 materials about terms in the specification that

Nielson - 2-25-2021

I wanted to be refreshed about.

Q. Are those reference materials cited in your Declaration or Materials Considered?

A. No.

Q. What reference materials are you referring to?

A. Well, when I need to review a term of art, I typically like to refer to a technical document or some kind of background document as a refresher about what it means and how it works.

Q. What specific materials did you refer to and -- when researching independent scaleable layers?

A. I don't recall the exact document. It was related to the specification for SVC.

Q. Would you consider yourself to be an expert in independent scaleability layers?

MR. HENDIFAR: Objection, form.

A. I am qualified to speak as an expert about the -- the relationship of scaleable independent -- independent scaleability layers and encryption.

BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Now, without speculating, can you
3 identify the specific independent scaleable
4 layer modes that are supported in MPEG-2?

5 MR. HENDIFAR: Objection, form,
6 scope, relevance, incomplete hypothetical.

7 A. I'm not sure if there are features
8 called that. Some of the basics of video
9 coding are based on similar ideas just anyway,
10 so I'm not sure if it's called that or if there
11 are other terms for "temporal" or "spacial
12 scaleability" in that protocol -- or
13 specification.

14 BY MR. LIANG:

15 Q. Do you know whether MPEG-2 supports
16 any modes for spacial scaleability?

17 MR. HENDIFAR: Objection, form,
18 incomplete hypothetical.

19 A. I assume we would be talking about
20 MPEG-2 at the relevant time period. I would
21 have to see the specification from that time
22 period to be sure.

23 BY MR. LIANG:

24 Q. Okay. But sitting here today, you
25 don't have an answer?

1 Nielson - 2-25-2021

2 A. For whether I know if that was in
3 MPEG-2 in 2011, I guess we're talking about?
4 I'm not sure without looking.

5 Q. Do you know whether MPEG-4 included
6 modes for spacial scaleability?

7 MR. HENDIFAR: Objection, form,
8 incomplete hypothetical.

9 A. There are actually multiple MPEG-4s
10 that actually covers multiple standards. I
11 believe one of them does, for certain.

12 BY MR. LIANG:

13 Q. Which MPEG-4 standard are you
14 referring to?

15 A. I would have to look -- I'm sorry.

16 THE WITNESS: Okay. No objection.

17 A. Okay. I would have to look at
18 the -- at the -- there's two that I'm thinking
19 of, but I don't remember their numbers off the
20 top of my head. I'd have to check.

21 BY MR. LIANG:

22 Q. Does H.264 include any modes for
23 spacial scaleability?

24 A. Well, we read in Chen today that --
25 that spacial scaleability is a 2.64 element

1 Nielson - 2-25-2021

2 feature option.

3 Q. Okay. And do you know whether
4 MPEG-2 includes modes for temporal
5 scaleability?

6 A. So actually, "kind of." And this
7 is -- I was referring to this just a few
8 minutes ago when I said some of the concepts
9 came out of the existing video coding. It
10 turns out that even doing P-frames and B-frames
11 is a "kind of" temporal.

12 But -- but when we talk about
13 temporal scaleability in quotes, it's kind of
14 this more -- it's carrying more redundancy
15 details than -- than -- than typically in a --
16 in kind of the classic layout of I-frames,
17 P-frames, and B-frames.

18 Q. What redundancy information are you
19 referring to?

20 A. So the -- sorry. So the basic
21 concept in the temporal scaleability is that
22 there is enough redundancy in data that losing
23 a frame is not going to affect you. You can
24 recreate it from other frames.

25 So, obviously, with MPEG -- not

Nielson - 2-25-2021

MPEG. Sorry.

With even your classic approach to doing I-frames, B-frames, P-frames, there is a certain amount that you could make an attempt to reconstruct data if something is lost, but it is not as -- when they -- when they kind of switched to what they're at -- you know, what they kind of put the quotes around for temporal encoding, it was -- that -- that was kind of like the explicit design decision and more information was added to making up for lost frames rather than just reducing frame size.

In the -- in the first case, it was kind of a happy accident.

In the second case, they built on the concept to make it an explicit design thing that was -- that supported that feature.

Q. And can you identify the specific redundancy information that you're referring to?

A. Well, I believe I describe this in my report -- Declaration here. Let me see. Where do I have it here? (Examined exhibit.)

Yeah. So I have this in

Nielson - 2-25-2021

paragraph 59 of my report. In paragraph 59 I say: One SVC approach mentioned by Chen, for example, is temporal scaleability. Temporal coding builds extra data into the video stream that permits whole packets to be lost. This extra data is considerably smaller than the actual video data and typically includes video-specific guessing such as "motion compensation." If a packet is lost, the entire packet is "guessed" from the predictive information from the previous frames. Losing a single frame will have a negligible impact on the quality; if more packets are lost and more guesses are made, the quality degrades. Nevertheless, this may be far more acceptable than simply having the video stop altogether.

Q. So the "extra" information you're referring to is the information that is used for motion compensation, correct?

A. Well, I say that's --

THE WITNESS: Sorry. Was there a --
I should pause.

A. Okay.

MR. HENDIFAR: Go ahead.

Nielson - 2-25-2021

A. So I -- I -- you know, what I read here is that is a typical inclusion. That is not -- I'm not saying that is the only thing that is included.

BY MR. LIANG:

Q. Can you identify any other specific information that is included in this "extra data" referred to in paragraph 59 of your Declaration?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. I don't have any other examples listed. I don't remember any off the top of my head, but I know this wasn't the only one.

BY MR. LIANG:

Q. Okay. Now, would you agree that in a bit stream with temporal scalability, the base layer represents a lower frame rate sequence, and then the enhancement layer adds information to increase the frame rate?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. I don't know what context that's referring to.

1 Nielson - 2-25-2021

2 BY MR. LIANG:

3 Q. Would you -- would you agree with --
4 withdrawn.

5 Would you agree that in a bit stream
6 with temporal scaleability, the base layer
7 represents lower frame rate sequence and then
8 the enhancement layer adds additional
9 information to increase the frame rate?

10 MR. HENDIFAR: Objection, form,
11 incomplete hypothetical.

12 A. Well, which -- which system are you
13 referring to there?

14 BY MR. LIANG:

15 Q. Well, let me back up and ask you
16 this: Can you identify the specific temporal
17 scaleability techniques used in MPEG-2?

18 MR. HENDIFAR: Objection, form,
19 incomplete hypothetical.

20 A. I don't recall the specific temporal
21 techniques used in MPEG-2 beyond, like I said a
22 minute ago, what was kind of the proto --
23 the -- I -- where they got the idea from.

24 BY MR. LIANG:

25 Q. And can you identify the specific

Nielson - 2-25-2021

temporal scaleability techniques supported in
MPEG-4?

MR. HENDIFAR: Objection, form,
incomplete hypothetical.

A. So my recollection is that the
temporal scaleability is in at least one of the
two MPEG-4, that I'm aware of, and was using
techniques like what I'm describing here in my
report. There may be other techniques. I
don't know that this is a comprehensive list.

BY MR. LIANG:

Q. Can you identify the specific
scaleable video -- or withdrawn.

Can you identify the specific
temporal scaleability modes supported in H.264?

MR. HENDIFAR: Objection, form,
incomplete hypothetical.

A. So the -- the Chen reference, again,
refers to -- I think it calls -- well, it uses
AVC there for that.

It's my understanding that it is
using techniques like what I'm describing here
in my paragraph 59.

BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Did you review the H.264 standard
3 when preparing your Declaration?

4 A. I don't remember exactly which
5 documents I looked at. I looked at different
6 standards over different versions of time.

7 Q. Would you agree that for H.264 in a
8 bit stream with temporal scaleability, the base
9 layer represents a lower frame rate sequence
10 and the enhancement layer adds information to
11 increase the frame rate?

12 MR. HENDIFAR: Objection, form,
13 incomplete hypothetical.

14 A. I want to take a quick look and make
15 sure. I just want to look at Chen really fast,
16 see if Chen describes this part of it. One
17 second. (Examined document.)

18 I'm not familiar with that -- that
19 terminology you're using, but if it's from a
20 document that you want to show me, I'm happy to
21 review it.

22 Q. What terminology are you unfamiliar
23 with?

24 A. Well, the way you're putting those
25 technical terms together sounds like it's

1 Nielson - 2-25-2021

2 coming from a standard or a technical document,
3 so I'd want to see it in context.

4 Q. Would you agree that for H.264
5 temporal scaleability, there's a base layer at
6 a lower frame rate, and then the enhancement
7 layer contains extra frames that can be used to
8 increase the frame rate?

9 MR. HENDIFAR: Objection, asked and
10 answered, form, incomplete hypothetical.

11 A. I would want to see a document to
12 make sure -- if I'm going to use those kind of
13 technical terms, "base layer" and "enhancement
14 layer," whatever else, I'd want to see the
15 documents to -- to make sure I'm referring to
16 it accurately.

17 Conceptually, I mean, the whole idea
18 is that you get better quality the more frames
19 are received.

20 So, I mean, I -- you know, I'm not
21 entirely sure if -- exactly what you're asking
22 there with respect to a given standard, but the
23 concept is that the more frames you get, the
24 better the quality.

25 BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Okay. So let's step back from the
3 standards, then.

4 And the concept of temporal
5 scalability is that you have multiple layers,
6 and some of those layers can be used to
7 increase the frame rate, right?

8 MR. HENDIFAR: Objection, form,
9 incomplete hypothetical.

10 A. So conceptually, I don't know that
11 it's always necessarily divided up into
12 specific layers.

13 I believe, in some cases, it is
14 cumulative. And so it is a matter of the more
15 data you get, the more accurate your
16 predictions, the more accurate your data, and
17 it's not necessarily divided into two distinct
18 layers. There may be other modes that are
19 divided into distinct layers as well. I'm not
20 ruling out either one.

21 BY MR. LIANG:

22 Q. Now, I do want to remind you, all
23 right, that you're under oath today, and --
24 and, you know, I'd like -- and I'm going to ask
25 you not to speculate.

1 Nielson - 2-25-2021

2 The -- are you -- is it your
3 testimony that temporal scaleability can be
4 implemented without layers?

5 MR. HENDIFAR: Objection, form,
6 incomplete hypothetical.

7 A. It certainly can be. If there is a
8 particular reference that you would like me to
9 review, I can check that. But there's no
10 conceptual reason why you can't. The concept
11 that I'm familiar with is this -- this concept
12 that you can increase your accuracy the more
13 packets that you have.

14 So my -- you know, the best I can
15 answer this question is: It is entirely
16 possible. It was my understanding that
17 temporal coding is designed to work this way,
18 and that if there's a reference you'd like me
19 to review for details, I can.

20 MR. LIANG: I've shared in the Chat
21 window a PDF marked Exhibit 1019.

22 (Exhibit 1019 introduced.)

23 BY MR. LIANG:

24 Q. Let me know when you get it.

25 THE WITNESS: I'm not seeing the

1 Nielson - 2-25-2021

2 Chat window. Hold on.

3 MR. LIANG: In the Zoom Chat window.

4 THE WITNESS: Everybody else seeing
5 it? I'm not even seeing a Chat button on
6 my Zoom.

7 MR. LIANG: On the bottom?

8 THE WITNESS: Yeah. You? Stop
9 Video, Participants?

10 (Simultaneous conversation.)

11 MR. HENDIFAR: If you press under
12 "More" -- under "More" item, if you click
13 on that, one of them says "Chat."

14 THE WITNESS: I'm telling you, there
15 is no Chat button here. Give me a minute
16 to see -- what's going on?

17 (Discussion with Court Report held off record.)

18 THE WITNESS: So I see Options at
19 the bottom of the screen. I've got the
20 Mute, Stop Video Participants, Screen
21 Share, Record Reactions. Some have arrows.
22 I've looked at all of them and none of them
23 say Chat. Normally when I get a Chat --

24 MR. HENDIFAR: Next to the Consent,
25 there should be a "More" button. If it's

1 Nielson - 2-25-2021

2 not, then I can email it to him if you
3 wanted, Jeff.

4 MR. LIANG: Yeah. Well, see if -- I
5 mean, I -- in our last deposition, this
6 worked fine.

7 THE WITNESS: I know it did. I'm
8 trying to -- normally, when a Chat comes
9 through, it also like gives me a little
10 pop-up and a little icon. That's not here.
11 Ummm. Huh.

12 I don't even see -- like I don't
13 even have a button to Chat. Let me see
14 what happens when I do this. Can I Chat to
15 you directly? No, it's not giving me a
16 Chat bar of any kind.

17 MR. LIANG: Well, okay. Well, maybe
18 we just -- Parham, can you just email it to
19 Dr. Nielson?

20 MR. HENDIFAR: Yes, I can. So the
21 email is going to be titled Exhibit 2019 --
22 1019. I'm sorry.

23 THE WITNESS: Okay.

24 MR. LIANG: Parham, to be clear, the
25 email has no other contents other than the

1 Nielson - 2-25-2021

2 exhibit, right?

3 MR. HENDIFAR: Correct.

4 Okay. Well, is it sending now.

5 Okay. It says: Sent.

6 Please let me know when you receive
7 it.

8 THE WITNESS: Yes. I got it. I got
9 it.

10 All right. Let me just download it
11 here. All right. 1019. Here, I'm going
12 to close my browser again.

13 A. Okay. 1019.

14 BY MR. LIANG:

15 Q. All right. So Exhibit 1019 shows an
16 example of temporal scaleability where the base
17 layer contains -- shown at the bottom, contains
18 fewer frames per second because all the
19 B-frames have been moved to the enhancement
20 layer. Do you see that?

21 A. Well, I see a diagram where it shows
22 "B-frames separated out."

23 Q. Have you ever seen the temporal
24 scaleability technique shown in Exhibit 1019
25 before?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form,
3 lacks foundation.

4 A. Well, I'm not sure I'm -- I mean,
5 I -- I don't know that this is a temporal
6 scaleability approach.

7 Is that what the '588 says?

8 BY MR. LIANG:

9 Q. Does the '588 patent mention
10 "temporal scaleability"?

11 A. Well, I didn't think so, but this
12 exhibit says: '588 diagram.

13 Q. Dr. Nielson, the stamp at the
14 bottom -- actually -- the stamp at the bottom,
15 actually, it says '558, and that's just the
16 preceding number of -- of this proceeding.

17 So, you know, all the exhibits are
18 stamped with a proceeding number. This one
19 just happens to have similar digits to the
20 patent at issue.

21 A. Okay. Let me review here. I just
22 want to make sure I'm not missing anything
23 because the -- hold on just a second.

24 (Examined exhibit.)

25 Okay. So this looks -- I guess this

1 Nielson - 2-25-2021

2 looks similar to what I was describing to you
3 before where I said that this was something
4 that was available in earlier models, and then
5 expanded on.

6 Q. Do you know whether the temporal
7 scaleability shown in Exhibit 1019 is used in
8 any video standards?

9 MR. HENDIFAR: Objection, form.

10 A. Well, obviously, using I-, P-, and
11 B-frames is very common, and having B-frames
12 that can be dropped is -- you know, is known.
13 I don't know which standards is using that with
14 two separate -- two separate layers.

15 But to be clear, the type of
16 temporal scaleability that is in more advanced
17 encodings includes -- it's not just the data
18 that's carried between I-, P-, and B-frames.

19 Q. What other data are you referring
20 to?

21 A. So there is extra redundancy that is
22 put into the frames to make them more capable
23 of tolerating failures.

24 Q. And what specific information are
25 you -- are you referring to?

1 Nielson - 2-25-2021

2 Let me phrase it this way: Can you
3 identify any specific redundancy information
4 that is used by temporal scaleability in
5 MPEG-2?

6 MR. HENDIFAR: Objection, form,
7 incomplete hypothetical.

8 A. So I'm not sure exactly which
9 temporal scaleability, if any, is used in
10 MPEG-2. If you're representing that this
11 diagram is from MPEG-2, I'm willing to accept
12 that representation, but I don't have it for
13 sure in my -- I don't -- I don't have the
14 MPEG-2 standard memorized.

15 BY MR. LIANG:

16 Q. Can you identify any specific
17 redundancy information that's used by temporal
18 scaleability in MPEG-4?

19 MR. HENDIFAR: Objection, scope,
20 form, incomplete hypothetical.

21 A. So I've already identified
22 redundancy information in my report in
23 paragraph 59, which is dealing with
24 video-specific guessing like motion
25 compensation, and while that was had in

1 Nielson - 2-25-2021

2 earlier -- in the classic model with your I-,
3 P-, and B-frames, that was designed for the
4 video compression. It wasn't designed
5 initially as a way of doing scalability
6 layers.

7 When scalability layers like
8 temporal scalability were developed
9 specifically to do that, the idea was that they
10 were going to build in redundancy on purpose,
11 specifically for being able to deal with --
12 with the scalability issue. So even though
13 some of the type of information is the same,
14 the way it was used and how it was used were
15 now being enhanced.

16 BY MR. LIANG:

17 Q. And you agree that for motion
18 compensation, the purpose of motion
19 compensation and the uses of I-, P-, and
20 B-frames is to remove redundancy in, for
21 example, the P- and B-frames to decrease file
22 size, correct?

23 MR. HENDIFAR: Objection, form,
24 incomplete hypothetical.

25 A. Yeah, so I think we talked about

Nielson - 2-25-2021

this earlier, right? The compression approach, when compression is your goal, is you're trying to make the frames as small as possible, in general. That's typically what you're trying to do.

How small can the frames get -- I shouldn't say "the small frames." You're trying to improve your bitrate so that -- or -- or how much space it's taking up if it's just sitting on a disk; and -- and the primary design of these I-, P-, and B-frames is to enable the smaller sizes.

When you put in temporal encoding, you are increasing some of the redundancy, so you're -- it's a trade-off. Right? It's going to be slightly larger, but you can tolerate more loss.

BY MR. LIANG:

Q. Is the purpose of temporal scaleability to -- withdrawn.

Okay. So I want to make sure we're clear, then. Regarding MPEG-4, beyond the motion compensation discussed in paragraph 59, can you identify any of the specific redundancy

1 Nielson - 2-25-2021

2 information that's used in temporal
3 scaleability?

4 MR. HENDIFAR: Objection, form.

5 A. More specifically than what I have
6 in my report, no.

7 BY MR. LIANG:

8 Q. And can you identify any specific
9 redundancy information that's used for temporal
10 scaleability in H.264?

11 MR. HENDIFAR: Objection, form.

12 A. I can't identify anything beyond
13 what I have listed in my report, Declaration.

14 BY MR. LIANG:

15 Q. And by listed in your report or
16 Declaration, you're specifically referring to
17 paragraph 59, correct?

18 A. I don't think I discussed temporal
19 scaleability details in any other paragraphs.
20 To the extent there is, I'm not excluding it,
21 but I believe 59 is where I -- I cover the
22 concept.

23 Q. Now, I want to ask you, then, about
24 this Exhibit 1019. Okay. So in Exhibit 1019,
25 page 2, I have this example where an I-frame is

Nielson - 2-25-2021

lost.

A. (Examined exhibit.) I see on page 2 that there is an I -- what I assume is representing an I-frame circled in red.

Q. Okay. Actually, let's -- let's back away from Exhibit 1019, and I just want to ask you about H.264.

So if an I-frame is lost in an H.264 video, can the I-frame be predicted without a significant drop in quality?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. I don't know what the results in the quality would be. That was a little bit of a relative term.

BY MR. LIANG:

Q. Okay. And then in H.264, if a P-frame is lost, can the P-frame be predicted without a significant drop in quality?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. We're talking specifically about while we're using temporal encoding?

BY MR. LIANG:

Nielson - 2-25-2021

Q. Yes.

A. And we're not necessarily assuming anything else, no other --

Q. Right.

A. -- scaleability layers, no other... We're talking about you -- you just have temporal -- temporal scaleability encoding and these frames, and you're asking about how much can the temporal encoding make up for?

Q. Right. So using the temporal scaleability of H.264, if a P-frame is lost, can the P-frame be predicted without a significant drop in quality?

A. So, again, using temporal encod --

MR. HENDIFAR: Same objection.

Excuse me, Doctor. Excuse me.

Same objection as to form and incomplete hypothetical. Please continue.

A. So with respect to temporal scaleability, it is supposed to -- it is designed to tolerate some amount of loss without that impacting the quality for -- the perceived quality by the user, the watcher, the viewer.

Nielson - 2-25-2021

BY MR. LIANG:

Q. So for H.264, Temporal Scaleability,
how can a P-frame be predicted -- withdrawn.

When using the temporal scaleability
of H.264, if a P-frame is lost, how can the
P-frame be predicted without a significant drop
in quality?

MR. HENDIFAR: Objection, form,
incomplete hypothetical.

A. So I don't know that I'm a "mathy"
enough person to explain how all the
mathematics work in prediction. The concept is
that there is redundancy information, it's
based on the video, and that that video-encoded
information is -- enables the system to derive
a replacement packet.

BY MR. LIANG:

Q. What exact redundancy information
are you referring to, and how is it used to
predict a P-frame that has been lost?

A. So, again, I think I've answered
this a couple of times, which is what I have in
my report.

There is redundancy information

1 Nielson - 2-25-2021

2 based on video information like, for example,
3 motion compensation that is used to make up for
4 the lost data.

5 Q. Okay. And you have nothing to add
6 beyond what's in your report?

7 A. On this topic, correct.

8 Q. Let me ask you, then, about
9 B-frames.

10 For -- when you're using the
11 temporal scaleability of H.264, if a B-frame is
12 lost, how can the B-frame be predicted without
13 a significant drop in quality?

14 MR. HENDIFAR: Objection, form,
15 incomplete hypothetical.

16 A. So, I mean, I don't know what else
17 to say beyond the last answer I gave you, which
18 is I -- I don't have any technical details to
19 offer beyond what's in my report.

20 BY MR. LIANG:

21 Q. Do you -- earlier, I had asked you
22 some questions about a base layer and
23 enhancement layers. Do you know what those
24 terms mean in the context of MPEG-4?

25 A. I have heard those terms before. I

Nielson - 2-25-2021

do not remember the technical details. I'd be happy to, you know, analyze a document.

Q. In terms of H.264, do you know what the base layer and enhancement layers are for temporal scaleability?

A. Not without reviewing a document, no. I'd have to be refreshed.

Q. Okay. And in terms of H.264, do you know what the base layer and enhancement layers are for spacial scaleability?

A. I would have to see the standard again to make sure I'm using those two terms you're using correctly.

But I can explain to you how the layers work together. I think one of them -- I mean, I don't want to misidentify terms that I don't have the technical details in front of me, but I can tell you how the scale -- the scaleable layers work together.

Q. So for -- let me ask you about your -- your Declaration. So if we go to paragraph 63 of your Declaration.

A. Yes, I have it and I've reviewed it.

Q. Okay. Actually, I'd like to refer

Nielson - 2-25-2021

to paragraph 64.

A. (Complied.)

Q. And if you look at the end of paragraph 64, it says: Information in the (red) portion of one layer may be determined from information in the unencrypted (blue) portion of the other layers in the (audio distortion) four pictures for Layers 1 through 4.

Do you see that?

A. I do.

Q. Okay. Have you disclosed any opinions in your Declaration about how information in the encrypted portions may be determined from information in the unencrypted portions?

And for this question, I'm just asking you to identify the specific parts of your Declaration that provide that explanation.

A. I mean, I've obviously got what I have written here in my report in these paragraphs. I guess you're asking for something beyond what's in these paragraphs?

Q. I'm asking you to identify the --

Nielson - 2-25-2021

any portions of your Declaration that specifically explain how information in the encrypted portions, shown in your diagrams at the end of paragraph 64, may be determined from information in unencrypted portions?

A. Sure. So I think that I'm -- I mean, we've been talking about it both with the -- well, I guess specifically here, we're talking about the spacial scaleability.

So I describe in 60 about this concept that you can get data from one layer that's not in another.

Q. Okay. So for spacial scaleability to create the lower quality bitrate video, you subsample that video so that it has lower resolution; is that fair?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. Are you asking if that's one way of breaking it into layers?

BY MR. LIANG:

Q. Yes.

A. Well, let me see. I'm going to take -- give me just a minute to review Chen

1 Nielson - 2-25-2021

2 here so I can see how Chen is using it.

3 (Examined exhibit.)

4 Yes, so one method for the layers is
5 to have a lower layer that is a lower bitrate.

6 Q. Right. And for spacial
7 scaleability, you're scaling in the spacial
8 domain, right?

9 MR. HENDIFAR: Objection, form,
10 incomplete hypothetical.

11 A. I presume that's why it's called
12 that.

13 BY MR. LIANG:

14 Q. Right. And so, then, when you have
15 your lower quality stream, it's at a lower
16 resolution than if you're able to decode that
17 stream plus some of the additional layers,
18 right?

19 MR. HENDIFAR: Objection, form.

20 A. Yes, you typically get better
21 resolution as you receive the higher layers.

22 BY MR. LIANG:

23 Q. Would you agree, then, for MPEG-4,
24 the following steps are required to encode a
25 video sequence into two spacial layers: The

1 Nielson - 2-25-2021

2 first step -- we'll walk through a sequence.

3 The first step is to subsample each
4 input frame horizontally and vertically?

5 MR. HENDIFAR: Objection, form,
6 incomplete hypothetical.

7 A. Sorry. You want me to respond to
8 each step or were you going to go through all
9 the steps?

10 BY MR. LIANG:

11 Q. I was going to ask you one step at a
12 time.

13 So the first step required to encode
14 a video sequence into spacial -- two spacial
15 layers for MPEG-4 would be to subsample each
16 input frame vertically and horizontally.

17 MR. HENDIFAR: Objection, form,
18 incomplete hypothetical, scope.

19 A. Yeah, I think this would be in a --
20 I mean, it sounds very much like you're reading
21 from a technical document. I would have to see
22 that document for context.

23 BY MR. LIANG:

24 Q. Let me ask you this: Do you know
25 what the first step for encoding a video

1 Nielson - 2-25-2021

2 sequence into two spacial layers is for MPEG-4?

3 MR. HENDIFAR: Objection, form,
4 incomplete hypothetical, scope.

5 A. I do not have the technical details
6 of how it is created committed to memory.

7 BY MR. LIANG:

8 Q. And do you know the steps for
9 encoding a video sequence into spacial layers
10 for H.264?

11 MR. HENDIFAR: Objection, form,
12 incomplete hypothetical, scope.

13 A. I do not have that process committed
14 to memory.

15 BY MR. LIANG:

16 Q. Do you know the steps for encoding a
17 video sequence into spacial layers --
18 withdrawn.

19 Do you know the steps for encoding a
20 video sequence into temporal layers in H.264?

21 MR. HENDIFAR: Objection, form,
22 scope, incomplete hypothetical.

23 A. I do not have those steps committed
24 to memory.

25 BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Would you agree that adaptive
3 bitrate streaming was known in the art before
4 the '588 patent?

5 A. Let's see. So are we --

6 MR. HENDIFAR: Was the -- I'm sorry.
7 Was the question complete?

8 MR. LIANG: Yes.

9 MR. HENDIFAR: Okay. Objection as
10 to form.

11 A. So I assume we would use the '588
12 for its definition of adaptive bitrate
13 encoding? Is that correct?

14 BY MR. LIANG:

15 Q. Right. I -- right. I was just
16 paused for a second.

17 My question was -- I think you may
18 have meant to say adaptive bitrate streaming.
19 My question was about adaptive bitrate
20 streaming.

21 So let me just ask it again to make
22 sure we're on the same page.

23 A. Sure.

24 Q. Was adaptive bitrate streaming known
25 in the art before the '588 patent?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form.

3 A. My only pause is I just want to make
4 sure we're all using the same terminology.

5 So adaptive bitrate streaming,
6 meaning that you adjust what you're sending
7 based on conditions of the network? Is that
8 what you're -- I just want to make sure we're
9 using the same definitions.

10 BY MR. LIANG:

11 Q. Yeah. And I'm just referring to
12 "adaptive bitrate streaming" as that term is
13 used in the '588 patent.

14 So would you agree that before the
15 '588 patent, adaptive bitrate streaming was
16 known in the art?

17 MR. HENDIFAR: Objection, form.

18 A. Give me just a quick second. I just
19 want to look at how the term is used in the
20 '588 just before I give my answer. (Examined
21 exhibit.)

22 Yes, there were technologies in the
23 art that were called that prior to the '588
24 patent.

25 BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. And prior to the '588 patent,
3 adaptive bitrate streaming using HTTP was also
4 known in the art, correct?

5 MR. HENDIFAR: Objection, form.

6 A. So it is identified in column 2 of
7 the '588 that there was HTTP adaptive bitrate
8 streaming. Those letters are capitalized on
9 adaptive bitrate streaming. That's kind of why
10 I've just been making sure we're all using -- I
11 just wanted to make sure we had common
12 vocabulary.

13 But the '588 says that that was
14 developed by Apple Computer.

15 BY MR. LIANG:

16 Q. Right. And so, then, in adaptive
17 streaming systems -- in prior art adaptive
18 streaming systems, the source media was
19 typically stored on a media server at the
20 top-level file pointing to a number of
21 alternative streams that contain actual video
22 and audio data.

23 Do you agree with that statement?

24 A. That statement is here in the '588;
25 yes.

Nielson - 2-25-2021

Q. And you agree with my statement, then?

A. I did not do any independent investigation to verify these, but I have no reason to disbelieve it.

Q. In the prior art, each stream is typically stored in one or more container files.

Do you agree with that statement?

A. So that's the next line in the '588. So certainly in the context of the paragraph in which we're reading it, that is what is written here.

Q. Do you agree with that statement?

A. Well, again, I did not do a personal investigation to verify these individual statements in the '588. That wasn't what I was asked to do.

MR. HENDIFAR: All right. Counsel, whenever is a good time to take a short break, that would be great.

MR. LIANG: Sure.

BY MR. LIANG:

Q. Let me just ask you this: Do you

1 Nielson - 2-25-2021

2 have any reason to disagree with the statement
3 that in the prior art, each stream is typically
4 stored in one or more container files?

5 A. I don't have any reason to disagree
6 with how the '588 is representing the state of
7 the art.

8 MR. LIANG: Okay. Well, if you want
9 to take a break, then, we can go off the
10 record.

11 (Recess held.)

12 BY MR. LIANG:

13 Q. Okay. Dr. Nielson, did you
14 communicate with anybody during this last
15 break?

16 A. No.

17 Q. Okay. And let me ask you: Is
18 Microsoft IIS smooth streaming prior art to the
19 '588 patent?

20 MR. HENDIFAR: Objection, calls for
21 a legal conclusion.

22 A. I have not done that analysis. I
23 can't say.

24 BY MR. LIANG:

25 Q. So you don't know whether Microsoft

1 Nielson - 2-25-2021

2 IIS smooth streaming was known in the art
3 before the '588 patent?

4 A. I have not looked specifically. For
5 example, I -- if it's in the '588 list, for
6 example, I'm sure that that's correct, but I
7 haven't gone to check.

8 Q. Do you know whether Adobe Flash
9 dynamic streaming is prior art to the '588
10 patent?

11 MR. HENDIFAR: Objection, scope,
12 calls for a legal conclusion.

13 A. Oh, these are mentioned in the '588
14 column, I see.

15 I haven't gone to investigate any of
16 the things listed here in the '588, column 2,
17 so I have no independent analysis.

18 BY MR. LIANG:

19 Q. Well, based on the description of
20 the '588 patent explaining the background,
21 would you agree that Microsoft IIS smooth
22 streaming was developed before the '588 patent?

23 A. I mean, that -- that seems like a
24 very straightforward conclusion from this. I'm
25 just saying I have not gone and investigated

1 Nielson - 2-25-2021

2 that myself.

3 Q. I see.

4 And based on this disclosure in
5 column 2 of the '588 patent, would you agree
6 that flash dynamic streaming was known in the
7 art before the '588 patent?

8 MR. HENDIFAR: Objection, form,
9 calls for a legal conclusion.

10 A. I acknowledge that flash dynamic
11 streaming is referenced here in column 2 of the
12 '588. Beyond that, I have nothing really to
13 offer about it.

14 BY MR. LIANG:

15 Q. Okay. And specifically, the '588 is
16 describing flash dynamic streaming as part of
17 the background, right, of what was already
18 known in the art, correct?

19 A. This part of '588 is in the section
20 called Background. It appears to be discussing
21 background technologies.

22 Q. Have you ever heard of MPEG-DASH?
23 And that's specifically mapping MPEG, dash, and
24 then the word DASH, capital D-A-S-H? So that's
25 MPEG-DASH. Let me re-ask the question.

1 Nielson - 2-25-2021

2 Do you know what "MPEG-DASH" stands
3 for?

4 MR. HENDIFAR: Objection, form,
5 relevance.

6 A. Just give me a minute to review
7 here. (Examined document.)

8 I have heard the term before. I'm
9 not recalling what it stands for at the moment.

10 BY MR. LIANG:

11 Q. Would you agree that the MP4
12 container format was known in the art before
13 the '588 patent?

14 MR. HENDIFAR: Objection, form,
15 calls for a legal conclusion.

16 A. The '588 patent references the MP4
17 container as part of its background.

18 BY MR. LIANG:

19 Q. And beyond this reference in the
20 background of the '588 patent, do you have any
21 other reason to believe that the MP4 container
22 format was known in the arts before the '588
23 patent?

24 MR. HENDIFAR: Objection, form,
25 calls for a legal conclusion.

1 Nielson - 2-25-2021

2 A. I don't recall when the MP4 was
3 first introduced, the MP4 standard or file --
4 sorry, container format. So beyond what it
5 says here, I have nothing else to add to that.

6 BY MR. LIANG:

7 Q. Was the MPEG transport stream
8 container known in the art before the '588
9 patent?

10 MR. HENDIFAR: Objection, form,
11 calls for a legal conclusion.

12 A. MPEG transport streams I think have
13 been around almost, not since the beginning,
14 but they're more -- they have been used for a
15 very long time.

16 BY MR. LIANG:

17 Q. For many years before the '588
18 patent was filed, right?

19 A. Just to be clear. When we say the
20 "transport stream," I'm saying that MPEG has
21 defined a transport stream that goes back a
22 long time, probably -- well, a long time,
23 before -- before the -- the '588 -- before the
24 '588 patent.

25 Obviously, it's gone through changes

1 Nielson - 2-25-2021

2 and updates. So I'm just saying generically
3 that concept has -- has been around for a
4 while.

5 Q. Probably since the '90s, right?

6 A. I -- I think so. I think it came
7 out in the '90s.

8 Q. Have you ever heard of something
9 called "3GP"?

10 A. Yes.

11 Q. Was the 3GP file format known in the
12 art before the -- before 2011?

13 A. I believe that the '588 patent
14 refers to it at least in a citation from
15 before, but I don't remember the exact date it
16 became available.

17 Q. Do you know one way or the other
18 whether the 3GP file format is prior art to the
19 '588 patent?

20 MR. HENDIFAR: Objection, form,
21 calls for a legal conclusion.

22 A. So I don't want to say what is and
23 is not prior art, but I do believe that the 3GP
24 is used in the '588 as an existing file format,
25 so that seems likely that it would have existed

1 Nielson - 2-25-2021

2 before. But I just -- you know, I don't have
3 exact dates. I didn't investigate these kind
4 of details.

5 BY MR. LIANG:

6 Q. Beyond the '588 patent, do you have
7 any other reason to believe that the 3GP file
8 format was known in the art before 2011?

9 MR. HENDIFAR: Objection, form.

10 A. If you're asking if I personally
11 encountered it at some point before or have
12 read something about it before, it's possible.
13 I just -- I -- as I'm sitting here, this was
14 not part of my report. I don't know for sure
15 when I encountered it; when I didn't. I may
16 have come across it any number of times. I
17 don't know.

18 BY MR. LIANG:

19 Q. Do you know if the AVI file format
20 is prior art to the '588 patent?

21 MR. HENDIFAR: Objection, form,
22 calls for a legal conclusion.

23 A. So I -- well, say something is or is
24 not prior art? I don't know what connotation
25 that carries legally.

1 Nielson - 2-25-2021

2 But AVI files have also existed --
3 well, okay. But AVI actually is an extension
4 that's been used for multiple formats. AVI
5 files have existed for a while. I don't
6 remember which formats have come and gone in
7 which time frames.

8 BY MR. LIANG:

9 Q. The AVI files were known in the art
10 well before 2011, correct?

11 MR. HENDIFAR: Objection, form.

12 A. Files that used that extension that
13 dealt with video encodings existed prior to
14 2011. I don't remember the exact details of
15 their format, specifications at the time,
16 because there were multiple formats that could
17 have that extension.

18 BY MR. LIANG:

19 Q. What are the formats that used AVI
20 before 2011?

21 THE WITNESS: Sorry. I'm pausing.

22 MR. HENDIFAR: Thank you.

23 Objection, form, incomplete hypothetical,
24 scope.

25 A. I don't remember all the different

1 Nielson - 2-25-2021

2 for -- formats that have used dot AVI. It's --
3 in just some of my experience, I've come across
4 times where it means different things. I don't
5 remember the concrete details.

6 BY MR. LIANG:

7 Q. In the 3GP file format, is --
8 withdrawn.

9 Would you agree that partial
10 encryption for video was known in the art
11 before 2011?

12 MR. HENDIFAR: Objection, form,
13 incomplete hypothetical.

14 BY MR. LIANG:

15 Q. So just to make sure we just kind of
16 have a definition for what we're saying. When
17 we say "partial frame encryption," we're just
18 talking about any time we're not encrypting the
19 entire frame, correct?

20 A. Correct.

21 Q. So would you agree that partial
22 frame encryption was known in the art for video
23 before 2011?

24 MR. HENDIFAR: Objection, form,
25 incomplete hypothetical.

Nielson - 2-25-2021

A. There have been different approaches to doing what you could call partial frame encryption prior to 2011.

BY MR. LIANG:

Q. And partial frame encryption, because it only encrypts a portion of each video frame, is, by its nature, less secure than full encryption of the entire video stream; is that fair?

MR. HENDIFAR: Objection, incomplete hypothetical.

A. "Secure" doesn't mean anything without a context. I'm -- I'm -- would have to be more specific than that.

BY MR. LIANG:

Q. How would you describe the relative security between a partially encrypted video and a fully encrypted video?

MR. HENDIFAR: Objection, incomplete hypothetical.

A. Well, that would depend on the context. So what makes something secure depends, at least in part, on what your objectives are. So, you know, if your

Nielson - 2-25-2021

objectives are for no data to be unencrypted, then partial frame encryption would be less secure, if that was your objective. So it depends on what your system objectives are.

BY MR. LIANG:

Q. So partial encryption of video, by its nature, reveals more information about its content to potential attackers than a fully encrypted video; is that right?

A. Yes, unencrypted portions obviously are not encrypted, therefore, expose data.

Q. If partially encrypted video exposes data to potential attackers, then why was it used at all?

MR. HENDIFAR: Objection, form, incomplete hypothetical.

A. Well, I obviously can't get inside the minds of anybody who was developing it or -- or why they chose to use it, but I was kind of already answering that question.

With security, you don't start with a mechanism or you shouldn't. I mean, you know, this is -- this is actually one of my lectures to my class, right? You -- this is --

1 Nielson - 2-25-2021

2 you -- you start with what is it that you're
3 trying to achieve. So you start with what is
4 your threat model? What type attackers are you
5 concerned about?

6 Maybe the data that is being exposed
7 doesn't matter. Or what is probably the case
8 for a lot of partial frame encryption systems
9 and--and I believe you can see this described
10 in the '588--for example, is the idea that you
11 can make it unwatchable. And if that's your
12 goal and if your goal is to make it
13 unwatchable, that can be done without having to
14 encrypt everything; although, it is a little
15 bit of a subjective about what is and is not
16 watchable, I suppose. But, you know, if that's
17 your objective then a partial frame encryption
18 may work just fine.

19 BY MR. LIANG:

20 Q. What type of applications before
21 2011 would have an objective where partial
22 encryption would work just fine?

23 MR. HENDIFAR: Objection, form,
24 scope, incomplete hypothetical.

25 A. Well, there's a lot of different

Nielson - 2-25-2021

ways. I mean, you don't even need to necessarily encrypt all data anyway, right? So when you are working -- for example, even right now, even today if you have data that you're storing about customers, some of that data is considered so sensitive, it has to always be encrypted--and this is mandated by GDPR or any of these other laws--and if the data doesn't fall in that category, there may be other ways that are sufficient for protecting it that don't involve needing to have it encrypted always at rest.

So it always comes down to a matter of what you decide that you want to protect and what type of attacker you are worried about protecting it against.

BY MR. LIANG:

Q. I see.

So different applications can require different levels of security?

A. No, that's not what I said. What is security depends on your context. There is no security without a context.

Q. I see.

1 Nielson - 2-25-2021

2 And so the requirement -- the
3 security requirements for an application depend
4 on its content?

5 A. That's one way of saying it. The
6 way I typically describe it to my students is
7 that you don't start with mechanism. Mechanism
8 is whether you're going to use encryption,
9 which type of encryp -- or you may not use
10 encryption at all. But that's mechanism.

11 You start with a policy, and the
12 policy is a -- it's not like when you think of
13 company security policy. That's -- that's not
14 what I'm talking about. This is a -- it's
15 usually like one sentence. And this is: This
16 is the invariance that must always be true even
17 under this type of attacker. Okay?

18 So I say, This thing must always be
19 true even if we have this type of attacker, and
20 that is a single policy statement. You have to
21 decide what -- you have to decide which
22 policies you want, which things have to be
23 protected, and what type of attacker are you
24 worried about getting them. Once you've
25 defined that, then you look for mechanisms that

1 Nielson - 2-25-2021

2 are going to enforce that policy.

3 Q. Would a POSITA in 2011 have been
4 able to compress and decompress video using
5 common standards such as MPEG and AVC?

6 MR. HENDIFAR: Objection, form,
7 incomplete hypothetical.

8 A. I would say that there are
9 definitely conditions under which a POSITA
10 could do that.

11 BY MR. LIANG:

12 Q. Are there conditions in which a
13 POSITA in 2011 would not have been able to use
14 common video standards such as MPEG and AVC?

15 MR. HENDIFAR: Objection, incomplete
16 hypothetical.

17 A. Sure. So, once again, just for
18 reference so that we're using the same
19 terminology. For the definition of "POSITA,"
20 I'm going with the one that is in my
21 Declaration that is drawn from Dr. McDaniels.

22 So a person of that level of skill
23 in the art would definitely have situations in
24 which they might have difficulty with the
25 standard. For example, if they have to

Nielson - 2-25-2021

implement it in hardware, you know, without being able to use some third-party chip that's already being mass-produced, that would probably be beyond the skill of the POSITA that is described in my report.

BY MR. LIANG:

Q. Would a POSITA in 2011 have been able to use known communication protocols for streaming including HTTP?

MR. HENDIFAR: Objection, incomplete hypothetical.

A. So I need to break down your question in two pieces. So let's talk about HTTP first, and then HTTP for streaming.

HTTP is a very generic protocol. It is designed to be able to be used with relatively simple setup, but it can also be -- it can also be set up more complex. I'm certain that a person of skill in the art at the level we're describing would be able to work with HTTP at some levels. There may be some advanced levels of using it where you--I'll give an example here in a second--where that might be challenging.

1 Nielson - 2-25-2021

2 So one place where that might be
3 challenging is in correctly configuring the
4 system for security related to things like
5 cookies and -- sorry. I'm just blanking here
6 for a minute.

7 Well, it's the different defenses we
8 do to prevent cross-site scripting. This tends
9 to be hard even for people today, and there's a
10 lot of different ways it goes wrong. And so a
11 lot of people don't try to do these systems
12 themselves anymore. They use a built -- like a
13 library. Somebody's already built a library
14 that can handle these kind of conditions.

15 And it's sometimes best to use a
16 prebuilt thing rather than try to construct it
17 yourself because there's so many ways to do it
18 wrong.

19 BY MR. LIANG:

20 Q. Would a POSITA in 2011 have been
21 able to encrypt and decrypt data using common
22 symmetric E algorithms like AES?

23 THE WITNESS: I think we lost

24 Parham's audio.

25 MR. LIANG: Let's go off the record

1 Nielson - 2-25-2021

2 for a bit.

3 (Pause.)

4 BY MR. LIANG:

5 Q. Would a POSITA in 2011 have been
6 able to encrypt and decrypt data using common
7 symmetric algorithms like AES?

8 MR. HENDIFAR: Objection, incomplete
9 hypothetical.

10 A. It would depend on the situation.
11 In some cases, sure. In other cases, no.

12 BY MR. LIANG:

13 Q. In what cases could a POSITA in 2011
14 have encrypted and decrypted data using AES?

15 MR. HENDIFAR: Objection, form.

16 A. Well, to use AES correctly -- and
17 there's a bunch of different modes of
18 operation, right? There's not just one way of
19 using AES; there's multiple ways of using AES.
20 And there's also more ways of doing it wrong
21 than doing it right.

22 But typically where a POSITA is safe
23 is if a POSITA is using a prebuilt library
24 that -- that -- you know, that they can use.
25 Even then, they might probably use it wrong,

1 Nielson - 2-25-2021

2 but they can probably do it right, I hope.

3 I don't have a -- people do
4 cryptography wrong all the time, but using an
5 existing library that has some guidance, then
6 you're probably safe.

7 BY MR. LIANG:

8 Q. But other than using an existing
9 library, a POSITA would not have been able to
10 use AES to encrypt and decrypt data?

11 MR. HENDIFAR: Objection, form,
12 incomplete hypothetical.

13 A. A POSITA, I don't think, would have
14 been able to do it right from scratch, no.

15 BY MR. LIANG:

16 Q. Would you agree that -- that
17 asymmetric encryption isn't meant for bulk
18 encryption of data?

19 MR. HENDIFAR: Objection, form,
20 incomplete hypothetical.

21 A. Well, all of the asymmetric
22 algorithms I can think of right at this moment,
23 none of them are meant for bulk encryption.

24 BY MR. LIANG:

25 Q. Asymmetric encryption is very slow

1 Nielson - 2-25-2021

2 compared to symmetric encryption; is that
3 right?

4 A. For the asymmetric algorithms that
5 even do encryption, most of them actually
6 don't.

7 But take RSA, for example. RSA is
8 considerably slower than symmetric encryption,
9 maybe even by thousands of times.

10 Q. So, then, would it make sense to
11 encrypt media content using asymmetric
12 encryption rather than symmetric encryption?

13 MR. HENDIFAR: Objection, incomplete
14 hypothetical, and form.

15 A. Yes, but maybe not in the way that
16 you're thinking in your setup there. We use
17 asymmetric for our encryption all the time, but
18 it's usually a bootstrap step. Then there's
19 usually a switchover to symmetric, and that's
20 if it's large amounts of data. You can have
21 certain small amounts of data encrypted but
22 asymmetric.

23 BY MR. LIANG:

24 Q. What do you mean by a bootstrap step
25 that switches over to symmetric encryption?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, scope.

3 A. Sure. So this is -- this is -- this
4 is the common mechanism in cryptography. It's
5 funny. The actual reason for doing the
6 asymmetric is really for the authentication,
7 right? The reason that you use the asymmetric
8 is it's also -- the encryption is sometimes the
9 least important part of it at this stage. It's
10 that we want to know who we're dealing with,
11 and asymmetric can provide that. Symmetric
12 can, but typically, it's not used that way.

13 So with asymmetric, one approach,
14 for example, is: I'm going to encrypt a key
15 and send you a key, and then once you have this
16 key, we'll communicate with symmetric. Very
17 common pattern.

18 BY MR. LIANG:

19 Q. All right. And so (audio
20 distortion) to make sense to use asymmetric
21 encryption for authentication, but it wouldn't
22 make sense to use asymmetric encryption to
23 directly encrypt video content?

24 MR. HENDIFAR: Objection, form.

25 Incomplete hypothetical, form.

1 Nielson - 2-25-2021

2 A. There is almost no way -- I can't
3 think of a way in which you could encrypt, say,
4 a DVD movie with RSA by itself with nothing
5 else. I -- I don't even think that is
6 technically possible.

7 But, again, sometimes when you're
8 reading about it in literature and it's like,
9 oh, well, this is encrypted with asymmetric
10 encryption, they're -- they're shortcutting.
11 They're like, what's protecting it is an
12 asymmetric key, even though there's some
13 follow-up process by which symmetric is
14 involved.

15 BY MR. LIANG:

16 Q. I see.

17 And to be clear, since you
18 referenced RSA, RSA is an asymmetric encryption
19 algorithm, right?

20 A. RSA -- there is an RSA algorithm
21 that is -- is a -- asymmetric algorithms that
22 can both provide some limited amounts of
23 encryption and do digital signatures.

24 Q. For asymmetric encryption algorithms
25 beyond RSA, would it make sense to encrypt the

Nielson - 2-25-2021

video file using any of those asymmetric algorithms?

MR. HENDIFAR: Objection, asked and answered, form, incomplete hypothetical.

A. So I'm not actually aware off the top of my head. There certainly isn't a common one that -- another asymmetric algorithm that actually does encryption. Most of them are used for digital signatures and key exchange and some other -- other asymmetric elements, but not encryption.

Again, almost always, if somebody is -- if there's somewhere that there's like, oh, this is being protected with asymmetric encryption, they're not saying that every byte is being encrypted by an asymmetric key.

BY MR. LIANG:

Q. Understood.

MR. LIANG: Okay. Let's take a short break, maybe five minutes.

MR. HENDIFAR: Sure.

MR. LIANG: Off the record.

(Recess held.)

BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Okay. Dr. Nielson, did you
3 communicate with anybody during this break
4 other than the conversation we just had, you
5 know, between all of us on Zoom?

6 A. I sent an unrelated text message to
7 my son.

8 Q. All right. So the AVI video file
9 format is supported on Microsoft Windows
10 platforms, correct?

11 MR. HENDIFAR: Objection, incomplete
12 hypothetical, and form.

13 A. I have seen AVI files on various
14 Windows machines in my career. I don't know
15 the full limits of their scope. Well, no, I
16 guess Mac has AVI format as well.

17 Yeah, I don't know all the different
18 machines it does and does not play on and when
19 it became available on different machines and,
20 again, even which formats go with that file
21 extension, but I have seen AVI files on Windows
22 machines.

23 BY MR. LIANG:

24 Q. And AVI files have been widely used
25 since at least the mid-2000s or so, right?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: I'm sorry. Could you
3 repeat the question, please.

4 MR. LIANG: Sure.

5 BY MR. LIANG:

6 Q. AVI video files have been widely
7 used since at least the mid-2000s, correct?

8 MR. HENDIFAR: Objection as to form.

9 A. I'm not sure how to quantify their
10 use. I don't have any information on what
11 percentage they are in the -- you know, in
12 terms of the video files that are produced,
13 et cetera.

14 BY MR. LIANG:

15 Q. Yeah. But AVI video files were
16 supported by Windows Media Player, right?

17 MR. HENDIFAR: Objection as
18 incomplete hypothetical.

19 A. Well, again, I don't know when
20 different players started playing them and when
21 they didn't. I'm -- I'm -- if you're asking
22 me, I think there have been times I played an
23 AVI file with Windows Media Player, but I -- I
24 mean, this would be -- you know, this is my
25 personal experience. I don't know details. I

Nielson - 2-25-2021

don't.

BY MR. LIANG:

Q. The AVI file form was originally developed by Microsoft, right?

A. I'm not sure. I haven't investigated that.

Q. The AVI file format includes a movie "chunk," right?

MR. HENDIFAR: Objection, scope, relevance.

A. Just to be clear. You are saying Alpha Victor Indigo, right, AVI?

BY MR. LIANG:

Q. Correct, correct.

A. So, again, there are multiple formats that have used dot AVI. I don't know -- I don't have committed to memory the technical specifications, but if you have a document, I'm happy to review it.

Q. Sure.

MR. LIANG: I'm about to send you and Counsel the document for your review. It is marked Exhibit 1016.

(Exhibit 1016 introduced.)

1 Nielson - 2-25-2021

2 MR. LIANG: Let me know when you've
3 received it.

4 THE WITNESS: That's not it.

5 MR. HENDIFAR: I don't have it.
6 Give me one second.

7 THE WITNESS: No, still don't have
8 it.

9 MR. HENDIFAR: Me neither. Oh, I
10 just got it.

11 THE WITNESS: Probably Outlook
12 delaying. It hasn't shown up in my -- now
13 I got it. I got it now.

14 MR. LIANG: Let me know when you
15 have it open.

16 And, Dan, I'm going to -- I'm
17 dropping in a copy of it into the Chat
18 window for your reference.

19 THE REPORTER: Thank you.

20 MR. HENDIFAR: Is that the document
21 titled Exhibit 1016?

22 MR. LIANG: Yes.

23 THE WITNESS: Got it. I have it.

24 MR. HENDIFAR: I have it.

25 A. Okay. I have opened the document.

1 Nielson - 2-25-2021

2 Would you give me just a minute to
3 look at it as I don't know that I've seen this
4 before?

5 BY MR. LIANG:

6 Q. Sure. Take a look and let me know
7 when you're ready for a question.

8 A. (Examined exhibit.) Okay. I have
9 had a chance to glance through this.

10 Q. Okay. So have you ever seen
11 Exhibit 1016 before?

12 A. I don't believe so. It doesn't look
13 familiar to me.

14 Q. All right. If you could turn to
15 paragraph 63 of Exhibit 1016, please. Let me
16 know when you're there.

17 A. I'm sorry, you said paragraph 63?

18 Q. Yes. Are you there?

19 A. I am now. Yes. Thank you.

20 Q. Okay. So paragraph 63 says: An AVI
21 file is a special form of a RIF file that
22 follows a format of a RIF file but includes
23 various chunks and lists with defined
24 identifiers that contain multimedia data in
25 particular formats. The AVI format was

1 Nielson - 2-25-2021

2 developed and defined by Microsoft Corporation.

3 Do you see that statement I just
4 read?

5 A. I do.

6 Q. That's an accurate statement, to
7 your knowledge, right?

8 MR. HENDIFAR: Objection, scope.

9 A. I have no independent information
10 about this.

11 BY MR. LIANG:

12 Q. Okay. And if we can turn to
13 paragraph 221.

14 A. Okay. Yes, I'm there.

15 Q. Would you agree that in an AVI file,
16 a video chunk can be a frame?

17 MR. HENDIFAR: Objection, scope,
18 incomplete hypothetical.

19 A. I -- I don't know the answer to
20 that. I have not been investigating the AVI
21 format.

22 BY MR. LIANG:

23 Q. Okay. You see in paragraph 221 here
24 it says, the second sentence: In one
25 embodiment, each video chunk contains

1 Nielson - 2-25-2021

2 information for a single frame of video.

3 Do you see that?

4 A. I see that.

5 Q. Is that an accurate statement, that
6 in a -- that a video chunk can contain
7 information for a single frame of video?

8 MR. HENDIFAR: Objection, form,
9 incomplete hypothetical, scope.

10 A. Well, I don't -- I mean, your
11 original question was if this was in an AVI
12 file. I don't know if this is describing an
13 AVI file or an AVI file that's standard.

14 It says "in one embodiment," so I
15 don't know if this is something that it added.
16 I haven't reviewed this document before, so I
17 don't -- I don't know.

18 BY MR. LIANG:

19 Q. Okay. If we can turn to
20 paragraph 169.

21 MR. HENDIFAR: Was that 169?

22 MR. LIANG: That's correct, 169.

23 BY MR. LIANG:

24 Q. Let me know when you are there.

25 A. I'm there. Give me a minute. It's

Nielson - 2-25-2021

a long paragraph. I just want to take a look through it.

Q. Okay.

A. (Examined exhibit.) Okay. I've had a chance to review it. Go ahead.

Q. All right. So paragraph 169 says: A movie list chunk of a multimedia file, in accordance with an embodiment of the present invention that includes a video track, multiple audio tracks, and at least one subtitle track and information enabling digital rights management, is illustrated in Figure 2.8.

Do you see that sentence?

A. I see that sentence.

Q. Okay. And the next sentence says: The movie list chunk 42 is similar to the movie list chunk shown in Figure 2.7, with the addition of a DRM chunk 270 prior to each video chunk 262.

Do you see that sentence?

A. Yes, that's the second sentence.

Q. Okay. And here, Exhibit 1016 discusses the addition of a DRM chunk prior to each video chunk; is that accurate?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, scope,
3 relevance, form, incomplete hypothetical.

4 A. So, I mean, you read the sentence
5 correctly. That is what the text says.

6 BY MR. LIANG:

7 Q. Okay. And if we go to -- if you
8 take a look, then, at Figure 2.7. So you have
9 to flip up a few pages. Figure 2.7 --

10 A. I see it now.

11 Q. -- is on page 14 of Exhibit 1016.

12 A. Yes, I have it.

13 Q. All right. And if you look -- the
14 next page of the Figure 2.8, do you see that?
15 It's on page 15 of Exhibit 1016.

16 A. Yes, I see that figure.

17 Q. Okay. So let's -- sorry, let's go
18 back to Figure 2.7.

19 A. Okay.

20 Q. Now, Figure 2.7 shows these boxes
21 labeled "V" that are -- that also have a label
22 262.

23 Do you see that?

24 A. 262. Yes, I see that.

25 Q. Okay. So these would be the video

1 Nielson - 2-25-2021

2 chunks 262 that we just read about in
3 paragraph 169, correct?

4 A. Would you mind letting me just
5 return to 169 for a second? Hold on.

6 Q. Sure. Go ahead.

7 A. If it were paper, I could have both
8 things open at the same time.

9 Do you see that in the text after
10 262, there's a -- like a single quote mark?

11 Q. Yes.

12 A. Can you tell me what that is
13 referring to, the little single quote mark?

14 Q. Well, honestly, I'm not sure.

15 Do you know what that is referring
16 to?

17 A. Well, I've never seen this document
18 before, so no. I was trying to figure out if
19 it had a meaning in patents and -- and patents
20 specifications that I wasn't familiar with.

21 Q. Oh, I see.

22 You know, if you turn to Figure 2.8.

23 A. (Complied.) Yes.

24 Q. Then you see 262 actually has a
25 quotation -- a single quote after it here. Do

Nielson - 2-25-2021

you see that?

A. I see that.

Q. Okay. So in paragraph 169, it explains that, you know, the movie list chunk is similar -- (audio distortion) the movie list chunk 42, right, for example, for Figure 2.8 is similar to the movie list chunk shown in Figure 2.7, with the addition of a DRM chunk 270 prior to each video chunk 262 prime 262 quotation.

A. I see it.

Q. All right. So then in Figure 2.8, the 262 quotation mark refers to the video chunk 262 quotation mark that's referenced in paragraph 169, correct?

A. That appears to be correct.

Q. Okay. And in Figure 2.8, there is a box that says "DRM labeled 270" that has been added before the video chunks; is that right?

MR. HENDIFAR: Objection, form.

A. Each of the V chunks here, 262 prime, in Figure 2.8, appears to be preceded by a chunk -- or a DRM Box 270.

BY MR. LIANG:

1 Nielson - 2-25-2021

2 Q. Okay. And if we could turn back to
3 paragraph 169 of Exhibit 1016 which is on
4 page 45.

5 A. I've got it.

6 Q. Okay. So following from where we
7 were just reading, the next sentence reads:
8 The DRM chunks 270 are data chunks that contain
9 digital rights management information.

10 Do you see that?

11 A. I do.

12 Q. And then further down in this
13 paragraph it says: In one embodiment, the DRM
14 chunk 270 provides the digital rights
15 management information for the video chunk 262
16 quotation mark following the DRM chunk.

17 Do you see that?

18 A. I see that.

19 Q. So here, Exhibit 1016 is stating
20 that the DRM chunk can include digital rights
21 information for the video chunk following the
22 DRM chunk, correct?

23 A. I mean, that is the text that's
24 written here. I don't -- I don't have anything
25 to add beyond what the -- the sentence says.

Nielson - 2-25-2021

Q. If we go to the next paragraph, paragraph 170 of Exhibit 1016, it says: In an encryption system, in accordance with an embodiment of the present invention, the video chunks are only partially encrypted. Where partial encryption is used, the DRM chunks contain a reference to the portion of a video chunk that is encrypted and a reference to the key that can be used to decrypt the encrypted portion.

Do you see that?

A. I see that.

Q. Exhibit 1016 here describes that the video in the AVI file may be partially encrypted, correct?

MR. HENDIFAR: Objection, form, and scope.

A. I -- I can't -- I'm not sure that I can reach that conclusion.

BY MR. LIANG:

Q. You agree here that Exhibit 1016 is stating that the video can be partially encrypted, correct?

MR. HENDIFAR: Objection, form, and

Nielson - 2-25-2021

scope.

A. I completely agree that you read these sentences correctly. I haven't analyzed this document, and I don't have anything else to say about it.

BY MR. LIANG:

Q. Okay. And Exhibit 1016 states that: When the video is partially encrypted, the DRM chunks containing reference to the portion of the video chunk that is encrypted. Correct?

MR. HENDIFAR: Objection, form, scope, relevance.

A. You read the language from this column correctly.

BY MR. LIANG:

Q. Is it your understanding that a POSITA is presumed to be aware of all pertinent prior art?

A. I don't believe that is in the Legal Background for my Declaration. I'm not an attorney, and I have worked with the legal standards -- legal background I was provided.

Q. Okay. And so, then, in forming your opinions for this case, you -- you aren't

Nielson - 2-25-2021

presuming that a POSITA is aware of all
pertinent prior art?

A. I believe that my analysis of the
POSITA in my Declaration is correct based on my
knowledge of POSITA at that time. I don't
think that this reference, even if they were
aware of it, would necessarily change my
opinion.

Q. Is it your -- withdrawn.

When forming your opinions in this
proceeding, did you apply a presumption that a
POSITA is presumed to be aware of all pertinent
prior art?

A. Again, I used the legal standard and
background that is in my Declaration, and I
don't believe I used anything beyond that.

Q. Okay. So you didn't apply a
presumption that a POSITA is presumed to be
aware of all pertinent prior art?

A. I did not presume that the POSITA
knew every possible paper, patent, et cetera,
on the planet in -- in doing my analysis.

Q. Okay. And you -- I don't see
anything in your Declaration in terms of

Nielson - 2-25-2021

your -- you know, your legal understanding section that mentions this presumption, and I think -- I think you've said that the understanding you applied is in your Declaration.

So I just want to be clear, then, that you didn't apply a presumption that a POSITA is presumed to be aware of all pertinent prior art; is that correct?

A. I did not do my analysis with that presumption.

Q. Now, if I could go to Exhibit 1016, the very first page. Let's go back to the very beginning.

MR. HENDIFAR: I'm sorry. Where are we going?

MR. LIANG: The first page of Exhibit 1016, the very beginning.

A. I'm there.

BY MR. LIANG:

Q. Okay. Now, would you agree that Exhibit 1016 is a United States Patent Application Publication that was published June 15th, 2006?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection,
3 foundation, form, calls for a legal
4 conclusion.

5 A. I've never seen this document
6 before. I can't authenticate it.

7 BY MR. LIANG:

8 Q. Right. But based on -- based on
9 what it says here, and you have no reason to
10 doubt that, in fact, Exhibit 1016 was published
11 June 15th, 2006, correct?

12 MR. HENDIFAR: Objection, relevance,
13 calls for speculation, foundation, form.

14 A. So the date on this says Publication
15 Date; June 15th, 2006. I can't add anything
16 beyond what is written on the front of it.

17 BY MR. LIANG:

18 Q. And you don't have any reason to
19 believe that that date is inaccurate?

20 A. I have not done any independent
21 investigation into this reference in any way.

22 Q. Okay. And the priority date that
23 you analyzed for the '588 patent is, at its
24 earliest, September 1st, 2011, correct?

25 A. (Examined exhibit.)

1 Nielson - 2-25-2021

2 Q. And if it helps you -- in your
3 Declaration paragraph 32, page 10.

4 A. That sounds like the right date.
5 But yes, I am going there and confirming it.
6 (Examined exhibit.)

7 Yes, that is correct.

8 Q. Okay. So, then, Exhibit 1016 was
9 published at least four or five years before
10 the earliest priority date of the '588 patent,
11 correct?

12 MR. HENDIFAR: Objection,
13 foundation, calls for speculation.

14 A. So to repeat my previous answer,
15 I've not done any analysis on this document,
16 but I am willing to agree with you that 2006 is
17 a number of years before 2011.

18 BY MR. LIANG:

19 Q. Is a US Patent Publication that is
20 published more than one year before the
21 challenged patent is prior art to that patent,
22 correct?

23 MR. HENDIFAR: Objection, scope,
24 calls for a legal conclusion.

25 A. I'm not an attorney. If that's in

Nielson - 2-25-2021

my Legal Background section, I'm -- then that is the information that I used in doing my analysis.

BY MR. LIANG:

Q. Well, you've provided many expert -- I think you said before you've been an expert witness in over 20 patent litigations, correct; at least 20 patent litigations?

A. Actually, if that's what I said, I should have corrected it. 20 litigations. Not -- not all of them are patents.

But I have been involved in a number of patent litigations, but that doesn't qualify me to give an opinion on what is and is not prior art under the law.

Q. Right.

And you have provided opinions on invalidity in the past, right?

A. I have.

Q. And your legal un -- your understanding, just you -- based on your understanding, is that something that is published more than one year before the earliest priority date of the patent is prior

1 Nielson - 2-25-2021

2 art to that patent, correct?

3 MR. HENDIFAR: Objection, scope,
4 calls for a legal conclusion, relevance.

5 A. I do -- I never have an independent
6 understanding. I always use the legal
7 understanding that is given to me for whatever
8 project I'm involved in.

9 BY MR. LIANG:

10 Q. Would you agree that by 2006, a
11 POSITA would have known, at least based on
12 Exhibit 1016, how to add DRM information to the
13 standard AVI file format to support partial
14 encryption?

15 MR. HENDIFAR: Objection, scope,
16 relevance, incomplete hypothetical.

17 A. I'm not comfortable giving an
18 analysis on a document that I've only seen
19 today.

20 BY MR. LIANG:

21 Q. Okay. And you didn't consider
22 Exhibit 1016 when you were forming your
23 opinions in this matter, correct?

24 A. That's correct. I used the
25 materials that -- that the petition and

1 Nielson - 2-25-2021

2 Dr. McDaniels had analyzed.

3 Q. But you would agree that a POSITA
4 would have been able to make and use the
5 teachings of Exhibit 1016, correct?

6 MR. HENDIFAR: Objection, scope,
7 relevance, form, incomplete hypothetical.

8 A. I haven't -- I have not done that
9 analysis. I have not analyzed how the POSITA
10 that we have here would or would not have used
11 the teachings in this patent application.

12 BY MR. LIANG:

13 Q. You're just not sure?

14 MR. HENDIFAR: Objection, form,
15 misstates testimony.

16 A. I think what I'm trying to say is
17 when I do one of my analyses, I put plenty of
18 time and thought into it. That usually goes
19 beyond a few minutes.

20 BY MR. LIANG:

21 Q. You would at least agree, based on
22 the passages we just looked through, that a
23 POSITA would have been able to make and use an
24 AVI file with the DRM chunks described in
25 Exhibit 1016, correct?

1 Nielson - 2-25-2021

2 MR. HENDIFAR: Objection, form,
3 scope, relevance, incomplete hypothetical,
4 asked and answered.

5 A. I have not analyzed this document
6 for what a POSITA could and could not do.

7 MR. LIANG: Okay. I'll pass the
8 witness.

9 MR. HENDIFAR: Let's take a
10 10-minute break.

11 And, Dr. Nielson, I'll call you to
12 disconnect or -- because now, we're going
13 from recross to cross, so I'm allowed to
14 speak with you. So let's take a 10-minute
15 break and I'll come back after 25 minutes
16 past the hour.

17 MR. LIANG: Okay.

18 (Recess held.)

19 MR. HENDIFAR: We have no questions
20 for the witness. So that's it.

21 THE REPORTER: Mr. Hendifar, do you
22 need a copy of this deposition?

23 MR. HENDIFAR: No, thank you.

24 (Time Noted: 6:24 p.m.)
25

Nielson - 2-25-2021

C E R T I F I C A T E

STATE OF TEXAS)
)
COUNTY OF ELLIS)

I, Daniel J. Skur, a Notary Public
within and for the State of Texas, do
hereby certify:

That DR. SETH NIELSON, the witness
whose deposition is hereinbefore set forth,
was duly sworn by me and that such
deposition is a true record of the
testimony given by such witness.

That pursuant to Rule 30 of the Federal
Rules of Civil Procedure, signature of the
witness was not reserved by the witness or
other party before the conclusion of the
deposition;

I further certify that I am not
related to any of the parties to this
action by blood or marriage; and that I am
in no way interested in the outcome of this
matter.

IN WITNESS WHEREOF, I have hereunto
set my hand this 3rd day of March, 2021.



Daniel J. Skur
Notary Public, State of Texas.
My Commission Expires 7/7/2022
TSG Reporting, Inc.
228 East 45th Street, Suite 810
New York, New York
(877) 702-9580

Nielson - 2-25-2021

ERRATA SHEET FOR THE TRANSCRIPT OF:

Case Name:

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

NETFLIX, INC. AND	§	
HULU LLC	§	CASE NO. IPR2020-00558
V.	§	U.S. PATENT NO.
DIVX, LLC	§	10,225,588

Dep. Date: 02/25/2021

Deponent: DR. SETH NIELSON

Reason codes:

1. To clarify the record.
2. To conform to the facts.
3. To correct transcription errors.

CORRECTIONS:

Pg.	Ln.	Now Reads	Should Read	Reason
14	_____	_____	_____	_____
15	_____	_____	_____	_____
16	_____	_____	_____	_____
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DR. SETH NIELSON

(Notary Public) MY COMMISSION EXPIRES:_____

Nielson - 2-25-2021

-----I N D E X-----

WITNESS: EXAMINATION BY PAGE:

DR. SETH NIELSON

Mr. Liang

5

Hearing with Judge Turner 116-143

-----EXHIBITS-----

Deposition Exhibits PAGE/LINE

Exhibit 1016	United States Patent Application.	217/25
	US 2006/0129909 A1	
	63 pages	

Exhibit 1019	Diagram - Temporal Scalability	168/22
	4 pages	

Exhibit 2012	Declaration of Seth Nielson, Ph.D.	19/22
	67 pages	