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

-----X

AMAZON.COM, INC. AND AMAZON.COM
SERVICES, LLC,
Petitioner,
CASE.: IPR2024-00572

-against-

NOKIA TECHNOLOGIES OY,
Patent Owner.

-----X

VIDEOTAPED DEPOSITION OF

DR. ELI SABER

NEW YORK, NEW YORK

JANUARY 24, 2025

REPORTED BY: KIARA MILLER

FILE NO.: 566018

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Deposition of DR. ELI SABER, taken on behalf of
PETITIONER, at REMOTE LOCATION, New York, New
York, commencing at 9:23 a.m., JANUARY 24,
2025, before Kiara Miller.

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

2
3 ON BEHALF OF PETITIONER:

4 PERKINS COIE
5 30 Rockefeller Plaza, 22nd Floor
6 New York, New York 10112

7 EMAIL: JCARTER@PERSKINSCOIE.COM

8 BY: JON CARTER, ESQ.

9 ON BEHALF OF PATENT OWNER:

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14 EMAIL: NICK.TSUI@ALSTON.COM
15 BRYAN.RODRIGUEZ@ALSTON.COM

16 BY: NICHOLAS T. TSUI, ESQ.
17 BRYAN RODRIGUEZ, ESQ.

18 ALSO PRESENT:

19 ZOOM TECH, SUE PYBAS
20
21
22

1 TECH PYBAS: Zoom will now prompt for
2 your consent to video record this
3 meeting for backup purposes.
4 Thank you to everyone for attending
5 this proceeding remotely, which we
6 anticipate will run smoothly. Please
7 remember to speak slowly and do your
8 best not to talk over one another.
9 Please be aware that we are recording
10 this proceeding for backup purposes.
11 Any off-the-record discussions should
12 be had away from the computer. Please
13 remember to mute your mic for those
14 conversations. Please have your video
15 enabled to help the reporter identify
16 who is speaking. If you are unable to
17 connect with video and are connecting
18 via phone, please identify yourself
19 each time before speaking.
20 We will provide a complimentary,
21 unedited recording of this deposition
22 with the purchase of a transcript. I

1 apologize in advance for any technical
2 related interruptions. Thank you.

3 E L I S A B E R, after having first been duly sworn
4 by a Notary Public of the State of New York, was
5 examined and testified as follows:

6 COURT REPORTER: Please state your
7 name and address for the record.

8 THE WITNESS: Eli Saber, 600 Hosta
9 Circle, Webster, New York 14580.

10

11 EXAMINATION BY

12 MR. TSUI:

13 Q Good morning, Dr. Saber, can you hear me
14 all right?

15 A I can hear you very well, good morning
16 to you.

17 Q It's been a few months since the
18 1380-ITC hearing, do you recall that?

19 A I do vaguely recall that.

20 Q Do you understand today you're under
21 oath to testify, so it's no different than
22 when you were testifying live at the ITC

1 hearing, do you understand that?

2 A Yes, I do understand that.

3 Q And are you located in your home today?

4 A Yes, sir. I'm located in my home
5 office.

6 Q Is there anyone else in the room with
7 you?

8 A No. There is not.

9 Q And do you have any other windows on
10 your computer open or any chat programs other
11 than just this one?

12 A No. I do not.

13 Q Okay. Any papers or notes in front of
14 you?

15 A No. I don't have any notes or papers in
16 front of me, but do I have a set of binders
17 that counsel's FedExed over a couple of days
18 ago that have all the lists of the exhibits
19 in hard copy format.

20 Q Okay. And so when we get there if it's
21 easier for you to use an exhibit that you've
22 got printed, as opposed to we'll put it up in

1 the chat, whatever is easier for you to use,
2 I'm fine; I'd ask you not to look at
3 materials that we're not asking questions
4 about or I've not introduced as an exhibit.
5 So just when we get there you kind of decide,
6 but let me know if you're looking at the
7 paper copy, okay?

8 A Absolutely. I would ask you to upload
9 any exhibit to the chat box you want me to
10 look at, it's a little easier to look at
11 electronically then try to flip through all
12 these binders.

13 Q Excellent. Okay, that's what we'll do.
14 I think you know how all this works, but
15 I'm going to ask you a bunch of questions;
16 you're under oath to tell the truth; is that
17 understood?

18 A That is understood. I think I've done
19 this a few times.

20 Q I think so too. We're going to take
21 breaks every hour, but any time you need a
22 break you let me know; sound fair?

1 A That sounds fair, thank you.

2 Q Dr. Saber, have you ever done any work
3 for Amazon other than litigation work?

4 A I have done, I got engaged with Amazon I
5 guess early last year and I've done three IPR
6 work and the ITC case that you've seen me on.

7 Q Okay. Prior to that or outside of that,
8 do you do any kind of work for Amazon that's
9 not based on some kind of litigation or IPR?

10 A No. I have not.

11 Q Do you ever receive any funding or any
12 grants from Amazon?

13 A No. I have not.

14 Q Now, before your work from Amazon over
15 this past year or so, have you ever worked
16 with the H.264 standard before?

17 A Directly work with a standard like in
18 developing the standard, is that what you're
19 asking.

20 Q Well, we'll get there, but have you ever
21 just worked with the H.264 standard as apart
22 of your research or teaching or anything like

1 that?

2 A Well, yes, I have worked on a case that
3 have with dash cams, which, obviously, many
4 of them use H.264 standard and I worked on
5 that case a couple years ago or something
6 like that.

7 Q As a part of that case, did you -- did
8 that involve reading the H.264 standard or
9 analyzing the standard?

10 A I have looked at the standard during
11 that case, that's correct.

12 Q So outside litigation work though, have
13 you ever worked with the H.264 standard or
14 studied it just as part of your research or
15 your teaching?

16 A Yes. I have developed -- when I came to
17 RIT in 1998, I started there as an adjunct
18 faculty and I joined RIT full-time faculty in
19 2004. When I started in 1998, as an adjunct
20 I started teaching courses for them, one of
21 those courses is a course that I brought and
22 I started that was a digital video processing

1 course. And when you teach that course you
2 obviously teach digitally processing
3 techniques, algorithms, from fundamentals to
4 motion estimation, two and 3D, segmentation
5 et cetera. A pretty substantial portion of
6 the course is image and video compression,
7 mainly video compression.

8 Q Okay. Now back in 1998 there was no
9 H.264 though, right?

10 A That's correct. In 1998, we talked --
11 we started with H.261 and went to MPEG-1 and
12 MPEG-2 and as the standards evolved the
13 course evolves as well because it's an upper
14 graduate course. It's expected to bring the
15 students to the edge of technology so they
16 can basically research beyond that.

17 Q Now, have you ever personally been to an
18 ITU standardization meeting?

19 A No. I have not.

20 Q And have you ever been to a H.264
21 standardization meeting?

22 A No. I have not.

1 Q Did you have any personal involvement in
2 the development of the H.264 standard, like
3 making proposals, voting on proposals,
4 anything like that?

5 A No. I have not.

6 Q Now, do you know what the H.264
7 reference software is?

8 A Yes. I know what it is.

9 Q Okay. And what's your understanding of
10 what the H264 reference software is?

11 A Well, it's essentially, I mean, if you
12 download, there's a free version out there,
13 if you download and you can basically test
14 and run H.264 compression.

15 Q Okay. And have you ever downloaded it
16 and tested and ran H.264 compression?

17 A I haven't had the need to do so.

18 Q Okay. Did you have any personal
19 involvement in the development of the H.264
20 reference software?

21 MR. CARTER: I'm going to be objecting
22 to all these questions as outside the

1 scope, but go ahead.

2 A No. I have not specifically with H.264
3 to contribute with the standard, but I have
4 developed software for compression.

5 Q Just so I make sure I have it clear,
6 Dr. Saber, did you have any personal
7 development in the H.264 reference software?

8 MR. CARTER: Same objection.

9 A No, I have not with that particular
10 reference software.

11 Q And did you have any personal
12 involvement in the development of the
13 reference software for any video coding
14 standard?

15 A No. Not specifically for the standard
16 itself, but I have developed compression
17 algorithms and software for research work
18 that we do and/or teaching needs.

19 Q Have you ever reviewed any source code
20 for the H.264 reference software?

21 A I don't recall what I have reviewed
22 during the ITC case, but I did review

1 software during the ITC case, I just don't
2 remember what exactly are those details.

3 Q Okay. You don't know if it was the
4 H.264 reference software versus someone
5 else's software, is that what you mean?

6 A I don't recall off the top of my head.
7 It's been several months.

8 Q Sure, okay.

9 Do you know how long it typically takes
10 for adopted features from an H.264 standard
11 meeting to get into the H.264 reference
12 standard?

13 MR. CARTER: Again, object as all this
14 is outside the scope of his
15 declaration.

16 A Well, it would depend, obviously, on the
17 feature, the frequency of the meetings. It's
18 hard to say.

19 Q Have you ever actually studied how long
20 it would typically take to implement an
21 adopted feature into the H.264 reference
22 standard software?

1 MR. CARTER: Same objection.

2 A No. I have not had a need to do so.

3 Q Okay. Do you consider yourself an
4 expert in the H.264 standard?

5 A I consider myself an expert in video
6 compression, which includes obviously these
7 standards.

8 Q Okay. And is that based on your legal
9 work and your teaching?

10 A It's based on my extensive experience in
11 teaching and also research and obviously work
12 with cases that have to do with compression
13 and Amazon isn't the only case I've done for
14 compression.

15 Q Now, have you studied the H.264
16 standardization process?

17 MR. CARTER: Object. Outside the
18 scope.

19 A I don't know what you mean by process.

20 Q Right. So just how people go to the
21 meetings, make proposals, how those proposals
22 get adopted, how those proposals get drafted

1 in the standard, is that a process that you
2 feel that you are an expert in?

3 MR. CARTER: Same objection.

4 A I understand the process. I mean, it's
5 a very similar process to what we do when we
6 write proposals to granting organizations,
7 you submit proposals, there are competing
8 proposals, committees review your proposals,
9 and a proposal is selected for a variety of
10 reasons and then adopted into, you know, in
11 this case in the standard, in some of the
12 granting case they would select it and offer
13 funding, so it's a very selective process.

14 Q I appreciate that, Dr. Saber, but do you
15 consider yourself an expert specifically in
16 how the JVT works?

17 MR. CARTER: I'll object to form.

18 A I consider myself an expert in video
19 compression and understanding the techniques,
20 and fundamentals of video compression and the
21 standards themselves. I don't think the
22 process is relevant to this discussion.

1 Q Well, I understand that, but my
2 question, Dr. Saber, was: Do you consider
3 yourself an expert in the JVT process?

4 MR. TSUI: Object to form and
5 relevance.

6 A I guess I don't understand what you mean
7 by process. What the expertise that's
8 required for the process. I explain to you
9 the process is very similar to what we do
10 today when we write proposals to conferences
11 or granting institutions, it's a very similar
12 process.

13 Q Are you an expert in the JVT's policies?

14 MR. CARTER: Same objection.

15 A I don't think that has any relevance to
16 do with my opinions today.

17 Q That wasn't my question, Dr. Saber.
18 Are you an expert in the JVT's policies?

19 MR. CARTER: Object to form and
20 relevance.

21 A I mean, I don't understand what you mean
22 by the policies, it's not relevant to what

1 I'm opining on today here, so I don't
2 understand what you mean by policies.

3 Q Do you know what JVT policies are?

4 MR. CARTER: Object to form.

5 A Again, it's not relevant to what the
6 opinions I'm making here today, it's not
7 relevant to our conversation.

8 Q Dr. Saber, I need you to answer the
9 question, do you know what the JVT policies
10 are?

11 MR. CARTER: Object to form.

12 A I haven't looked at those policies at
13 this point.

14 Q Do you know what the JVT procedures are
15 for H.264 standardization?

16 MR. CARTER: Object to form. Outside
17 the scope. Relevance. H.264 is not
18 an issue in this proceeding.

19 A I haven't looked at -- I mean, H.264 was
20 standardized in early 2000 time frame, so I
21 haven't looked at this type of stuff. The
22 procedures or things I might have seen

1 something at that time. I don't recall off
2 the top of my head.

3 Q Okay. So you would not consider
4 yourself an expert in the process that JVT
5 uses for H.264 standardization; is that
6 correct?

7 MR. CARTER: Object to form. Outside
8 the scope. Relevance.

9 A I don't know what expertise you would
10 need into the process. I mean, I told you
11 I'm familiar with the process, there is no --
12 I don't know what expertise that would take
13 besides submitting proper proposals and
14 reviewing proposals, I'm familiar with that
15 kind of process, yes.

16 Q Well, I understand that you're familiar
17 with that process in general through your
18 grant writing, what I'm trying to understand
19 is are you familiar specifically with the
20 H.264 process of adopting proposals?

21 MR. CARTER: Same objections.

22 A I haven't submitted any proposals to

1 H.264, so if there are any intricate details
2 in that particular process I don't think
3 that's relevant to our discussions today.

4 Q Well, again, Dr. Saber, my question was
5 really not about whether you think it's
6 relevant, my question is, whether you are an
7 expert in the H.264 standardization process.
8 If you have never studied it and I think that
9 answers our question, can you answer my
10 question clearly, are you an expert in the
11 H.264 standardization process that the JVT
12 uses?

13 MR. CARTER: Object to form.
14 Relevance.

15 A I guess, I don't remember -- I don't
16 understand if there's a written document that
17 describes the process, it's easy to
18 understand. I haven't looked at the process
19 in many years at this point, so I couldn't
20 really answer, but I'm very familiar with the
21 process of submitting proposals and
22 evaluating proposals, and selecting proposals

1 and JVT process would be very similar to
2 that.

3 Q But you're not basing that off of any
4 firsthand knowledge; is that right?

5 MR. CARTER: Object to form.

6 A Again, I think I've answered that
7 question, but I'd be happy to answer it
8 again. I'm familiar with the process of
9 submitting proposals, competing proposals
10 whether it's to conferences, to funding
11 organizations, to industrial companies, I've
12 done quite a few of those, and the process,
13 the review process and in case of conferences
14 there is a voting process as well; so I'm
15 familiar with that process and I would think
16 JVT would be a very, very similar process. I
17 didn't sit on the standard itself, so I can't
18 speak to the intricate details of it. But
19 I'm very familiar with the process of
20 submitting proposal and selecting winning
21 proposals.

22 Q I appreciate that answer, Dr. Saber, I

1 just want to make sure that I fully
2 understand what it is you know and what it is
3 you don't know from firsthand knowledge,
4 okay.

5 Just to be clear, I understand that
6 you're saying you understand the process in
7 general, how proposals work. Do you actually
8 have firsthand knowledge of how the JVT
9 policies for H.264 standardization actually
10 work?

11 MR. CARTER: Object to form. Outside
12 the scope. Relevance.

13 A Again, I didn't sit on any of the
14 standards meetings so if there's any
15 intricacies there about the particular
16 process I don't remember that, but I am very
17 familiar with processes of submitting
18 proposals.

19 Q Okay. When you say "processes of
20 submitting proposals," you're talking about
21 in general, right?

22 A That's correct.

1 Q And just to be clear, you're not talking
2 about specifically H.264 proposals, correct?

3 MR. CARTER: Objection. Outside the
4 scope.

5 A Again, as I mentioned, yes, I am very
6 familiar with the submission of proposals to,
7 you know, conferences, competing funding
8 agencies, industrial companies. I'm very
9 familiar with that process. I have not,
10 since, submitted a proposal to the H.264
11 standard.

12 Q Now, Dr. Saber, you wrote a declaration
13 for this IPR, correct?

14 A Yes. That is correct.

15 Q Okay. And do you have any corrections
16 or clarifications that you need to make to
17 anything in your declaration?

18 A No. I noticed a couple of typos here
19 and there. I'll clarify them if we get to
20 that point.

21 Q Did you discuss your declaration or any
22 of your opinions with anyone other than an

1 attorney?

2 A No. I have not.

3 Q And did you discuss the '818 Patent or
4 any of the references cited in your
5 declaration with anyone other than an
6 attorney?

7 A No. I have not.

8 Q Okay. Now, do you recall at the ITC
9 hearing there was a gentleman there, also for
10 Amazon, Dr. James Storer?

11 A Yes. I know Jim Storer.

12 Q Okay. Have you ever discussed any of
13 the '818 Patent or your opinions with him?

14 A No. I have not.

15 Q Now, you recall Dr. Storer testified at
16 the ITC hearing with respect to the '818
17 Patent and you did not, right?

18 A I recall he testified. I wasn't present
19 to his testimony because I was the first
20 witness on the stand and I left after I
21 testified.

22 Q Okay. That was going to be my next

1 question.

2 So were you in the courtroom when
3 Dr. Storer testified?

4 A No. I was not.

5 Q Okay. And did you read the transcript
6 of Dr. Storer's testimony from the ITC
7 hearing?

8 A No. I don't believe I have done so.

9 Q Okay. Now, are you aware -- sorry.
10 Were you about to --

11 A No. Please go ahead.

12 Q Are you aware that the judge in that ITC
13 hearing issued his determination about a
14 month ago?

15 A Yes. I'm aware of that.

16 Q Okay. And have you read the judge's
17 determination?

18 A What was your question? You cut out a
19 little bit.

20 Q Have you read the judge's determination
21 in that ITC hearing?

22 A Yes. I have read it.

1 Q So you're aware that --

2 A I'm aware of it.

3 Q Okay. Are you aware that the ITC judge
4 found that Amazon infringed 4 of Nokia's
5 patents, including the '818 Patent?

6 MR. CARTER: Object to outside the
7 scope and relevance. That has nothing
8 to do with this proceeding.

9 A Can you ask your question one more time?

10 Q Sure.

11 Are you aware that the ITC judge found
12 that Amazon infringed 4 of Nokia's patents,
13 including the '818 Patent?

14 MR. CARTER: Same objection.

15 A I have read the, I guess the document.
16 I have not had any time to study it or
17 analyze it in detail.

18 Q Okay. And so since you've read the
19 document, you are aware that the ITC judge
20 found the '818 Patent was valid over all the
21 same prior art that you discussed in your
22 declaration, correct?

1 MR. CARTER: I'll object to form.

2 A Again, I have read the document. I have
3 not had any time to study or analyze the
4 document, so I can't speak to what the judge
5 has exactly found in that document, that
6 wasn't part of what I was asked to do.

7 Q That's fair.

8 Now, Dr. Saber, in your declaration, you
9 cite to a book written by Professor -- I
10 don't know I'm going to say this right
11 Professor Tekalp; is that right?

12 A Yes. Professor Murat Tekalp, yes.

13 Q Now, is Professor Tekalp a colleague of
14 yours at the university of Rochester or one
15 point was?

16 A Professor Tekalp was actually my Ph.D.
17 advisory while I was doing my Ph.D. thesis.
18 And at the completion of my Ph.D. thesis, he
19 became my colleague. As we worked together
20 on an NSF grant with the Ph.D. student. So I
21 worked with the Dr. Tekalp for several years
22 after completing my Ph.D.

1 Q So you coauthored a number of the papers
2 with Professor Tekalp; is that correct?

3 A Yes. That is correct.

4 Q Did you coauthor this book with
5 Professor Tekalp that you cite?

6 A No. I have not. The book came out when
7 I was still a Ph.D. student at the time. I
8 would have loved to coauthor with Dr. Tekalp,
9 but I was a Ph.D. student at the time the
10 book came out in '93 or '94, somewhere during
11 that timeframe.

12 I received my Ph.D. in '96. So I was a
13 Ph.D. student when Dr. Tekalp published that
14 book. I actually have a signed copy of that
15 book right here on my shelf.

16 Q Excellent.

17 If you have a signed copy, have you read
18 the entire book?

19 A Not only have I read the entire book, I
20 took a course. Dr. Tekalp provided a course
21 in digital video processing at the University
22 of Rochester. And the slides in the notes

1 that he used were what actually ended up in
2 that book. So we were kind of like -- you
3 want to say the test ground, so to speak,
4 or as he was putting together his book. So
5 he started and taught the digital video
6 processing course at OR. And I was one of
7 the first students to take that course.

8 Q It is it your opinion that the Tekalp
9 book is of good authority of video coding
10 technology?

11 MR. CARTER: Objection to form.

12 A At the time that it was published,
13 Dr. Tekalp's book was probably the very best
14 book on digital video compression at the time
15 it was published.

16 Q Do you think there's anything in there
17 that now is inaccurate, because of all that's
18 gone on?

19 A No. I don't believe there's anything in
20 there, you know, there might be a typo or two
21 in there. But there is isn't anything in
22 there that's inaccurate. Obviously, time has

1 passed by since then and new techniques have
2 come on board.

3 At the time it was published, it was
4 like an encyclopedia of digital video
5 processing. In fact, other colleagues called
6 it that at conferences. Because it was so
7 comprehensive and included, you know, a very
8 large content of the field.

9 Q Right. So Tekalp in that book, he talks
10 about other video coding standards that were
11 around, around that time, right?

12 A Yes. That is correct.

13 Q And so you're aware, I think you may
14 have mentioned this already.

15 You're aware that in addition to H.264,
16 there is H.261, H.262, and H.265, right?

17 A Yes. H.261 probably came in the late
18 80s early 90s and it was essentially the
19 foundation for MPEG-1.

20 Q And are you aware that there was some
21 features that appear in H.261 that were
22 carried over into the later versions, like

1 H.262 and H.263?

2 A Yeah, that's typically the case, you go
3 from standard to the next standard. You
4 carry over the features that are relevant,
5 efficient, effective, et cetera. And you
6 develop newer features or improve on certain
7 features.

8 Q All right. And so that was going to be
9 my question, right?

10 If a feature is carried over from one
11 video coding standard to the other, that
12 would indicate that feature was valuable or
13 useful or popular, right?

14 MR. CARTER: Objection to form.

15 A Well, I'm not sure what exactly you're
16 asking.

17 Can you perhaps rephrase your question?

18 Q Yeah, I'll try and use the word that you
19 used.

20 If a feature is carried over from one
21 video coding standard to other video coding
22 standards, that would indicate that feature

1 is efficient or still relevant and useful,
2 right?

3 MR. CARTER: Objection to form.

4 A I mean, sometimes you carry features
5 just because you need it. You need to have a
6 header or something, so it's not everything
7 has to do with the efficiency. Some things
8 are just needed, some things are -- make
9 things more efficient.

10 You know, for instance, motion
11 estimation in H.261 was done on full pixel
12 versus MPEG-1, you know, you went to the half
13 pixel. There are some features that you
14 would improve on, others you just carry
15 because you need the new standard to look at
16 imagery from the prior standard.

17 Q And if a newer standard didn't want a
18 feature because they thought it was useless
19 or bad, they could eliminate features, right?

20 MR. CARTER: Objection to form.

21 A I mean, I would suppose so. I'm not
22 sure what you're asking me. But if a feature

1 in one standard is not needed to the second
2 one, I would assume you would eliminate it.
3 I'm not sure what you're asking.

4 Q Now, one of the features that you
5 discussed -- or sorry.

6 One of the features that is discussed in
7 the excerpts of Tekalp in your declaration is
8 motion compensation.

9 Do you know what motion compensation is?

10 A Yes. Very well.

11 Q I think you mentioned it a minute ago.

12 Can you just give us the real high-level
13 summary of what motion compensation is.

14 A Yes. There's a difference between
15 motion estimation and motion compensation so.
16 SO motion estimate would be me to estimate
17 between two frames, how is an object moving
18 from Frame N to Frame N. Say Frame N to
19 Frame N plus one. An object has moved from 5
20 pixels to the right and 6 pixels down. So I
21 have a motion vector, you are estimating the
22 motion.

1 The compensation would be where you
2 would, you know, adjust one frame, you know,
3 towards the other, or one block, typically,
4 an 8-by-8 block in comparison to the other to
5 compensate that motion vector. So it's in
6 preparation for you to get the residual.

7 Q Okay. And does motion compensation
8 result in compression benefits?

9 A Well, motion compensation is essential
10 to get the compression that you want because
11 when you compensate, obviously, for the
12 motion, you quote/unquote ideally align the
13 block from Frame N to the block in frame N
14 plus one.

15 So you ideally align -- let's say you're
16 talking about the 8-by-8 block. So then when
17 you subtract them and get the residual,
18 ideally you would get the minimum amount of
19 nonzero values.

20 Q When you say "residual," you mean some
21 kind of difference in an estimation versus
22 the real value or something like that?

1 A Yes. I mean, essentially speaking, in
2 encoder, obviously, you quantize and then you
3 have kind of a skeleton of a decoder that
4 de-quantizes and inverse transform and then
5 presents the prior frame as you're processing
6 the current frame, as the, basically, decoded
7 frame.

8 So that's what the decoder would have
9 decoded.

10 The difference between a block from
11 Frame N to Frame N plus one, or Frame N minus
12 one to Frame N, provides a residual that,
13 ideally speaking, should be zero, or
14 practically speaking, would be very close to
15 zero if you estimated the motion correctly.

16 Q But you're doing this whole estimation
17 and then transmitting the residual difference
18 because that takes less transmission bits
19 than if you just sent the whole picture
20 again, right? Is that the idea behind...

21 A Well, I mean, the overall arching idea
22 is, like, you're looking at the Zoom session

1 here, I'm hardly moving, my background is not
2 moving. So there's nothing here moving
3 except maybe my lips and maybe a little bit
4 of my head. So you don't want to keep
5 transmitting the same entire frame every time
6 because that is a huge amount of bandwidth,
7 and, obviously, if you're storing it, it's a
8 huge amount of data.

9 So you want to transmit, ideally
10 speaking, the differences between Frame N and
11 Frame N plus one, and that's where -- you
12 gain by this inter type of set up.

13 So you want to transmit the difference,
14 and if you calculate the motion vectors
15 correctly, ideally speaking, the 8-by-8 block
16 from Frame N to Frame N plus one, when you
17 subtract them, you should get, ideally
18 speaking, zero; you never really do. But you
19 should get, ideally speaking, zero or very
20 close to zero, which then you can compress
21 extremely well, instead of having to send the
22 entire block.

1 There's other steps that take place, but
2 this is just an overall overview.

3 Q Sure. Thank you for that.

4 So does transmitting only the values in
5 the data that has changed and not the data
6 values that have stayed the same, does that
7 result in compression benefits?

8 A Well, the inter -- obviously,
9 compression, the inter part or temporal that
10 we're talking about here, you know, when you
11 get that residual, there's also, obviously, a
12 transformation that takes place. Let's say
13 DCT for the purpose of this discussion.

14 So you do a DCT transform on that, and
15 then apply quantization, which this -- that's
16 when you start gaining -- so you gain initial
17 step by the residual, and then you gain
18 additional by doing a quantization, which
19 obviously, throws away some more information,
20 and hopefully nonrelevant information.

21 Q Okay. I think that's what I'm trying to
22 get at here, right?

1 Would you agree that repeated
2 transmission of data values that haven't
3 changed would consume more bandwidth than if
4 you just didn't transmit the repeated values?

5 A Yeah, well, generally speaking, I mean,
6 it depends, obviously. So I -- if I had a
7 single parameter in, you know, in the grand
8 scheme of a video -- a video frame, I mean,
9 ideally speaking, you would want to, you
10 know, reduce the amount of redundancy as much
11 as you can.

12 Q And reducing redundancy saves bandwidth;
13 is that right?

14 A Again, generally speaking, I would have
15 to see exactly what the details are, the
16 steps are. But the general idea is you want
17 to remove the spatial redundancy and temporal
18 redundancies when you compress video.

19 Q Sure. And what I'm just trying to sort
20 of go a little bit broader than that. That
21 your understanding in video compression, is
22 it correct that, generally speaking, a

1 limiting redundant repeated transmission is
2 going to consume less bandwidth then if you
3 repeatedly transmitted the same data over and
4 over again?

5 A Well, generally speaking, obviously,
6 you're talking hypothetical. You have to see
7 the exact details. But sometimes you want to
8 repeat transmission to make sure you don't
9 have any errors in the transmission. And
10 oftentimes they do that, they repeat the
11 sending the setup parameters just to ensure
12 the, you know, the reception is correct.
13 Because errors do happen in transmissions and
14 reception.

15 Q Sure. I understand you may want to do
16 it. But my question is really just a matter
17 of, does it consume more bandwidth or not?

18 So my question was, would you agree with
19 me, Dr. Saber, that repeated transmission of
20 data values that haven't changed will consume
21 more bandwidth than if you didn't transmit
22 those repeated values?

1 A Generally speaking, that is correct, but
2 the devil is in the details of the algorithm
3 and the context and what exactly is
4 happening. So we would have to analyze the
5 exact transmission or the exact system. But,
6 generally speaking, that's the idea. But the
7 devil is always in the details.

8 Q Now, just to kind of switch gears a
9 little bit here, Dr. Saber.

10 What does it mean to transmit something
11 in band?

12 A So when you start the transmission of
13 video, in a sense, you start -- let's say you
14 transmit something and then you transmit the
15 next thing, so you're transmitting it as
16 you're starting the streaming process, let's
17 say.

18 Q Okay. Does that mean that you're --
19 whatever you're transmitting in band is in
20 the same, I guess, stream as the video data.
21 Is that an accurate description?

22 A Generally speaking, yeah, you're

1 transmitting, let's say, a parameter and then
2 you're transmitting the data, so it's in
3 there, and it's kind of the same band of
4 transmission, so to speak.

5 Q Maybe this will help. Maybe -- what
6 does it mean to transmit something out of
7 band?

8 A Well, you transmit it ahead of time, so
9 to speak, quote, unquote, or before you start
10 the streaming of the video, to ensure, let's
11 say, typically parameters, you may transmit
12 out of band, to ensure you have the accurate
13 set of parameters before you start streaming
14 the video.

15 Q Okay.

16 A You want to avoid breakup in the video
17 streaming, obviously. It's one of the
18 reasons.

19 Q Is it accurate to say that transmitting
20 something out of band means that whatever
21 you're transmitting, you're not transmitting
22 it with or in the middle of the video data?

1 A That's generally the idea. We'd have to
2 look at this every system by system in detail
3 to answer specific questions. But,
4 generally, that's the idea. You transmit
5 something ahead of time, so to speak, and
6 then you start streaming the data.

7 MR. TSUI: I want to introduce an
8 exhibit. Can we bring up Tab C.

9 TECH PYBAS: And marked as Exhibit 1.
10 (Whereupon, Joint Video Team
11 (JVT) of ISO/IEC MPEG and ITU-T
12 VCEG (Bates Nos. AMAZON 1007)
13 was marked as Exhibit 1 for
14 identification as of this date.)

15 Q Dr. Saber, I'll let you know, what she's
16 going to mark as Exhibit 1 is JVT-E022d7.

17 A Yes.

18 THE WITNESS: Would you put that in
19 the chat box, please.

20 TECH PYBAS: I will. It's going to
21 take me just a second.

22 A I'm going to open my binder on this side

1 and see if I can find that.

2 MR. CARTER: If it's helpful, it's
3 Exhibit 1007 in this proceeding.

4 TECH PYBAS: It'll be in the chat in
5 just a second here.

6 It's in the chat.

7 Q All right. Dr. Saber, if you need a
8 moment to download the exhibit, that's fine,
9 too.

10 Do you recognize this Exhibit 1 as
11 JVT-E022d7?

12 A Give me a moment. It's still in the
13 download process.

14 Q Sure.

15 A Yes. I do have it now in front of me.

16 Q And do you recognize the exhibit as
17 JVT-E022d7?

18 A Yes, I do.

19 Q And this is one of the documents that
20 you discuss in your declaration, right?

21 A Yes, it is.

22 Q Now, for public availability of this

1 document, you rely on some opinions by
2 Munford and Reader, correct?

3 A That is correct.

4 Would you upload a copy of my
5 declaration, please.

6 Q Yeah. Why don't we go ahead and mark
7 that as Exhibit 2 while we're at it. It
8 would be Tab A.

9 While she's doing that, I have some
10 questions, I don't think you're doing to need
11 to review anything, but if you need, that's
12 fine, that can wait. Just take it question
13 by question.

14 Now, Dr. Saber, am I correct that you
15 didn't do any of your own independent
16 research as to whether JVT-E022d7 was
17 publicly available as of any particular date;
18 is that correct?

19 A That is correct. It's in the chat box.
20 Now give me one moment to download it.

21 Q Sure.

22 (Whereupon, Declaration of Dr.

1 Eli Saber, Ph.D. Regarding U.S.
2 Patent No. 7,724,818 (Bates No.
3 AMAZON 1003) was marked as
4 Exhibit 2 for identification as
5 of this date.)

6 A So I have Exhibit 1 and Exhibit 2 in
7 front of me.

8 Q Great. So looking at Exhibit 1, at the
9 top of the document, on the left, it says:

10 "Fifth meeting, Geneva, Switzerland,
11 October 2022."

12 Do you see that part?

13 A Yes. I do see that.

14 Q Okay. So JVT-E022d7 is a draft of the
15 H.264 standard around October 2022; is that
16 correct?

17 A Well, if you look at the title on the
18 document, it says "Editor's proposed draft
19 text modifications for joint video
20 specification," and it talks about H.264 and
21 draft seven.

22 Q Right. So would you agree that

1 JVT-E022d7 is a draft of the H.264 standard
2 around October 2022 -- sorry, 2002?

3 A So I would just basically use, to be
4 accurate and precise, I'll just use the title
5 of the document. So it's the "Editor's
6 proposed draft text modifications for joint
7 video specification." And it mentions H.264
8 and gives a bunch of numbers and comma and
9 draft seven. That's for advanced video
10 coding.

11 Q Now, the parts of JVT-E022d7 that you
12 cite to, that you rely on, ultimately become
13 the H.264 Standard, correct?

14 A Yes. That's generally correct. This
15 particular proposal ultimately became the
16 standard.

17 Q So you would agree with me that
18 JVT-E022d7 reflects the proposals that were
19 adopted for incorporation into the H.264
20 Standard by October 2002, right?

21 A Yes. That's generally the case, yes.

22 Q And so this document JVT-E022d7, itself,

1 is derived from the underlying H.264
2 proposals that were adopted by the JVT,
3 correct?

4 MR. CARTER: Object to form.

5 A It's not just proposals, it's proposals,
6 it's multiple meetings, it's discussions,
7 it's disagreements, it's agreements, you
8 know, those -- a lot of time have gone into
9 these preparations. It's not just proposals.

10 Q Okay. Fair enough.

11 But what I'm getting at here, this isn't
12 a document that came up with ideas for the
13 first time, right?

14 JVT-E022d7 is a document that is derived
15 from proposals, conversations, meetings, that
16 have already happened by October of 2002,
17 correct?

18 A Generally speaking, that's is the case.
19 Proposals, discussions in the meetings,
20 debates in the meetings, work groups, all
21 this stuff happens up to that point, and the
22 right information is captured in this

1 particular proposal.

2 Q Now, if we look over at your
3 declaration, Exhibit 2, I want to go to
4 Page 25.

5 A Yes, sir.

6 Q Okay. And do you see you have a
7 Paragraph 61 there?

8 A I do.

9 Q Now, in that paragraph, really at the
10 bottom of the page, I guess, if you go up
11 about four lines, yeah, four lines from the
12 bottom of the page, you have a sentence there
13 that starts "Also like the A1A Patent."

14 Do you see that section I'm talking
15 about?

16 A Yes.

17 Q And, now, towards the end of that
18 sentence, you say:

19 "Data elements pertaining to the
20 sliced data that follow the sliced
21 header."

22 Do you see that part of the

1 sentence?

2 A Yes.

3 Q So would you agree with me that sliced
4 data is not the same thing as sliced header?

5 A Generally speaking, yes.

6 Q And if we flip back to JVT-E022d7, the
7 Exhibit 1 for a moment. I want to look at
8 Page 2, which is little II. And sort of near
9 the bottom, there's a bullet point 7.3.2.6.
10 And it says "Slice layer."

11 Do you see that?

12 A 7.3.2.6, yeah, I see that.

13 Q It says "slice layer," correct?

14 A 7.3.2.6 says slice layer, yes.

15 Q And if you look down a little further, I
16 guess actually on the top of the next page,
17 7.3.3 says "slice header."

18 Do you see that?

19 A Yes. I do see that.

20 Q Okay. So would you agree that slice
21 layer and slice header are not the same
22 things?

1 MR. CARTER: Object to form.

2 A Well, I mean, you're getting into
3 semantics a little bit. I mean, slice layer,
4 slice header provides the header for a
5 particular slice, that layer is a collection
6 of the microblocks.

7 So you're getting into the weeds a
8 little bit and the semantics, but, generally
9 speaking, slice header is different from the
10 slice data.

11 Q Right. And is the slice header also
12 different from the slice layer?

13 A Well, I mean, the slice layer is
14 essentially -- I mean, again, generally
15 speaking, your slice layer is your layer of
16 let's say a series of microblocks in this
17 particular slice, that's kind of like your
18 slice layer, and it's got a header and a set
19 of data.

20 Q Sure. So maybe I'll ask it this way.

21 If I said slice layer, that could mean
22 the slice header, it could mean the slice

1 data, it includes a number of things, right?

2 A Let's just be more specific. So if you
3 go to exhibit, Page 38, which is document
4 Page 20 of that D7 document. So I'll refer
5 to it as D7 instead of having to read all
6 those numbers and name. Would that be okay?

7 Q Yep. That would be fine.

8 A So I'll just say the D7 or the JVT D7,
9 you know what I'm talking about?

10 Q Yeah.

11 A So if you go to Page 38, I guess that's
12 the Bates numbers at the bottom?

13 Q Yes.

14 A You see at the top there, it says,
15 "7.3.2.6 slice layer, RBSP syntax"?

16 Q Yep.

17 A And you can see the slice layer --
18 basically they're giving it in like a C code,
19 quote, unquote, pseudocode type of thing.

20 So you have a slice layer, and then you
21 have the slice header. So the slice layer is
22 like the overall encompassing thing, so to

1 speak. And you have the slice header,
2 followed by slice data, and then any trailing
3 bits for the compression group purposes.

4 Q Yeah. So this is -- this is great.

5 So if I said slice layer, right, that
6 could mean the slice header, it could mean
7 the slice data, it could mean there's a bunch
8 of things inside the slice layer, that if I
9 just say slice layer, it doesn't really
10 specify which thing I'm talking about, right?

11 A Well, slice layer would encompass slice
12 header and slice data, yes.

13 Q Right. So slice layer, if you just say
14 slice layer, that doesn't specify whether
15 we're specifically talking about the slice
16 header as opposed to the slice layer, right?

17 A Well, the context of where that is, it's
18 typically -- you would have -- it's not the
19 term in a vacuum. So it's like if I said
20 bank, you don't know if I'm talking about the
21 bank of snow like I have outside my window
22 here, or a bank where you deposit money. So

1 it's -- the context of what you need informs
2 what is being discussed.

3 Q Sure. So let me ask it this way.

4 The term "slice layer" includes both a
5 slice header and a slice data, right?

6 A That's generally the case, yes,
7 generally speaking.

8 But, again, you have to look in the
9 context of what is being described. I think
10 that's usually the most important thing.

11 Q Sure. Well, if we look here at what
12 we're looking at on the screen,
13 Section 7.3.2.6 of JVT-E022d7, slice layer
14 includes both a slice header and a slice
15 data, right?

16 A Yes. The 7.3.2.6 on Page 38 that we're
17 talking about, and you see that on the screen
18 now, it includes the slice layer, you see
19 that little curly open bracket, and it
20 includes slice header, slice data, and some
21 trailing bits to make things whole, whatever,
22 and then you close bracket, curly bracket.

1 Q I want to go back to your declaration.
2 And I think you can put away Exhibit 1. I
3 don't think I have any more questions on that
4 one.

5 If we go to your declaration. I want to
6 go to Page 28.

7 A Give me one moment. Let me bring up the
8 declaration exhibit.

9 Do you think, before we start the
10 questioning here, maybe a good time for a
11 quick break?

12 MR. TSUI: Yeah. We can definitely do
13 that.

14 THE WITNESS: Let me do that, just to
15 make a quick stop, and I'll be back
16 before you start this module.

17 MR. CARTER: Let's go off.

18 (Whereupon, a recess was taken
19 from 10:21 AM until 10:32 AM.)

20 Q Dr. Saber, welcome back.

21 A Okay.

22 Q Great. So we left off, I wanted to

1 direct you to your declaration, which I think
2 we have as Exhibit 2.

3 And specifically at Page 28.

4 A Yes.

5 Q On Page 28, you have a heading that
6 says, "Claim 6A recognizing in a decoder a
7 sequence parameter set."

8 Do you see that?

9 A Yes, I do.

10 Q Just below that heading is Paragraph 66.
11 I want to look at about six lines down, six
12 lines down, there's a sentence that says:

13 "The sequence parameter set includes
14 parameters that provide information about
15 properties and characteristics of a video
16 sequence such as," and then you continue on.

17 You see that sentence that you've got
18 there?

19 A I'm looking for it. Just give me one
20 moment.

21 Q Sure.

22 A I see it.

1 Q Okay. So is it your opinion that a set
2 that includes parameters that provide
3 information about properties and
4 characteristics of a video sequence satisfy
5 the sequence parameter set of the '818 Patent
6 claims?

7 A Are you asking about the particular
8 sentence or what are you asking? Are you
9 asking about what is a sequence parameter
10 set?

11 Q I'm asking if your opinion in terms of
12 what you were trying to say satisfied this
13 element 6A. So my question is: Is it your
14 opinion that the sentence you have here is
15 what you're using to satisfy the sequence
16 parameter set, right, so I'll state my
17 question: Is it your opinion that a set that
18 includes parameters that provide information
19 about properties and characteristics of a
20 video sequence is -- satisfies the sequence
21 parameter set of the '818 Patent?

22 A I'm not sure I'm clear on what you're

1 question is, but analysis that you see here
2 in Paragraph 66 to Paragraph 70 provides an
3 analysis and mapping for that particular
4 claim element 6A.

5 Q Right. So this sentence that we were
6 looking at here you started with "the
7 sequence parameter set."

8 Do you see that?

9 A Yes.

10 Q And you're talking about the sequence
11 parameter set that JVT-E022d7 is talking
12 about, right?

13 A There's a whole paragraph there, not
14 just once sentence. So this paragraph is
15 essentially providing an analysis for where
16 6A is found in JV -- in the D7.

17 Q Right. And you're saying that the
18 JVT-E022d7, the sequence parameter set
19 includes parameters that provide information
20 about properties and characteristics of the
21 video sequence. That's what you said here,
22 right?

1 A Yeah, you read that correctly.

2 Q And you're saying that satisfies the
3 sequence parameter set of the '818 Patent,
4 correct?

5 A Well, not just that one sentence, I
6 mean, it's -- I think you're taking one
7 sentence out of context and trying to fit it
8 to something that you're trying to fit.

9 There is -- you have a claim element there
10 6A. It states certain things and
11 Paragraph 66 through 70, which I'm happy to
12 go through, discuss where that claim element
13 is found in the prior art reference D7.

14 Q Right. You've got a lot of paragraphs
15 here, I get that, because there's a lot of
16 things in 6A, besides the sequence parameter
17 set, so I kind of want to focus you on the
18 sequence parameter set for my question.

19 And I want to know what you actually
20 think maps to that sequence parameter set.
21 Now, when I read your paragraph here, it
22 sounds to me like you're trying to map the

1 sequence parameter set of JVT-E022d7 to the
2 sequence parameter set of the '818 Patent; is
3 that not correct?

4 A Well, as I said, there is an entire
5 analysis here, you're just skipping all of
6 that and picking up one sentence. As I'm
7 reading that claim element 6A, I essentially
8 apply plain ordinary meaning to the claim
9 elements as it would be understood from the
10 eyes of a POSITA and this is consistent with
11 the specification of the 818. So I've read
12 the 61A, applied plain ordinary meaning from
13 the eye of a POSITA, which is consistent from
14 the '818 Patent and then I provide an
15 analysis in these paragraphs that show where
16 that claim element is found in the prior art.
17 Essentially in mapping.

18 Q Let me ask it simpler, Dr. Saber.

19 What is the plain and ordinary meaning
20 of sequence parameter set that you applied?

21 A So if you go to the '818 Patent, would
22 you provide me -- would you upload a copy of

1 the '818 Patent, please?

2 Q Yeah.

3 MR. TSUI: That would be Tab G and
4 let's make that Exhibit 3.

5 (Whereupon, United States Patent
6 No. 7,724,818 B2, Hannuksela, et
7 al. (Bates No. AMAZON 1001) was
8 marked as Exhibit 3 for
9 identification as of this date.)

10 A And I have a hard copy here that counsel
11 has provided.

12 Q You can use the hard copy if you'd like.

13 A The electronic ones are always a lot
14 easier, but sometimes it's nice to have both
15 because you can read something. I'm looking
16 for the chat box.

17 TECH PYBAS: Exhibit 3 is in the chat.

18 A Yes, I do see it.

19 Okay. So I do have the patent in front
20 of me.

21 Would you please -- let me close the
22 chat box. Would you please repeat your

1 question.

2 Q Sure. What is the plain and ordinary
3 meaning of the sequence parameter set that
4 you applied in your analysis?

5 A Okay. So as I said, I read the claim
6 element 6A, that we are discussing, I applied
7 plain and ordinary meaning in -- from the
8 eyes of a POSITA in light of the
9 specification.

10 Now, if you go to Column 4 in the
11 specification. Starting at say Line 3 to
12 Line 32, there is a description of parameters
13 and et cetera. We can walk-through some of
14 that if you like. So if you look at
15 Column 4, starting at Line 3 to 5, you see
16 it's talking about according to the invention
17 there exist two kind of parameter sets,
18 sequence and picture.

19 And then the next paragraph is just
20 talking a little bit of syntax, so the
21 paragraph that starts on Column 4, Line 15,
22 you see it says it's another inventive

1 concept of the present invention splits the
2 parameter set structure to multiple parameter
3 set structures according to persistency and
4 et cetera. And then, next sentence you see
5 it says, in particular the invention includes
6 the concept of sequence and picture parameter
7 set. Now it describes in the next few lines
8 from Line 19 to Line 32 what it means by the
9 sequence and the picture parameter set.

10 Q Okay. So Dr. Saber, what is the plain
11 meaning of the sequence parameter set that
12 you apply?

13 A Okay. So if you go down that paragraph,
14 I'm still looking at Column 4 starting now at
15 line, let's say 19. If you read through that
16 paragraph all the way to Line 32, give me a
17 moment on, read it.

18 So you see it's in this paragraph it's
19 talking about the parameter sets, both
20 sequence and picture. You see down towards
21 Line 27, you see where it says, such
22 parameters which are not allowed to change in

1 a coded video sequence are included in the
2 sequence parameter set. And above that if
3 you see on Column 4, Line 24. It says, if it
4 is probable that a parameter remains
5 unchanged in multiple pictures, but is
6 allowed to change in every picture, such
7 parameter is included in a picture parameter
8 set. So it's describing the type of
9 parameters that would go in a picture set and
10 the sequence parameter set. So that's the
11 plain and ordinary meaning that I've applied
12 in light of reading the specification.

13 Q So in your opinion the plain and
14 ordinary meaning of sequence parameter set,
15 would be a set that includes parameters,
16 which are not allowed to change in a coded
17 video sequence, correct?

18 A Yeah, as I said, I've applied plain and
19 ordinary meaning as my knowledge as an expert
20 in a POSITA in this field what would be a
21 sequence parameter set. In light of reading
22 the specification and the passages that I

1 just read for you.

2 Q Right. And in your opinion the plain
3 and ordinary meaning of the picture parameter
4 set is a set that includes a set that remains
5 unchanged in multiple pictures, but is
6 allowed to change in every picture, correct?

7 A Well, that's what basically informs as
8 you read the specification, you read the
9 claim element, plain and ordinary meaning in
10 light of the specification that's what the
11 specification is describing for a picture
12 parameter set.

13 Q Okay. And that sentence at Column 4,
14 Line 24 through 26, that's what you use the
15 plain and ordinary of picture parameter set,
16 correct?

17 A That informs -- I mean, obviously, I've
18 used my knowledge and experience in the
19 field, I'm looking at this from the eyes of a
20 POSITA and I'm reading in light of the
21 specification. So I'm using that in
22 informing and providing the plain and

1 ordinary meaning for a picture parameter set
2 and sequence parameter set.

3 Q Right. If you saw, here's a set that
4 includes parameters that remain unchanged
5 within a picture, would you say that's a
6 picture parameter set?

7 A I'm not sure what you're asking.

8 Q Well, I'm asking your opinion as an
9 expert who's provided opinions about picture
10 parameter set. If you saw a set that
11 includes the parameters that remained
12 unchanged within a picture, is that a picture
13 parameter set?

14 MR. CARTER: Object to form.

15 A I mean, if you read the specification as
16 I just read to you, you see that it is
17 probable that a parameter remains unchanged
18 in multiple pictures, but is allowed to
19 change in every picture, such parameters
20 included in a picture parameter set.

21 Q Dr. Saber, I'm trying to understand what
22 is your actual opinion of what a picture

1 parameter set of a '818 Patent needs to be,
2 such that when you looked at this prior art
3 you determined whether you had a picture
4 parameter set or not. Is that background
5 understood here?

6 A I understand your background, but I
7 think I already answered your question, maybe
8 I misunderstood something or not sure.

9 Q I'm not trying to play any tricks here,
10 I just don't think I fully understand, so if
11 you bear with me.

12 Dr. Saber, if you have a set of
13 parameters that includes the parameters that
14 remain unchanged in a picture, do you think
15 that's a picture parameter set of the '818
16 Patent claims?

17 And if you don't, then it's fine, just
18 say you don't think that is.

19 A I'm not sure I understand your question.

20 Q How about this, do you have your
21 declaration handy?

22 A Yes, I do.

1 Q Why don't you go Page 32 of your
2 declaration.

3 A Okay.

4 Q If can you look about half way through
5 that, kind of middle of the page,
6 Paragraph 71.

7 Do you see that?

8 A 71, yes.

9 Q And in the second line of Paragraph 71,
10 you have written there, you write, a picture
11 parameter set, which includes the parameters
12 that remain unchanged within a coded picture,
13 you see where you wrote that?

14 A Yes, sir, I see that.

15 Q And so what I want to know is if you
16 have a set that includes the parameters that
17 remain unchanged within a coded picture --
18 now let me pause here for a second. I know
19 that you have a lot of paragraphs in this
20 particular part of your report because
21 there's lots and lots of parts of this claim
22 on it. What I just want to ask you is, yes

1 or no, if you have a set, which includes the
2 parameters that remain unchanged within a
3 coded picture, like you have written right
4 here, is that a picture parameter set of the
5 '818 Patent?

6 A I'm not sure, I'm confused about what
7 are you asking. I mean I'm not sure what
8 you're asking.

9 Q Let me just repeat it.

10 A As I mention to you, I've looked at the
11 claim element, I've analyzed, I looked at
12 that from plain and ordinary meaning in light
13 of a POSITA -- and from the eyes of a POSITA
14 in light of the specification, and I pointed
15 you to the paragraph where it describes these
16 parameter sets and that's what I used to
17 inform my mapping.

18 Q Yeah, Dr. Saber, in this sentence in
19 your declaration we just looked at, you say,
20 JVT-E022d7 discloses the use of a picture
21 parameter set, which includes the parameters
22 that remain unchanged within a coded picture,

1 you wrote that, correct?

2 A Yes. You read the sentence correctly.

3 Q Right. What I want to know is, do you
4 think that sentence, all by itself, do you
5 think that sentence alone means that you have
6 a picture parameter set of the '818 Patent
7 claims, or no, that's not enough, which is
8 it?

9 A Well, I think you're just taking one
10 sentence out of --

11 Q I am. I'm taking one sentence and I
12 want to know your opinion.

13 A Well, as I said to you, my opinion is I
14 read the claim element from the eyes of a
15 POSITA in light of the specification and I
16 pointed you to the specification where they
17 described the picture parameter set and a
18 sequence parameter set and I performed my
19 analysis in mapping to the D7 document and
20 that's in this case contained in paragraphs,
21 so not just a single sentence in Paragraph 71
22 to 74.

1 Q I understand that, Dr. Saber. And
2 Dr. Saber, I hate to cut you off, but I don't
3 want to talk about other elements of this
4 claim that I don't care about. I care about
5 the picture parameter set. I know there's
6 lot and lots of other stuff about forming and
7 recognizing, yeah, I don't care about that
8 right now. What I care about is the picture
9 parameter set and I want to take your
10 sentence that you've got here where you say
11 here's JVT-E022d7 picture parameter set and I
12 want to know do you think that picture
13 parameter set is the picture parameter set of
14 the '818 Patent or no? Do I need more, that
15 sentence alone is not enough or is it enough,
16 that's what I want to know.

17 MR. CARTER: Object to form.

18 A Well, you need -- I mean, that whole
19 analysis, it's not -- if it was just one
20 sentence I would have just wrote one
21 sentence. You need the entire analysis to,
22 the analysis there provides the mapping and

1 the justification for the discussion. It's
2 not a single sentence.

3 Q So just to be clear, Dr. Saber, and I
4 totally get that, I just want to make sure I
5 got your opinion understood in my head.

6 That if I had a piece of paper and all
7 that piece of paper says was that one
8 sentence, this piece of paper says, picture
9 parameter set includes the parameters that
10 remain unchanged within a coded picture,
11 that's all I have on this piece of paper,
12 does that satisfy the picture parameter set
13 of the '818 Patent, yes or no?

14 MR. CARTER: Object to form.

15 A I think again you're taking a sentence
16 out of context.

17 Q I am, that's what I'm doing.

18 A I don't want to do that. That's why --

19 Q I want to know --

20 A -- I have an analysis not a single
21 sentence. Would you please let me finish?

22 Q Okay. How about this, I withdraw the

1 question. I want to ask a new question.

2 Dr. Saber, as an expert who's offering
3 opinions in this case about a picture
4 parameter set, are you able to look at a
5 definition and tell me whether that's a
6 picture parameter set or not?

7 MR. CARTER: Objection to form.

8 A As I mentioned to you earlier, I was
9 asked to perform an analysis on this patent
10 with regards to this particular prior art.
11 So I've read the claim, I've read the claim
12 elements. I applied plain and ordinary
13 meaning from the eyes of a POSITA in light of
14 the specification and I pointed you to the
15 section of the specification where I -- that
16 informs my opinion as an expert and a POSITA
17 in this field. And I performed my analysis.

18 I wasn't asked to look at where
19 parameters can be and where to put parameters
20 and where it can be placed. I wasn't asked
21 to perform that analysis. I was asked to
22 perform the mapping of the claim elements to

1 this particular prior art, that's what I've
2 done.

3 Q Okay. So, Dr. Saber, I'm going to ask
4 you right now, I'm just going to ask you.

5 I have a piece of paper that says,
6 "Picture parameter set includes the
7 parameters that remain unchanged within a
8 coded picture."

9 That's all I'm going to tell you, right
10 there. I want that one sentence on a piece
11 of paper, that's all you've got.

12 Are you capable of telling me whether
13 that satisfies a picture parameter set of the
14 '818 Patent or not?

15 MR. CARTER: Objection to form.

16 A I think you're taking that sentence out
17 of context. I think you're mischaracterizing
18 my testimony here, in my declaration. And
19 that's not an answer I can provide in a
20 deposition.

21 Q Okay.

22 A The analysis that you see here is very

1 clear of, you know, using the plain and
2 ordinary meaning, in the eyes of the POSITA,
3 in light of the specification I pointed you
4 to. And that's how I performed my mapping.

5 I wasn't asked to consider what
6 parameters go where, and which set, and all
7 of that type of stuff. That's something I
8 wasn't asked to do and I would be happy to do
9 that if I'm asked.

10 Q Okay. So, Dr. Saber, I'm asking you
11 right now, I'm asking you right now, if I
12 give you one sentence, "Picture parameter set
13 includes the parameters that remain unchanged
14 within a coded picture," is that the picture
15 parameter set of the '818 Patent, or can you
16 not sit here, and you can you not do that
17 analysis? What is your answer?

18 MR. CARTER: Object to form.

19 A Go ahead. Sorry about that.

20 So besides what I have just given you,
21 if you want me to opine on where parameter
22 sets can be, I can perform an analysis on

1 that.

2 Q I just asked you the question. I just
3 asked you right now.

4 A And it's not an analysis that I would
5 want to do here in a deposition. I would
6 need some time to perform that analysis
7 carefully.

8 In this particular deposition, and in
9 this declaration that you see in front of
10 you, I've informed you of how I performed the
11 analysis as I was asked to perform.

12 Q Okay. So let me just take that one step
13 at a time, just to make sure that I'm clear.

14 Sitting here today, you cannot tell me
15 whether the sentence alone, "Picture
16 parameter set which includes the parameters
17 that remain unchanged in a coded picture,"
18 just that sentence alone, you cannot tell me
19 sitting here right now, whether that is a
20 parameter set of the '818 Patent, correct?

21 MR. CARTER: Object to form.

22 A I think you're mischaracterizing my

1 testimony and mixing apples and oranges a
2 little bit.

3 Q I don't want to do that. That's why I'm
4 asking.

5 A Okay. So let me restate my testimony
6 clearly for you.

7 So I've looked at the claim element, I
8 have read that from plain and ordinary
9 meaning in light of the specification. And
10 you can see when you read that section in the
11 specification, where I pointed you to, where
12 it talks about if it is probable that if a
13 parameter remains unchanged in multiple
14 pictures, but is allowed to change in every
15 picture, such parameter is included in the
16 picture parameter set.

17 That's what the specification is
18 discussing. And the quotes that you see here
19 are taken from that section in a sense.

20 Q Okay.

21 A The picture parameter set includes
22 parameters that remain unchanged within a

1 coded picture. So you can see -- well, maybe
2 it's not an exact quote from that sentence.
3 But that's what informed, you know, my
4 looking at the specification, in light of the
5 specification I performed my analysis.

6 My analysis isn't just a single
7 sentence. It's a series of paragraphs that
8 you would have to follow, you would have to
9 walk-through for you to understand, you know,
10 have a complete understanding of the
11 analysis. Not just a single sentence taken
12 out of context.

13 Q Okay. So the sentence you just read me
14 from the patent, that one sentence you read
15 me from the patent, that says what a picture
16 parameter set -- that's informed your opinion
17 of what a picture parameter set is, correct?

18 A Yes. As I mentioned earlier, I've read
19 the claim element, I applied plain and
20 ordinary meaning as an expert and a POSITA in
21 this field, in light of the specification in
22 the intrinsic record to inform my opinion to

1 perform the analysis.

2 I wasn't asked to consider which
3 parameters go in which sets, and how
4 parameters can be moved from set to set or
5 any kind of this type of stuff.

6 Q I'm not asking you to do that either,
7 Dr. Saber. I just want to know what you
8 applied to claim an element was met or not.

9 So I'm just going use to this exact
10 sentence that you pointed to me in the '818
11 Patent.

12 If I have a set that has a parameter
13 that remains unchanged in multiple pictures
14 but is allowed to change in every picture, do
15 I have a picture parameter set?

16 A Well, if you read that sentence from the
17 specification correctly, let's just make sure
18 it's clear for the record.

19 The specification states if it is
20 probable that a parameter remains unchanged
21 in multiple pictures but is allowed to change
22 in every picture, such parameter is included

1 in a picture parameter set.

2 That's exactly what it says and that's
3 what informed my opinion.

4 Q Okay. So if I've done that exactly what
5 that sentence says, Column 4, Line 24, if I
6 do that, then I have a sequence parameter
7 set -- excuse me.

8 I have a picture parameter set if I
9 follow that sentence?

10 A Well, such parameter -- I mean, you
11 would have -- you know, depends on your
12 design, you may make some different changes.
13 According to the specification here, such
14 parameter is included in a picture parameter
15 set, because it's allowed to change from
16 picture to picture.

17 Q And if I've included those type of
18 parameters in a set, do I have a picture
19 parameter set?

20 A I think we're saying the same thing,
21 right?

22 Q So is that a yes?

1 A I mean, look at the sentence, what it
2 says in the specification. If it is probable
3 that a parameter remains unchanged in
4 multiple pictures but is allowed to change in
5 every picture. So it's probable that it
6 remains unchanged in multiple pictures, so
7 it's possible it's the same one for 50
8 pictures, but you allow it to change in every
9 picture, such parameter is included in a
10 picture parameter set.

11 That's what they're saying is
12 potentially included in a picture parameter
13 set.

14 Q Right. So if a set of parameters has
15 those parameters that remain unchanged in
16 multiple pictures but is allowed to change in
17 every picture, do have I picture parameter
18 set?

19 A Such parameter is included in a picture
20 parameter set.

21 Q Is that a yes or is that a no,
22 Dr. Saber?

1 A You would -- such parameter would be
2 included in a picture parameter set. You
3 would potentially include that parameter in a
4 picture parameter set.

5 Again, I wasn't asked to perform an
6 analysis of what the -- and what to remove on
7 a parameters set or sequence parameter sets
8 or picture parameter sets. I was asked to
9 read the claim element, apply, in this case,
10 I didn't apply a claim construction,
11 obviously, I applied plain and ordinary
12 meaning in light from the eyes of a POSITA in
13 light of the specification.

14 Q Dr. Saber --

15 A The sentence that informed my opinion
16 from the specification.

17 Q Dr. Saber, I need to be perfectly frank
18 with you. I don't know what you think a
19 picture parameter set is. So I'm trying to
20 figure that out.

21 And so what I want to know is, and you
22 had to go and actually try to decide, you

1 were asked, do you agree with me, you were
2 asked to decide whether the prior art shows a
3 picture parameter set, correct?

4 A I was asked to perform an analysis of
5 the claim elements that there are here in
6 this declaration with regards to -- and map
7 that add to the prior art.

8 Q And in order to do that, you had to know
9 what a picture parameter set is, don't you?

10 A Yes. As I said to you, I applied plain
11 and ordinary meaning to a -- excuse me for a
12 minute.

13 I've applied the plain and ordinary
14 meaning as an expert, and from the eyes of
15 the POSITA in light of the specification that
16 you read.

17 So if you look at the specification,
18 it's clearly stating if it is probable that
19 at parameter remains unchanged in multiple
20 pictures but is allowed to change in every
21 picture, such parameter is included in a
22 picture parameter set.

1 Q Right. I understand that's what
2 informed your opinion.

3 A Yes.

4 Q What I need to know is what your opinion
5 ultimately is, based on having been informed
6 of that.

7 Now your opinion could be, well, that's
8 the definition of a picture parameter set, or
9 your opinion could be, you have some
10 definition that you think informed you. And
11 I need to know what it is.

12 So what is your definition of a picture
13 parameter set?

14 A I just stated that to you from the
15 specification.

16 Q Okay.

17 A If you look at the specification, it's
18 stating, clearly, that parameters that remain
19 unchanged in multiple pictures but is allowed
20 to change in every picture, such parameter is
21 included in a picture parameter set.

22 Q Did you look in the prior art for those

1 exact words? Is that what you're looking for
2 when you looked at the prior art, I've got to
3 find this exact sentence otherwise -- is that
4 what you did?

5 MR. CARTER: Object to form.

6 A That's not what you typically do. I
7 mean, you read the --

8 Q I didn't think so either.

9 So I want to know what you actually did.

10 So when you were looking for a picture
11 parameter set, were you looking for a set
12 that has parameters that remain unchanged in
13 multiple pictures, or were you looking for
14 something else?

15 A Well, the first thing I do is read the
16 claim element, carefully. I apply plain and
17 ordinary meaning, in this case, from a
18 POSITA. I look at the specification,
19 intrinsic record to see what is it talking
20 about when it says a picture parameter set?
21 I informed you of that then.

22 And then when I go to the prior art, I

1 read the prior art carefully in detail and
2 look at then context, look at the mapping,
3 look at the details, and perform an analysis,
4 and then report on my analysis in the
5 paragraphs that you see here.

6 Q Right. You spent a lot of time doing
7 your analysis, Dr. Saber?

8 A Yes, sir.

9 Q You spent a lot of time reading the
10 patent, trying to understand the claims?

11 A Yes, sir. I read the patent in detail
12 and the prior art.

13 Q Okay. Is Column 4, Line 26, is that the
14 definition of a picture parameter set?

15 MR. CARTER: I'll object to form.

16 A That informs my opinion when I read the
17 claim element from looking at it from the
18 eyes of POSITA, and certainly an expert in
19 the field, and reading the intrinsic record,
20 the specification -- so I'm reading in light
21 of the specification, that informs my opinion
22 of what a picture parameter set, that the

1 author of this patent or inventors are
2 talking about.

3 Q Great. So what is the picture parameter
4 set?

5 A Well, as you can see from the
6 specification, it's discussing if it's
7 probable that a parameter remains unchanged
8 in multiple pictures but is allowed to change
9 in every picture, such parameter is included
10 in a picture parameter set.

11 So if the parameter is probable that it
12 remains unchanged in multiple pictures but
13 you allow it to change in every picture, such
14 parameter would be included in a picture
15 parameter set.

16 Q Right.

17 A So a picture parameter set --

18 Q You just told me that. Okay.

19 But every time I ask you about this you
20 keep telling me you didn't do any analysis of
21 what parameters go in and what parameters
22 don't go in.

1 My question isn't, can you read me that
2 sentence again.

3 My question is: What did you do with
4 that sentence? Is that the definition of a
5 picture parameter set?

6 A I used -- obviously, I've read the claim
7 from plain and ordinary meaning. I've looked
8 at the specification. I've read the
9 specification to inform my understanding.

10 And as you see clearly from the
11 specification there, it's basically telling
12 you that if a parameter is probable to remain
13 unchanged in multiple pictures but you allow
14 it to change from picture to picture, that
15 parameter would be included in a picture
16 parameter set.

17 So a picture parameter set would contain
18 parameters that are allowed to changed in
19 every picture, ideally speaking.

20 Q Dr. Saber, I want to start a sentence
21 and I want you to finish it for me.

22 Can you do that?

1 Let's try.

2 A picture parameter set of the '818
3 Patent is; can you complete that sentence for
4 me?

5 MR. CARTER: Objection to form.

6 A Is defined as, or is potentially the --
7 I mean, it's, basically, as I said to you
8 earlier, a parameter remains unchanged in
9 multiple pictures but is allowed to change in
10 every picture.

11 So it's unchanged in multiple pictures
12 but it potentially, probably, a parameter can
13 be unchanged in multiple pictures, but is
14 allowed to change in every picture. So
15 you're allowing the parameter the ability to
16 change in every picture, but you don't need
17 to change it in every picture, potentially.
18 Such parameter is included in a picture
19 parameter set.

20 So that parameter you would say, okay, I
21 want to put that in a picture parameter set
22 because I may want to change it from picture

1 to picture, if I wanted to, but it's probable
2 that it doesn't change.

3 So statement from the specification
4 provides a description of a picture parameter
5 set.

6 Q And that's what you applied for your
7 analysis?

8 A Well, as I said, I've applied plain and
9 ordinary meaning from the eyes of the POSITA
10 to the claim element in light of the
11 specification to inform my opinion in
12 performing my analysis.

13 Q I understand that. But did you use the
14 exact sentence on Column 4, Line 26, that you
15 just read to me?

16 A Well, I used the knowledge, obviously,
17 of that sentence. I used the -- I read the
18 specifications. So I used the description
19 that the authors have provided to inform my
20 opinion.

21 Q I mean, you read this one sentence to
22 me, like, 12 times, Dr. Saber.

1 Did you use that one definition or not?

2 A Yeah. I used -- as I said to you, I
3 applied plain and ordinary meaning from the
4 eyes of a POSITA in light of the
5 specification. And from the specification, I
6 used that section, Column 4, Lines 1 to, say,
7 32, to inform my opinion by looking at the
8 context of what a picture parameter set is
9 and what a sequence parameter set is, as
10 described by the authors.

11 Q Dr. Saber, I'm not trying to trick you.
12 I'm honestly just trying to understand. I've
13 read your report, I've read the patent. I
14 know what it says. And so, I just kind of
15 want to know what your actual opinions are
16 beyond what you've already just written down
17 on a piece of paper. Okay. That's the
18 background why I'm asking these questions.

19 I know what you said, but I don't want
20 you to think I'm trying to get you to change
21 an opinion. I just want to know what your
22 actual opinions are.

1 A Go ahead.

2 Q Let's go to another exhibit here.

3 Can we bring up Tab D.

4 And I'll tell you, Dr. Saber, this is
5 going to be the Au Patent, which is in the
6 IPR, it's 1008, but she'll load it up on the
7 chat.

8 (Whereupon, United States Patent
9 No. 6,646,578 B1, Au, November
10 11, 2023 (Bates No. AMAZON 1008)
11 was marked as Exhibit 4 for
12 identification as of this date.)

13 A Yeah. Would you please.

14 Would you be okay with a five-minute
15 break before we start this module?

16 MR. TSUI: Yeah. That's fine.

17 THE WITNESS: Let's do a five minute
18 real quick.

19 MR. TSUI: Would you let us know when
20 we're off the record please.

21 COURT REPORTER: Off the record.

22 (Whereupon, a recess was taken

1 from 11:12 AM until 11:18 AM.)

2 Q Now, I want to introduce as the next
3 exhibit, we're up to 4, and this is the Au
4 reference, US Patent 6,646,578.

5 Do you recognize this document,
6 Dr. Saber?

7 A Yes, I do.

8 Q This is one of the documents you
9 discussed in your declaration, correct?

10 A Yes. That's correct.

11 Q Now, I'd like to go to Column 8.
12 And in particular, Line 9.

13 A Column 8, Line 9?

14 Q Yes. Let me know when you're generally
15 there. I'll read out to you specifically
16 what I want to ask about.

17 A Yes.

18 Q So Column 8, Line 9, there's a sentence
19 there that says:

20 "A concept known as parameter
21 sets allows efficient transmission of
22 infrequently changing data at the

1 sequence and picture level in the H.264
2 Standard."

3 Do you see that sentence,
4 Dr. Saber?

5 A Yes. I do see that.

6 Q Okay. And, then, Au goes in the next
7 sentence to describe, the sequence parameter
8 set, and then a picture parameter set, as it
9 goes further down.

10 Do you see all of that?

11 A Yes. I do see that.

12 Q Do you recall this is the section that
13 you cite in your declaration, right?

14 A Which part of my declaration are you
15 referring to? Let's just be specific and
16 accurate.

17 Q Well, in your declaration you rely on
18 this Au patent, correct?

19 A Yes. I do.

20 Q Got it. And you rely on this section,
21 Column 8 of the Au patent, as well as
22 Figure 2 is what it's talking about, and

1 that's what you rely on in Au, correct?

2 A Could you point me to where in the
3 declaration are you referring to, just so
4 we're on the same page?

5 Q Yeah. You can go to Page 52.

6 A Okay.

7 Q There's a Paragraph 119, and there's a
8 big old figure on Page 56, and this is
9 Column A, Figure 2, that we're talking about
10 right now.

11 A Yes.

12 Q All right. So then looking at Au,
13 Column 8, Figure 2, that's what you are
14 citing in your declaration, correct?

15 A Yes. Au is discussed in my declaration
16 and Column 8 is cited, correct.

17 Q So these parts of Au that you're relying
18 on that we've got on the screen here we're
19 just looking at, that's discussing the H.264
20 Standard, right?

21 A That sentence that you read, starting on
22 Column 8, Lines 9 through 11 does refer to

1 the H.264, that is correct.

2 Q Right. So is it your understanding that
3 this description that Au is giving about
4 sequence parameter sets, picture parameter
5 sets, that's talking about the H.264 Standard
6 as of this time when Au was writing this; is
7 that right?

8 A Yeah. It's talking about the concept
9 known as parameter sets, allows efficient
10 transmission of infrequently changing data at
11 the sequence and picture level in the H.264
12 standard, yes.

13 Q So would you agree that this part of Au
14 that you relied on here reflects the
15 proposals that were adopted for incorporation
16 into the H.264 Standard at this time in
17 November of 2002, when Au was written?

18 A I'm not sure I understood your question.
19 Would you please repeat it.

20 Q Sure. Would you agree that Au reflects
21 the proposals that were adopted for
22 incorporation into the H.264 Standard at the

1 time that Au was written?

2 MR. CARTER: Object to form.

3 A Well, Au obviously is referring -- as I
4 told you earlier, is referring to the H.264
5 Standard and the concept known as parameter
6 sets. So this is just one sentence. And
7 he's acknowledging that the concept known as
8 parameter sets that's discussed in the H.264
9 Standard, obviously the devil is always in
10 the details, but, yes, he's referring to
11 H.264 Standard.

12 Q Right. You've read this whole column
13 and this whole patent, right?

14 A Yes. I have.

15 Q So the Figure 2 that you rely on in this
16 whole column, more than that sentence, the
17 description of sequence parameter set,
18 picture parameter set, all that. That is the
19 H.264 Standard that Au was describing, right?

20 A Well, as I said, Au is referring,
21 obviously, to the H.264, as we have just
22 discussed, by my analysis of the claim

1 elements is done in these pages that you see
2 starting at Page 55. So it's not just a
3 single sentence overview, there is an
4 analysis there with details of where specific
5 claim elements are found in Au, or are
6 disclosed in Au.

7 Q Right. But those disclosures in Au are
8 talking about the H.264 Standard, right?

9 A Well, I mean, you would have to be
10 specific in what disclosure are you referring
11 to, to be able to answer that question. But
12 he is talking about the H.264 Standard,
13 obviously, as in his patent, and in my
14 analysis I show, but I would need to know
15 specifically which part of my declaration are
16 you referring to, which sentence are you
17 talking about, so we can be specific to
18 answer that.

19 Q Well, I'm really asking about Au. I
20 assume there's nothing in your declaration
21 with respect to Au that isn't actually in the
22 Au reference. Am I correct about that?

1 A My declaration refers to Au, performs an
2 analysis of mapping the claim elements that
3 we are discussing here, to where they're
4 found in the prior art reference Au.

5 That's the analysis that I was asked to
6 perform, and that's what's documented in my
7 declaration.

8 Q Okay. And is it your understanding that
9 Figure 2 of Au is talking about the H.264
10 Standard?

11 A Well, let's just be careful and
12 specific. Figure 2, as described in Au, is
13 basically, the caption of Figure 2 is a bit
14 stream of the system of Figure 1 that is in
15 Au. And there is a description of Figure 2
16 starting on, obviously, Column 8, what we've
17 been discussing.

18 So, yes, it's referring -- so, I mean,
19 he has a whole discussion on Figure 2, and
20 with regards to what Au is proposing, but it
21 is referring to the standard, yes.

22 Q Okay. Now looking at that sentence,

1 again on Column 8, Line 9, where Au says:

2 "A concept known as parameter
3 sets allows efficient transmission of
4 infrequently changing data of the
5 sequence and picture level on the H.264
6 Standard."

7 Do you agree with Au, that the sequence
8 parameter set and picture parameter set of
9 the H.264 Standard allows efficient
10 transmission of infrequently changing data?

11 A Again, the devil is always in the
12 details. This appears reasonable, but we
13 would have to be specific and accurate if we
14 look at each item and detail. But, generally
15 speaking, this appears reasonable.

16 Q Okay. Now, if we look at your
17 declaration, so back to Exhibit 2. If you go
18 to Page 63. I know I'm bouncing around, so
19 just let me know when you get there.

20 A That's okay.

21 Yes, sir.

22 Q So you have a Paragraph 136.

1 Do you see that?

2 A Yes, I do.

3 Q And in the third line, you have a
4 sentence:

5 "In my opinion, Au discloses using a
6 frame number."

7 Do you see that?

8 A Yes. I see that sentence.

9 Q Now, you've read the Au reference very
10 carefully, right?

11 A Yes. I have.

12 Q So you know that Au never has any
13 explanation or description of what the frame
14 number is, right?

15 MR. CARTER: I'll object to form.

16 A I don't know what you mean by that. I
17 don't know what you mean by what you just
18 said.

19 Is there a specific place in Au that
20 you're referring to?

21 Q Yeah. I've read Au. And Au never tells
22 you what the frame number is or what it

1 means. He says it. Certainly. He says
2 frame number, he puts it in Figure 2. But I
3 don't see anywhere in Au where he ever tells
4 you what that is.

5 And I want to know, if you agree with
6 me, that nowhere in Au does he ever tell me
7 what the frame number is.

8 A Well, I would have look at Au carefully.
9 Just give me a few moments.

10 Well, obviously Au discusses including
11 frame dimension in that column that we're
12 talking about. He does discuss maximum
13 number of reference frames. So he is aware,
14 obviously, frame numbers.

15 Q Right. But does he ever tell us what a
16 frame number is, what he thinks it means?

17 Feel free to control up, that's what I
18 did and I didn't find anything.

19 A Well, I mean, what is your question?

20 Obviously frame number is frame number.
21 So it's not like it's a gigantic mystery.

22 Q Well, how do you know what Au means by

1 it? He doesn't tell you anything about it.

2 A Well, it would be obvious, I mean, the
3 POSITA what the frame number is.

4 Q What do you think the context comes
5 from? You say it's obvious, but in relation
6 to what?

7 A It's frame number. So if you look at my
8 analysis on Paragraph 136, you see it says,
9 "In my opinion, Au discloses using a frame
10 number and decoding video sequences because a
11 frame number value is a unique identifier for
12 each picture."

13 So it just indicates, it's a frame
14 number for each picture. I mean, it's
15 obvious.

16 Q So if -- you're a person of ordinary
17 skill, you see frame number written on a
18 blank piece of paper, that immediately means
19 to you, what you said here, a unique
20 identifier for a picture, that's the only
21 thing it could ever mean?

22 MR. CARTER: Object to form.

1 A Well, obviously, you're taking things,
2 as often sometimes in these type of
3 proceedings, you're taking things a little
4 bit out of context. And you have to read the
5 technical details in context of what's being
6 described.

7 So when you say frame number in the
8 context of video compression, in a sense, or
9 in the context of what's being described
10 here, I think it's obvious what it means.

11 Q But just to be clear, there's nowhere in
12 the Au reference that ever tells me what he
13 thinks the frame number means, correct?

14 A I mean, I would have to the search the
15 Au reference word for word to tell you that,
16 whether there's an exact definition what a
17 frame number means, but I think it's obvious
18 to a POSITA what that means.

19 Q Okay. But, sitting here today, you
20 can't tell me that the Au reference tells us,
21 describes what he means by a frame number,
22 right?

1 MR. CARTER: Object to form.

2 Be sure give me time to object before
3 you answer, please.

4 A Would you ask your question again,
5 please.

6 Q Yes. Sitting here today, am I right
7 that you can't tell me that the Au reference
8 describes what he means by frame number?

9 MR. CARTER: Object to form.

10 A I think it's obvious -- it's obvious, by
11 when you read the Au reference from the
12 context of the Au reference, it's obvious
13 what a frame number means.

14 Q So you're getting close to my question.
15 I understand you think it's obvious.
16 What I want to know is, does he ever actually
17 say what it means?

18 A Off the top of my head, I don't recall
19 there's an exact passage that says, this is
20 my definition of a frame number, but it's
21 quite obvious to a POSITA what that means.
22 And it's understood by anybody that's

1 practicing in this field, and that have, you
2 know, looked at the prior standards and so
3 on, would know exactly what a frame number
4 means.

5 Q And by standards, you mean the video
6 coding standards, like H.264?

7 A Yes. Or just even any kind of video
8 technology or algorithms, you know, where
9 frames are numbered. I think a POSITA
10 practicing in this field would know what a
11 frame number is.

12 Q And, sitting here today, is it your --
13 to the best of your recollection, does Au
14 ever say the frame number stays the same in
15 all the slices of a picture?

16 A Well, if you look at my Paragraph 136
17 for the analysis of this particular claim
18 element, let's just walk through that
19 paragraph, because I think it's important for
20 the context. So you see it says there:

21 "In my opinion, Au discloses or
22 suggests 6D. Au discloses the

1 information in the slice headers.

2 Quote, pertains to the decoding of the
3 slice data that follow the slice
4 header."

5 And I have a citation there from that
6 same column we've been talking about, just
7 slightly down, further down from there, 40 to
8 43.

9 And if you look at that section, you see
10 it says, the slice header 27 contains a coded
11 representation of slice elements 35 that
12 pertain to the decoding of the sliced data
13 that follow the slice header. So in my
14 opinion, Au discloses using a frame number in
15 the coding video sequences because obviously
16 a frame number values the unique identifier
17 for each picture. You have to have a frame
18 number as a unique identifier for each of the
19 pictures that we're talking about here.

20 The decoder would use a frame in the
21 slice header to know which frame the slice
22 belongs to and is currently being decoded in

1 the picture buffer. As you can appreciate,
2 the decoder is taking information from the
3 picture buffer, it's got a slice and as
4 decoding that slice it's got to know which
5 frame that slice goes into. You don't just
6 decode it in hyper sphere, it's got to know
7 where that slice data has got to go. So it
8 has to know the frame number to put the
9 decoded slice data into. So it would use a
10 frame in the slice header to know which frame
11 the slice belongs to. I mean, that's just --
12 that would be obvious to a POSITA.

13 Q Right. That what's I want to be clear
14 on. All of that discussion that you just
15 said, you're saying that's obvious; right?

16 A Well, a decoder would need to use the
17 frame in the slice header to know which frame
18 the slice belongs to that it's decoding right
19 now from the picture buffer. So when it
20 picks up the slice from the picture buffer
21 it's got the slice header and it's got all of
22 the pixel data in that particular slice, you

1 know series of macroblocks. As it's decoding
2 that it's got to place it in somewhere in a
3 frame so that it has to know that this
4 belongs to frame 110.

5 Q I understand that.

6 A Needs to know that.

7 Q I understand that's your opinion. My
8 question is can you point to anywhere in Au
9 that says any of that?

10 MR. CARTER: I'll object to form.

11 A Well, I didn't provide any citation in
12 Paragraph 136. I would have to go through Au,
13 but it is basic and very obvious that you
14 would need the frame number to decode the
15 slice and know where to put the slice
16 information.

17 Q And here's what I'm trying to
18 understand. I just want to be very clear,
19 what's written in Au versus what you say is
20 obvious, and it's fine, you're allowed to say
21 things are obvious, I'm not trying to say you
22 can't do that, I just want to know the

1 delineation between if you're telling me Au
2 says this versus you're telling me a person
3 of ordinary skill knows this.

4 Do you see the distinction I'm trying to
5 get here?

6 A Yes.

7 Q So Dr. Saber, would you agree with me
8 that Au does not tell me how to use any sort
9 of frame number?

10 MR. CARTER: Object to form.?

11 A Okay. Let's go to Au Figure 2, do you
12 have that in front you?

13 Q I do, yes.

14 A So if you look at Figure 2 in Au, do you
15 see item label 21?

16 Q I do.

17 A Do you see it says there, "slice
18 header." Do you see that?

19 Q Yes.

20 A Do you see the first parameter says,
21 "pick parameter set ID."

22 Do you see that? That's obviously

1 referring to the picture parameter set.

2 Q Yep.

3 A Do you see the next element there says,
4 "frame number."

5 Do you see that?

6 Q I do.

7 A And you see that's disclosed in a slice
8 header.

9 Do you see that?

10 Q I do.

11 A So I think that addresses your question,
12 if I understood it correctly, if I'm not
13 mistaken.

14 Q Now, is it your opinion that the
15 sequence parameter set, picture parameter set
16 and slice header of the H.264 standard, which
17 Au established is talking about, are the
18 sequence parameter set, picture parameter set
19 and slice header of the '818 Patent claims?

20 MR. CARTER: I'll object to that one
21 as outside the scope.

22 A I don't understand your question.

1 Q You mapped out to the '818 Patent, did
2 you not?

3 A So I think we're going back to the same
4 place we started earlier. So again, as I
5 said to you earlier, I read the '818 Patent,
6 I was asked to provide an analysis of the
7 claim elements of '818 with regards to the
8 prior art, D7 was one, Au was another. I
9 read those, I applied plain and ordinary
10 meaning from the eyes of POSITA in light of
11 the specification that we discussed earlier,
12 and I perform that mapping to Au that you see
13 starting at Page 55.

14 Q Okay. Does Figure 2 --

15 A That's what I've done and that's what I
16 was asked to do.

17 Q Simple question, this should be easy for
18 you.

19 Is the sequence parameter set that's
20 described in Au, do you think that's the
21 sequence parameter set of '818 Patent?

22 A So if you look at Page 48 of my

1 declaration.

2 Q Yep.

3 A I'm sorry, Page 58 of my declaration, I
4 think I said 48. Page 58 of my declaration.

5 Q Um-hmm.

6 A There at the bottom right above
7 Paragraph 166 you see claim element 6A, which
8 talked about the sequence parameter set and
9 starting at Paragraph 126 to 128 is where
10 that claim element is found in Au or my
11 mapping and analysis of that claim element
12 with regards to Au.

13 Q Right. So the sequence parameter set
14 that's in Figure 2 of Au, do you think that's
15 the sequence parameter set of the '818
16 Patent?

17 A Well, if you look at my analysis.
18 Looking at Paragraph 126, I'm right
19 there at the very bottom line, you see where
20 it says Au discloses a sequence parameter
21 set, quote-unquote, that includes values of
22 parameters will remain unchanged for an

1 entire video sequence or from one
2 instantaneous decoder refresh IDR picture to
3 the next. And there is a citation there from
4 Au to Column 8, Lines 11 through 15. So
5 essentially, that's where I'm performing the
6 mapping. You see if you go to Column 8 in
7 Au, Lines 11 through 15 where you've taken me
8 earlier, you see it says a sequence parameter
9 set 29 and it's referring to Figure 2 now.
10 Yes, Figure 2, element 29 is shown in
11 Figure 2. In the first level 17, which is a
12 top level of that figure includes values of
13 parameters that will remain unchanged for an
14 entire video sequence or from one IDR to the
15 next.

16 So -- and Au discloses examples of
17 parameters in the sequence parameter set as
18 you can see from the figure et cetera.

19 Q So I think you've lead yourself to the
20 answer to my question, but I'll ask it, so
21 the sequence parameter set of Au in Figure 2,
22 is that the sequence parameter set of the

1 '818 Patent claims?

2 A Well, I think I answered that question.
3 The sequence parameter set that's described
4 in the claim based on all of the discussion
5 we've had earlier, I've mapped that to you
6 through Au where I just given you the
7 paragraphs -- the sentences and the citations
8 where Au describes that. So Au discloses a
9 sequence parameter set that is in line with
10 6A, as described in 6A plain and ordinary
11 meaning of what a sequence parameter set is.

12 Q Would that be the same with the picture
13 parameter set?

14 A So on Page 60 of my declaration you can
15 see starting on the top there's element 6D,
16 which talks about the picture parameter set,
17 and the analysis starting on Paragraph 129 to
18 Paragraph 131 describes where that is found,
19 where has Au disclosed the picture parameter
20 set in line with the plain and ordinary
21 meaning of that claim element.

22 Q So Dr. Saber, it's a pretty simple

1 yes-or-no question here.

2 Do you think the picture parameter set
3 of Figure 2 in Au is the picture parameter
4 set of the '818 Patent?

5 A So the picture parameter set that's
6 described in claim elements 6B is disclosed
7 in Au, as you can see on the top of
8 Paragraph 129. So you see I said, I state
9 there Au discloses a picture parameter set
10 quote-unquote that includes values of
11 parameters that will remain unchanged within
12 a coded representation of a picture, frame or
13 field 22. Now I'm referring to
14 Column 8:20-22 where we've been talking about
15 obviously so far. So if you go to that
16 citation you see it says a picture parameter
17 set 31 and it's talking about Figure 2, now.
18 So if you go to 31 -- if you go to Figure 2,
19 right in the middle there you see the number
20 31 referring to picture parameter set one.
21 In the second level, 21, which is the
22 second -- I think that's a typo that should

1 be 19. So it should be 19 not 21. Include
2 values of parameters that will remain
3 unchanged within a coded representation of a
4 picture and it's referring to 22 so.

5 Au discloses basically a picture
6 parameter set based on the plain and ordinary
7 meaning of the claim element from '818 Patent
8 that we've discussed earlier.

9 Q All right. I have -- you can put Au
10 away and I have a couple of more questions,
11 we'll see how far we can get before lunch,
12 but I think we'll be in a pretty good spot,
13 but let me know whenever it is you want to
14 break for lunch.

15 Dr. Saber, switching gears just a little
16 bit. Video coding standards prior to H.264
17 did not have parameter sets, correct?

18 A Hang on, you cut out for the first part
19 of your sentence, I'm sorry.

20 Q No problem. Video coding standards,
21 prior to H264, did not have parameter sets,
22 correct?

1 A That is correct. It essentially had
2 headers and subheaders or whatever.

3 Q Right. And those headers like sequence
4 headers, picture headers, they had to appear
5 in predefined locations in the bit stream,
6 right?

7 A Yes. They had to appear in the bit
8 stream for the decoder to do its work. Yes.

9 Q I can be more specific, like, the
10 sequence header had to come before the
11 sequence data, picture header came before the
12 picture data, that sort of thing; is that
13 right?

14 A That's correct.

15 Q The use of headers and video coding
16 standards goes back at least to the 90s,
17 maybe even 80s; is that right?

18 A Probably the 80s with JPEG and so on,
19 yes.

20 Q And I think you may have said, but these
21 headers were transmitted in band with the
22 rest of the video data; is that correct?

1 A That is correct, yes.

2 Q But then in around the 2001 time frame,
3 VCEG-N52 introduces a parameter set concept,
4 correct?

5 A Would you please put up VCEG-N52 in the
6 chat box?

7 Q Yeah, happy to do that. I think that
8 would be Tab E, please.

9 A Are we putting Au away and '818 away?

10 Q Yeah, you can put that away.

11 TECH PYBAS: E as in Edward. Or B?

12 MR. TSUI: E as in Edward. Is that
13 probably Exhibit 5.

14 MR. CARTER: Yes, sir.

15 (Whereupon, Study Group 16,
16 Video Coding Experts Group
17 (VCEG) Fourteenth Meeting: Santa
18 Barbara, CA (Bates No. AMAZON
19 1012) was marked as Exhibit 5
20 for identification as of this
21 date.)

22 THE WITNESS: Do you think it would be

1 okay to take a quick five-minute break
2 while we're doing this?

3 MR. TSUI: What I was going to
4 suggest, actually was, since we're so
5 close to noon, do you want to just
6 take our lunch break.

7 THE WITNESS: I'm okay, I mean if you
8 have a lot of questions going on, I'm
9 happy to take a lunch break, if you
10 think you have a few questions and we
11 will be done quickly may be we can
12 skip through it. It's up to you.

13 MR. TSUI: We're not going to finish
14 our depo before lunch. If that's what
15 you're asking.

16 THE WITNESS: Okay. So if it's okay
17 with you, perhaps a half hour lunch
18 break. Is that good?

19 MR. TSUI: Let's go ahead and go off
20 the record.

21 (Whereupon, a recess was taken
22 from 11:54 AM until 12:31 PM.)

1 COURT REPORTER: Back on the record.

2 BY MR. TSUI:

3 Q Welcome back, Dr. Saber.

4 A Thank you very much.

5 Q Before we took our break we were looking
6 at the Exhibit 5, VCEG-N52?

7 A Would you please upload that to the chat
8 box.

9 Q It's up on my end, do you have this,
10 Dr. Saber?

11 A Yes. I have it in front of me.

12 Q So my question is just more general, but
13 in the time of around 2001 with VCEG-N52, the
14 VCEG-N52 document introduces the parameter
15 set concept, right?

16 A You cut out on the first part of your
17 question, would you please repeat that.

18 Q In 2001, VCEG-N52 introduces the
19 parameter set concept, right?

20 A Yes. Generally speaking, that's
21 correct.

22 Q Would you agree that headers and

1 parameter sets are different concepts?

2 A As discussed -- I'll refer to it as N52,
3 if that's okay?

4 Q Sure.

5 A As discussed in this N52, obviously they
6 introduced the parameter sets concept to be
7 able to put them separately from the headers.

8 Q Right. So you would agree that headers
9 and parameter sets are different concepts,
10 right?

11 A Parameters, obviously, can be conveyed
12 in the headers, but the general idea here is
13 you have a parameter set that could be
14 separate from the header.

15 Q I know you weren't there for
16 Dr. Storer's testimony, but I will represent
17 to you that Dr. Storer testified that headers
18 and parameter sets are different
19 architectures and serve different functions.
20 Is that a statement that you would agree
21 with?

22 MR. CARTER: I'll object to form and

1 lacks foundation, but go ahead.

2 A Well, the devil is always in the
3 details, but you know, headers as, let's say
4 what was found as MPEG-1 and parameter sets
5 as described in H.264 are obviously different
6 ways of conveying parameters.

7 Q Parameter sets in VCEG-N52 -- sorry. I
8 think you said H.264, which is fine, but I
9 want to ask you about the VCEG-N52 or N52.

10 Headers in standards like MPEG-1, that's
11 different than parameter sets in N52; is that
12 correct?

13 A Yes. The headers in the MPEG-1 conveyed
14 parameters in the headers inline with the --
15 obviously, the pixel data versus parameter
16 sets in N52 was proposing to have a set that
17 is separate potentially from the header.

18 Q Right.

19 So the N52 parameter sets do not have to
20 appear in specific locations in the bit
21 stream, correct?

22 A If you mean in the header of the bit

1 stream -- I guess -- I'm not sure what you're
2 asking. But parameter sets, I'm assuming
3 you're referring to -- let me scroll down
4 here a bit.

5 Q Yeah, I mean, let me give you the
6 background, right. Like, we talked earlier
7 that headers were in the bit stream.

8 Do you recall that?

9 A Yes, I do.

10 Q And so sequence headers come before
11 sequence data. There's kind of a very
12 particular order that these things follow.

13 Do you recall that?

14 A Yes, I do.

15 Q Okay. Now, with parameter sets in N52,
16 you don't have to do that anymore, do you?

17 A Well, I don't know what you mean by
18 "that," but parameter sets in N52 provides a
19 way, basically, to package the parameters in
20 a set that you could convey in or out of
21 bands, so to speak.

22 Q Right.

1 Well, in particular -- sorry. Go ahead.

2 A You still have to convey the parameters
3 to the decoder. You can just convey them as
4 a parameter set instead of placing them
5 directly in the headers.

6 Q Right.

7 The whole point of the parameter set in
8 N52 is that it is not a part of the bit
9 stream like a header is, correct?

10 A Yeah, it's not like a header is, but it
11 still has to be conveyed in the stream of
12 information unless it's a default set that
13 you can just say use the set. But it still
14 has to be conveyed to the decoder. It's not
15 conveyed in the header, you know, where you
16 place the parameters inside the header ahead
17 of the data.

18 Q Right, and in fact it's not conveyed or
19 transmitted within the video data bit stream
20 at all, is it?

21 A Well, it would need to be conveyed ahead
22 of your bit stream so you can decode the

1 video.

2 Q Right.

3 A You would still need to convey it. I
4 mean, like, you see their first set that's on
5 Page 8, for instance.

6 Q That's right.

7 A Yeah, you see -- in this framework you
8 see that first sentence says, "All
9 information that was traditionally conveyed
10 in sequences, group of picture or picture
11 headers, is conveyed out-of-band." You know,
12 that's what they're kind of proposing.
13 But...

14 So instead of having a header that has
15 the parameters and a header followed by the
16 data, you would convey a parameter set
17 in-band or out-of-band.

18 Q Well, that's not what VCEG-N52 says,
19 does it? It says out-of-band, doesn't it?

20 A Well, that particular sentence says
21 "out-of-band." But...

22 Q That's right.

1 A I mean, you could convey it in-band.

2 It's -- you know.

3 Q Well, I'm not asking you about what you
4 could and couldn't do. I'm asking you what
5 N52 tells you to do.

6 N52 says parameter sets are conveyed
7 out-of-band, correct?

8 A That sentence says that exactly, yes.

9 Q Is there anywhere in N52 that you're
10 aware of that says parameter sets ought to be
11 transmitted in-band?

12 A Generally speaking, it is trying to
13 basically address -- you know, yes. It's
14 trying to convey parameters out-of-band.

15 Q And just to be clear, Dr. Saber, would
16 you agree with me that the parameter sets in
17 VCEG-N52 are transmitted separate from the
18 encoded picture data?

19 A That's the general idea, yes. I mean,
20 the devil's always in the details, but that's
21 the general idea.

22 Q And what VCEG-N52 does is eliminate the

1 sequence header, GOP header and picture
2 header and replaces them with this
3 single-parameter set, right?

4 A That's the general idea, yes.

5 Q Okay. Now, before H.264, there was no
6 video-coding standard that had a sequence
7 parameter set separate from a picture
8 parameter set, right?

9 A Not that I can recall off the top of my
10 head.

11 Q Now, VCEG-N52, the exhibit we're looking
12 at, for public availability of this document,
13 you rely on the opinions of Munford and
14 Reader; is that correct?

15 A So if you go to my declaration in
16 Paragraph 175, I state how I -- what I rely
17 on, in that paragraph.

18 Q So for public availability of VCEG-N52,
19 you rely on Munford and Reader, correct?

20 A Yes. That's what I state in
21 Paragraph 175, you see on the second
22 sentence, "N52 was publicly available before

1 the earliest priority date on the face of the
2 '818 Patent," and I reference Munford and
3 Reader.

4 Q Right, and what I'm getting at is you
5 didn't do any of your own independent
6 research to confirm whether N52 was publicly
7 available as of any particular date, right?
8 You relied on Munford and Reader, correct?

9 A That is correct. I was not asked to
10 perform any independent studies.

11 Q Okay. Now, if you still have your
12 VCEG-N52 open to Page 8. I want to look at
13 that section that you were just at, the
14 parameter section.

15 A Yes. The famous Page 8.

16 Q Yes. The famous Page 8, correct.

17 Now, if you look at the last paragraph
18 of the parameter sets section, there is --
19 the last two sentences there, they say,
20 "Within this framework, however, each
21 parameter set, as referenced by the slice
22 header, uses one location which contains

1 information of all four syntax levels."

2 Do you see that sentence?

3 A Yes.

4 Q Okay. And the next sentence says, "In
5 other words, all storage spaces for parameter
6 sets contain information of all the sequence,
7 GOP, picture and the slice layers."

8 Do you see that?

9 A Yes. I see that. You read that
10 sentence correctly.

11 Q Okay. So would you agree with me that
12 the idea behind VCEG-N52 is to put parameters
13 from all four syntax levels, sequence, group
14 of pictures, pictures, slice, and consolidate
15 them into a single parameter set?

16 A Would you ask your question one more
17 time, please?

18 Q Right, so based on reading those last
19 two sentences of VCEG-N52 that we just read
20 together, would you agree with me that the
21 idea behind VCEG-N52 is to put parameters
22 from all four syntax levels, sequence, group

1 of pictures, pictures and slice, and
2 consolidate them into a single parameter set?

3 A That's generally the idea, yes.

4 Q Okay. So at this time in 2001,
5 video-coding experts move away from headers
6 and are now using parameter sets introduced
7 in N52, correct?

8 MR. CARTER: Object to form.

9 A Well, that was a proposal to the 14th
10 meeting in Santa Barbara, California in --
11 that was generated, you know, 18 September,
12 2001. So this was the -- this is a proposal
13 by Wenger and Stockhammer at the time.

14 Q Right.

15 Now, I'll represent to you that your
16 counterpart at the ITC, Dr. Storer, he
17 testified that the JVT moved away from using
18 headers to using parameter sets starting with
19 VCEG-N52.

20 Do you have any reason to disagree with
21 Dr. Storer?

22 MR. CARTER: I'll object to form. It

1 lacks foundation.

2 A I didn't hear Dr. Storer's testimony
3 exactly, so I don't know if you're providing
4 me with the exact testimony or you're
5 paraphrasing the testimony. I didn't hear it
6 exactly, but that's the general idea is to
7 move from headers to parameter sets.

8 Q Okay. And now, the problem with a
9 single parameter set in N52 is that if you
10 wanted to change even one parameter, you
11 would have to transmit all the parameters
12 again because they're together in one
13 parameter set.

14 Do you agree with that?

15 A If you put everything in a single
16 parameter set and you change one parameter,
17 you would either have to retransmit that --
18 yes. You would have to retransmit that
19 parameter set.

20 Q Right, and in fact --

21 A You got to remember, the parameter set
22 is a small part of -- overall of the video so

1 it -- you know, when you look at the video
2 data and the amount of data that's in a
3 video, the parameter set is a very, very,
4 very small part of that. Just try to keep
5 that in context.

6 Q Sure.

7 Now, the '818 Patent itself points out
8 the problem with the single parameter set in
9 updating parameters, right?

10 A Can you point me to where on the '818
11 you are talking about?

12 Q Yeah.

13 Do you have the '818 Patent in front of
14 you?

15 A Yes, I do.

16 Q And I think we already marked it as
17 Exhibit 3.

18 But at column -- Column 2, at the bottom
19 of Column 2, do you see there's a paragraph
20 there where they refer to the parameter set
21 concept? They do say "N55," but you
22 understand that to mean N52, correct?

1 A Yeah. That's a typo. It's clear
2 they're referring to N52.

3 Q Correct.

4 So you see where here '818 Patent is
5 talking about the N52, right?

6 A Yes.

7 Q And then if you go down to Column 6 and
8 we go to Line 54, the end of Line 54 says:

9 "Thus, if there were a single
10 parameter set structure, many
11 sequence-level parameters that remain
12 unchanged in the previous picture
13 parameter set in decoding order should
14 be repeated."

15 And it continues on from there. Do you
16 see that part?

17 A You read that sentence correctly.

18 Q Okay. So '818 points out that if you
19 have a single parameter set like in N52,
20 you're going to have this problem when you
21 want to update parameters, correct?

22 A I mean, it's not a problem. It's --

1 it's -- yes. You do have to send -- you
2 would have to send -- if you have a single
3 parameter set, you would have to send that
4 parameter set if you make a change. But
5 again, as I told you earlier, that's -- you
6 know, parameter sets are a very small part of
7 the overall amount of data that's in a video
8 sequence.

9 Q Okay. Now, you would agree with me --
10 you just said just now that you don't see
11 this as a problem, right?

12 A I mean, it's not a problem. It's more
13 of a -- if you have a single list, you would
14 have to send it every time. That's just a
15 fact -- if you make a change. If you
16 maintain one single list and you make a
17 change in that list, you would just resend
18 it.

19 But I just want you to understand that,
20 you know, in the grand scheme of the amount
21 of video data in a sequence, the parameter
22 set is a small part of that.

1 Q Right.

2 So since a person of ordinary skill is
3 thinking "Hey, parameter set's pretty small
4 stuff," like you, they're not thinking
5 that -- seeing N52, they're not seeing this
6 as a problem, right?

7 A Well, N52 is a proposal to -- you know,
8 there's a parameter set. I mean, obviously,
9 a POSITA would understand that proposal would
10 understand what it's proposing, if that's
11 what you're asking.

12 Q Well, the VCEG-N52 never says anything
13 like, hey, this single parameter set's going
14 to create a problem with updating parameters.
15 It never says anything like that, right?

16 A No. Not to my knowledge.

17 Q But now, if we go back to the
18 '818 Patent that we were just looking at,
19 again, at the bottom of Column 6. If you
20 look at Line 57, the '818 Patent says,
21 "Including picture and sequence level
22 parameters in different syntax structures

1 helps to avoid this problem."

2 Do you see that?

3 A Yes. You read that sentence correctly.

4 Q So would you agree with me that the '818
5 inventors thought this was a problem?

6 A Yes. The '818 inventors refer to it as
7 a problem, as you just read there. But you
8 know, as I just explained to you, the
9 parameter set is a very small part of the
10 overall sequence of a video.

11 Q And would you agree with me that
12 VCEG-N52 does not talk about having a
13 separate sequence parameter set versus the
14 picture parameter set?

15 A I'm not sure I understood your question.
16 But if you look on Page 8, it does talk about
17 parameter sets, and it identifies, you know,
18 the sequence and the group of pictures, you
19 know, parameters. But it's talking about
20 this one set of parameter sets.

21 Q Right, so there's not a sequence
22 parameter set that's separate from a picture

1 parameter set in N52, correct?

2 A That's reasonable, yeah. That would
3 be -- that's reasonable.

4 Q Okay. Now, there's another -- you can
5 put that down.

6 There's another reference that you cite
7 in your declaration called Sriram, right? Or
8 Sriram. I'm not sure if I'm pronouncing that
9 right, but do you know what I'm talking
10 about?

11 A It's Sriram.

12 Q Sriram.

13 A Sriram, I guess. And I would ask if
14 you're going to ask questions about it, would
15 you please upload it.

16 Q I am going to do that.

17 MR. TSUI: So let's put in the chat
18 and make as our next Exhibit Tab F.

19 And I'm always bad about this. Are we
20 up to 6?

21 TECH PYBAS: Yes, sir.

22 Q All right. I'm going mispronounce this,

1 Dr. Saber, so forgive me. Or I'll call it
2 Sriram. That's -- I'm sure I'm not getting
3 it quite right. I know that -- I can hear
4 that you're saying it slightly different than
5 me, but I don't know if I mimic that one. So
6 if I say Sriram, you'll know --

7 A I will understand. Every time you
8 mispronounce it will take 15 minutes off the
9 depo time would be fantastic.

10 (A discussion was held off the record.)

11 (Whereupon, United States Patent
12 No. 6,539,059 B1, Sriram, et al.
13 March 25, 2023 (Bates No. AMAZON
14 1021) was marked as Exhibit 6
15 for identification as of this
16 date.)

17 A I'm in the process of downloading it.
18 Would you give me just a minute.

19 Q Yes.

20 A Thank you, sir.

21 So I have Sriram opened in front of me.

22 Q All right. Now, do you recognize this

1 Exhibit 6 as the Sriram document that you
2 discuss in your declaration?

3 A Yes, I do.

4 Q Okay. And you see that this was filed
5 in 2000, right?

6 A If you're referring to the file data
7 number 22, filed March 2, 2000, that is
8 correct?

9 Q Right. So when VCEG-N52 came out
10 in 2001, Sriram was already out there, right?

11 MR. CARTER: Object to the form of the
12 question.

13 A I mean, I can't speak to what's out
14 there at that time. The face of the patent
15 says filed March 2, 2000, and the face of
16 VCEG-N52 says 2001. I wasn't asked to do any
17 independent look at any of these dates.

18 Q Okay. But so would video coding experts
19 who knew about VCEG-N52, would they have
20 known about Sriram?

21 MR. CARTER: Object to the form of the
22 question and lacks foundation.

1 A Sriram was filed in March 2000, so it
2 would be publicly available.

3 Q So would video coding experts who knew
4 about VCEG-N52 have known about Sriram?

5 MR. CARTER: Object to the form of the
6 question. Lacks foundation.

7 You know that filing dates aren't the
8 same as publication dates. Let's be
9 clear here and not try to get tricky.

10 Q Dr. Saber, was there anything about my
11 question you did not understand?

12 A I'm not sure what your question is
13 asking. I can't speak to what video coding
14 experts know or didn't know.

15 My understanding is Sriram qualifies as
16 prior art to the '818 Patent and is filed
17 March 2000. And the date on the patent on
18 top says 2003. I wasn't asked to do any
19 independent studying or looking into any of
20 these dates and what exactly is available.

21 Q Okay. Now, I want to look at your
22 declaration at Page 80.

1 A Page 80?

2 Q Yep.

3 A Okay.

4 Q I want to look, let's see,
5 Paragraph 179, about six lines down.

6 A Okay.

7 Q Give me a second to get there.

8 You have a sentence -- well, it starts
9 at the end there, a clause I guess, it's
10 where you say:

11 "Sriram discloses several parameters
12 which are extracted from the picture sequence
13 and GOP headers."

14 Do you see that?

15 A Not yet. Let me just orient myself.

16 Paragraph 179?

17 Q That's right. I know it's a little bit
18 of a needle in a haystack, but Paragraph 179,
19 six lines down towards the end of that
20 sentence.

21 A Okay.

22 Q There's a part where you say:

1 "Sriram discloses several parameters
2 which are extracted from the picture headers
3 and GOP headers."

4 Do you see that part?

5 A Yes. I do see that now.

6 Q So Sriram assumes that the decoder
7 receives a bit stream that has the pictures
8 and headers, correct?

9 A Just what it states, Sriram discloses --
10 if you go to that disclosure, let's go to
11 Sriram. So you see on page -- on Column 12,
12 64 and 66, Sriram discloses that -- you can
13 see there, in addition, there are several
14 parameters which were extracted from the
15 picture sequence and GOP headers, which are
16 needed for processing an individual
17 macroblock. And the other citation is on
18 Column 6.

19 So if you look at the Column 6 citation,
20 you see Sriram understands a hierarchy of
21 data structures, depending on the level on
22 which the parameters are applicable is

1 created in accordance with the invention.
2 Basically, he gives you an example, in an
3 MPEG-2 you have the sequence picture slicing
4 and macroblock hierarchy, in a sense.

5 So Sriram does understand there's a
6 hierarchy to the parameters.

7 Q Right. And, specifically, Sriram
8 assumes that the decoder is receiving
9 sequence and picture headers in the bit
10 stream, right?

11 A Well, Sriram states, as it states there
12 in Column 12, 64. So, yes, Sriram does state
13 that there are several parameters that were
14 extracted from the picture sequence in GOP
15 headers. So he's aware of picture sequence
16 and GOP headers.

17 Q Now, Sriram does not discuss parameter
18 sets at all, right?

19 A Yes. I can agree that Sriram does not
20 disclose parameter sets.

21 Q Right. In fact, it can't, right,
22 because parameter sets didn't exist when

1 Sriram was written in 2000, right?

2 A Well, you have to be careful with your
3 wording. Obviously, parameter sets refer to
4 a lot of things. But parameter sets, as
5 described in N52 didn't exist when Sriram was
6 filed.

7 Q Thank you for that.

8 Now, if we look at Sriram, so back to
9 Exhibit 6, and if we look at Figure 1. Let
10 me know when you've got that handy.

11 A I do.

12 TECH PYBAS: Do you have a page number
13 for that?

14 MR. TSUI: Well, it's on the cover,
15 but it's also, I guess, Page 2.

16 TECH PYBAS: I got it.

17 Q So, Dr. Saber, Figure 1 of Sriram has an
18 encoder on the left side and then a decoder
19 on the right side, correct?

20 A It has an encoder on the right side
21 labeled 22A, and it's got a set of video
22 decoders, 22A through 22N, potentially on the

1 right side.

2 So it's got an encoder on the left side,
3 and you can see like dot, dot, dot, and same
4 thing on the decoder side.

5 Q I just want to make sure that we've got
6 our nomenclature correct here.

7 Maybe I misheard, but I think you said,
8 you might have mixed up the left and the
9 right. So let me just ask it again just to
10 make sure we're clear.

11 The Figure 1 of Sriram shows the encoder
12 on the left and the decoder on the right,
13 correct?

14 A That's generally correct, yes.

15 Q Okay. And on the right side, the
16 decoder has some of the elements like syntax
17 analyzer, monitor processor, sub processor.

18 Do you see those?

19 A Yes, I do.

20 Q Now, if we go to Column 4, Sriram talks
21 about these different components. So if we
22 go to Column 4, I want to look at Line 62.

1 A Yes.

2 Q Okay. And so at 4, Line 62, Sriram
3 says:

4 "The video that's streamed is
5 sent to the syntax analyzer 38, which
6 extracts all the header information,
7 gets all the synchronization
8 information from the bit stream and
9 sends it to the monitor processor 40."
10 Do you see that?

11 A You read that correctly.

12 Q Okay. So what Sriram is describing is
13 that the decoder receives the normal sequence
14 picture headers that were transmitted from
15 the encoder. And then the decoder extracts
16 parameters from those headers and creates
17 data structures for processing the stream; is
18 that right?

19 A Yes. Just what it says. The video bit
20 stream is sent to the syntax analyzer 38.

21 So if you look at Figure 1, so this is
22 referring also to Figure 2. So Figure 1 and

1 Figure 2 both show a syntax analyzer, which
2 obviously analyzes the syntax. Which extract
3 all the picture header information. So the
4 proper parameters in the picture header get
5 all the synchronization information from the
6 bit stream that you need to synchronize, and
7 then sends it to the monitor processor 40,
8 what's shown there in Figure 2.

9 Q So Sriram does not change the bit stream
10 at the encoder, correct?

11 A No. Sriram is receiving the bit stream
12 from the encoder.

13 Q Right. So it's not -- Sriram is not
14 changing anything about the transmission from
15 the encoder to the decoder, correct?

16 A No. It's not changing -- it's assuming
17 that it's received a video stream from the
18 encoder.

19 Q Okay. Now, if we go back to Column 1 of
20 Sriram, at Line 44, the end of that line
21 starts a sentence:

22 "If all the known video standards

1 have some syntactic elements to allow
2 the bit stream to be split into
3 multiple independent parts. For
4 example, an MPEG-2 video bit stream can
5 use slice headers to identify portions
6 of a video frame which can be
7 independently processed."

8 Do you see that section?

9 A You read that correctly.

10 Q Got it. So the reason why Sriram is
11 extracting parameters from the headers and
12 creating these data structures at the
13 decoder, it wanted to identify portions of
14 video that can be independently processed at
15 the decoder; is that correct?

16 A Yeah. That's one of the objectives.

17 Q Okay. Now, I apologize, I want to jump
18 back to your declaration again.

19 Can we go to Page 86 of your
20 declaration.

21 A Page 86?

22 Q Yes, sir.

1 So here on Page 86, what you're showing
2 is an example of how you would modify
3 VCEG-N52, right?

4 A If you look at -- something is
5 happening. I'm getting feedback.

6 Q You're coming in good to me.

7 A It seems like I'm hearing myself talk.

8 If you look at the top of Paragraph 186,
9 the start. Do you see it says:

10 "In my opinion separating these
11 parameters into different parameter
12 sets would have been a routine software
13 engineering task with expected
14 results."

15 And I'm then describing, you know,
16 supporting that, providing the analysis for
17 that. And the following, on Page 86, the
18 following is an example. So this is just an
19 illustration, an example, just to illustrate
20 the idea. This is not really saying I would
21 do this exactly in this piece of software.
22 This is just an illustration of the idea for

1 the reader.

2 Q Okay. But this is your illustration, is
3 what I'm kind of getting at?

4 A Correct. This is an illustration of the
5 idea.

6 Q So this is not something that you copied
7 out of N52, for example, right?

8 Maybe I can orient you here a little
9 bit, right. If you're looking at Page 85 and
10 86.

11 A Yes.

12 Q What you have on Page 85, you have kind
13 of a table there, too, right, I don't know if
14 table is the right word.

15 You have some syntax there, right?

16 A Yeah. So if you look at Page 85, you
17 see above Paragraph 186, you see some syntax
18 stuff.

19 Q Yeah.

20 A That's taken from N52, Page 10.

21 The N52, Page 10, under parameter update
22 using SDP, Session Description Protocol,

1 you'll see like the syntax stuff there, which
2 is kind of lifted and placed into the
3 declaration above Paragraph 86.

4 And, then, the description on Page 86
5 kind of builds, just takes that and just give
6 you an illustration or example of how you may
7 break up the parameter sets.

8 Q Right. Okay. So Page 85 is what N52
9 actually shows. Page 86 is what you've done
10 to modify it, correct?

11 A Page 85 is what is the -- if my memory
12 serves me right, and without looking at every
13 wording, Page 85 is exactly lifted from N52,
14 Page 10, with the exception of the
15 highlights.

16 Q Right.

17 A So it should be exact copy and paste,
18 unless something got miscopied or something.

19 Q Sure. And then what's over on Page 86
20 is your example modifications to that, right?

21 A Is what a POSITA -- it's an
22 illustration. I mean, obviously I'm

1 discussing in 186 what a POSITA would do
2 looking at N52 and Sriram, and to illustrate
3 it, I'm just giving you an example there of
4 how one might do that. But that's, obviously
5 a software engineer would put this in the
6 right way, in the right software syntax. But
7 that's just an illustration.

8 Q Yeah. So I just want to talk about that
9 illustration that you have a little bit.
10 Okay?

11 A Sure.

12 Q Now, just comparing what's on Page 85 to
13 Page 86, in N52, you had one attribute value,
14 that first line, but over on Page 86, now we
15 have three. We have a sequence attribute,
16 GOP attribute and a pic attribute, correct?

17 A Yeah. That's the general idea. As
18 you're breaking up the parameter sets into
19 sequence and picture parameter sets.

20 Q I just want to make sure I understand,
21 right.

22 So, again, instead of having one

1 parameter set number with a single parameter
2 set, now we have three parameter set numbers,
3 sequence, GOP, and pic; is that right?

4 A Well, I mean, again, this is an
5 illustration. So you think about the
6 sequence and the GOP like would go into one
7 set, so to speak. You can think of that as a
8 sequence parameter set. And then the picture
9 one would go into a picture parameter set.

10 But this is just an illustration to show
11 you that how one would break this up. This
12 is not the exact way I would write in code,
13 so to speak.

14 Q Sure. But the illustration that you've
15 got here, from the left side with a single
16 parameter set, I have one parameter set
17 number, and now I need three parameter set
18 numbers to account for a sequence, GOP and
19 pic, right?

20 A Well, in this case, yeah, I'm just
21 giving you an example, here is the sequence
22 parameter set and here is the GOP one that's

1 pointing to that sequence, and here's the
2 picture that's pointing to the GOP, so to
3 speak.

4 Q Yeah.

5 A So I'm just giving you here an
6 illustration, but you could potentially group
7 that sequence and GOP in one parameter set.
8 I mean, this is just an illustration of
9 breaking up the parameter sets. Just trying
10 to show you can do that.

11 Q Right. And so in your illustration
12 you've got here, you have a pointer, I think
13 you just mentioned it, right, in your GOP
14 parameter set you have a pointer to a
15 sequence parameter set identifier, right?

16 A Correct.

17 Q And you also have in the picture
18 parameter set a pointer to the GOP parameter
19 set identifier, right?

20 A If you're referring to Page 86 where it
21 says, GOP parameter set identifier and seek
22 set parameter sets identifier, yes, I mean,

1 that's the idea, but again, this is just an
2 illustration of illustrating the break up of
3 the parameter sets. This is just to
4 illustrate the idea that you can break them
5 up.

6 Q That's right. And you don't need those
7 fields over a N52 because there's only one
8 parameter set, right?

9 A I think we've agreed to that that N52
10 discloses a single parameter sets.

11 Q Right. So a single parameter set you
12 don't need these identifiers between the
13 sets, correct?

14 A You don't need identifiers between the
15 set, but you need to know which parameters,
16 obviously, you'll know the list of parameters
17 so you know -- the decoder would know which
18 parameter goes with which. I'm not sure I
19 understand your question correctly, but N52
20 has the single parameter set that has all the
21 parameters that you need to decode the
22 sequence.

1 Q Right. Now, these kind of less than and
2 greater than signs that are kind of on each
3 of these lines, you know what I'm talking
4 about?

5 A Yes.

6 Q Those little symbols? Does that denote
7 a field, is that the right way to think about
8 that?

9 A You can think of it that way. I mean,
10 it's just either pseudocode, is like HTML
11 code or something, you can think of it that
12 way, it's just denoting field, but I mean,
13 that's irrelevant to my analysis. The
14 analysis here is just to show that you can
15 take one set and make it you know, two or
16 three sets.

17 Q Just so I understand what you're showing
18 here, those are -- I would be essentially
19 correct by saying that those things that are
20 inside of the less than and greater signs are
21 effectively fields, there's going to be some
22 kind of data associated with that field; is

1 that right?

2 A Well, they are -- whatever they are in
3 N52, so whatever they are in N52 in Page 10,
4 whatever they would call them there they're
5 the same thing on Page 8 of my declaration.

6 Q Is there anything in particular that you
7 would call it just so we have something to
8 call it?

9 A I don't know, attribute, I guess, name
10 or whatever. I'm not sure.

11 So essentially, you're defining the
12 attribute or the parameter, you see, like,
13 you have different names. You have one that
14 says attribute value, second one says
15 parameter set number.

16 Q Yeah, that's why I didn't want call it
17 attribute 'cause I thought it would be
18 confusing, if I call it fields, would you
19 understand what I meant?

20 A Call it field I think. Whatever they
21 are in N52 they're exactly the same on
22 Page 86 of my declaration, let's leave it

1 that way.

2 Q Now, each of these fields has some kind
3 of data associated with it; is that right?

4 A Yeah, potentially that's the idea that
5 you have some association of stuff, like if
6 you look at N52 on Page 10, where it says
7 parameter name double colon, equal you have a
8 bunch of stuff there max pic ID, pixel aspect
9 ratio, et cetera, et cetera, et cetera.

10 Q Okay. Thank you for that.

11 Now, if we go back a little bit to
12 Page 81 of your declaration.

13 A Page 81.

14 Q Yes. And I want to look, you have a
15 paragraph at the bottom there, Paragraph 181,
16 you see that?

17 A Yes, I do see that.

18 Q Okay. And your first sentence that you
19 say there is "Sriram's slice data structure
20 also includes a pointer (as an asterisk) to a
21 picture frame data structure (PicFrame,
22 *PicFramePtr)."

1 Do you see that?

2 A Yes. Yes. I do see that.

3 Q So the *PicFramePtr here in the sliced
4 data structure of Sriram it's a pointer to a
5 PicFrame structure, do I understand that
6 correctly?

7 A In this particular case, yes.

8 Q Then the PicFrame structure is a set of
9 parameters; is that right?

10 A So that's the idea, the PicFrame
11 structure would provide a set of parameters,
12 that's correct. That's the idea.

13 Q Okay. And the PicFrame structure itself
14 being a set of parameters, it's not itself a
15 parameter that you would use in decoding, it
16 has a set of parameters that could be used,
17 right?

18 Let me ask that a better way.

19 The parameters inside of the PicFrame
20 structure might be used for decoding,
21 correct?

22 A Parameters, obviously, in all of the

1 structures would be used for decoding.

2 Q Right, but the overall structure itself
3 isn't used in decoding, it's just a set of
4 parameters that would be used in decoding, do
5 I have that right?

6 A I don't know what you mean by the
7 overall structure. The set of parameters --
8 I mean, the structure is like a -- I don't
9 know if you're familiar with the C language
10 where you can define the type depth structure
11 type of thing, so it's just a collection.
12 Instead of having to pass all the parameters
13 as part of a function where you list them all
14 in the function, you just pass one variable
15 source, theta, that has the whole structure
16 in it. And you define that variable and you
17 have all this collection of parameters that
18 get passed along. So you'll need all of the
19 parameters to do that decoding.

20 Q Right. But it's the parameters inside
21 the structure, that's what I care about,
22 right? I don't really care about the fact

1 that it's in a structure?

2 A You care about -- I mean, the parameters
3 is what you need to decode the sequence.

4 Q Right. I don't need the structure to
5 decode the consequence, correct?

6 A Well, I mean Sriram is presenting you
7 with a way of basically collecting the
8 parameters in a structure. If you wanted to
9 collect them some other way maybe you do
10 that. But you need to know the parameters in
11 order for you to decode the sequence.

12 Q Okay. I think I understand.

13 Now, if we go to Page 100 of your
14 declaration.

15 You have a Paragraph 212.

16 I want to look around seven lines down,
17 if you'll let me know when you're kind of
18 roughly in that area. I'm just going to read
19 it to you as I have been, but I'll let you
20 get there.

21 A Paragraph 212, you said, right?

22 Q Yep.

1 A Okay. Go ahead.

2 Q Great. And about seven lines down
3 roughly right in the middle of that
4 paragraph. You have a sentence that says,
5 "as described in Sriram, PicFrame, which
6 PicFramePtr points defines the starting
7 address of all the frames that are needed for
8 MPEG-2 decoding", do you see that?

9 A No. Hold on a second. Let me read the
10 whole paragraph, give me a minute.

11 Q No problem.

12 A Okay. So what was your question again?

13 Q I was just directing you to that
14 particular sentence just to make sure that we
15 were on the same page.

16 So you read the whole paragraph, so you
17 see the sentence where it talks about
18 PicFrame pointer addressing the starting
19 address of the frames, you saw that part?

20 A Yeah, the sentence that begins with as
21 described in Sriram, PicFrame, which
22 PicFramePtr points defines a starting address

1 of all the frames are needed for MPEG-2
2 decoding.

3 Q Yeah. In the very last sentence you
4 say, in my opinion a person of ordinary skill
5 would have understood this, would require
6 being able to identify individual frames by
7 number or otherwise.

8 You read that sentence too?

9 A You read that sentence correctly.

10 Q So what I'm trying to understand here
11 is, Sriram's disclosure of a starting address
12 for all the frames is not actually a frame
13 number, right, your opinion is that a person
14 in ordinary skill that would understand that
15 would require a frame number, do I have your
16 opinion correct?

17 MR. CARTER: Object to form.

18 A Well, if you read the description of
19 Sriram, like you read, obviously you read the
20 whole patent, but if you read the description
21 that we're talking about here, if you look at
22 the next sentence after that, Sriram also

1 discloses that decoded frames may have to be
2 reordered before they could be sent to the
3 display processor, because obviously we know
4 the decoding order is not the same as a
5 display order all the time. And may be
6 stored in a video buffer. You see that on
7 Column 5 9-14 of Sriram. So the processor,
8 the decoder of Sriram, would have to know the
9 frame number, it would have to identify
10 frame -- individual frames by number for you
11 to be able to reorder them or otherwise. And
12 no where to put the slice, the decoding slice
13 data, that's just very, very easy to eye that
14 I mean, a POSITA would definitely know that.
15 Q Just so I'm clear, Sriram's disclosure
16 of a starting address, the starting address
17 is not actually a frame number, correct?
18 A The starting address would be where
19 let's say, the first parameter or the first
20 piece of pixel data is, but Sriram's system
21 would also know the frame number, not just
22 the starting address. It would know this is

1 frame number 15 and there is a starting
2 address 106, so it knows the frame number,
3 otherwise, you won't know where to put the
4 slice data that you've decoded. I mean, from
5 the very beginning of video decoding
6 standards frame number is an understood
7 quantity.

8 Q So let me just take it one step at a
9 time, okay. I just want to be clear that I
10 understand that step one Sriram's disclosure
11 of a starting address. A starting address is
12 not itself the frame number, you agree with
13 that?

14 A Yeah, I can agree to that.

15 Q Okay. Then is it your opinion that a
16 person of ordinary skill would understand
17 that a frame number is needed. Do you agree
18 with that?

19 A Yeah, frame number is required because
20 you first have to order -- you have a certain
21 order -- the frames are arriving into the
22 buffer, they're ordered, right, they have a

1 decoding order so they're numbered. You have
2 frame number is part of the process.

3 Q Okay. Just to be clear, Dr. Saber,
4 Sriram itself, does not describe a frame
5 number, correct?

6 A Well, I mean, you have to read obviously
7 the patent in context, but if I, for
8 instance, I'll point you to a couple of
9 disclosures. Like on Column 2 of Sriram,
10 Lines 52 to 55 you see where it says by
11 properly isolating the video frame decoding,
12 t's the processes that decoding delay enhance
13 the number of the video frames that have to
14 be buffered in memory can be more efficiently
15 controlled. So it understands there is a
16 series of video frames are coming.

17 Q Right. But that never talks about some
18 kind of identifier called a frame number,
19 does it?

20 A I'm not sure what you're asking, but a
21 frame number is basically understood is it's
22 been part of you decoding from the beginning

1 so it's -- I don't think you need to state it
2 here in Sriram. Sriram understands that the
3 frames are numbered.

4 Q I understand that your opinion is that
5 it doesn't need to be stated. I just want to
6 be clear, it's not stated, so let me just
7 ask.

8 Sriram does not describe a frame number,
9 does it?

10 A Well, the word frame number doesn't
11 appear in Sriram as if you were to search it,
12 but it's understood by a POSITA reading
13 Sriram's patent would understand frame number
14 is basically common knowledge, and just like
15 saying two plus two equal four and Sriram
16 doesn't have to tell you two plus two equal
17 four. It's just basic foundation for
18 decoding video.

19 MR. TSUI: I think this is a good time
20 for us to take a break and I can check
21 my notes. Go off the record.

22 THE WITNESS: I will be back in my

1 seat at 1:40.

2 (Whereupon, a recess was taken
3 from 1:31 PM until 1:42 PM.)

4 BY MR. TSUI:

5 Q Welcome back, Dr. Saber, just a couple
6 more questions here. Got your declaration, I
7 want to go Page 73 of your declaration.

8 Are you there?

9 A Yep, just about.

10 Q In particular there's not much on this
11 page, but I just want to talk about the
12 second line at the top of the page, you say,
13 "A person of ordinary skill would have
14 further understood that such a decoder using
15 a processor would have been implemented with
16 programming code and a computer program
17 stored on computer readable storage medium."

18 Do you see that?

19 A Yes. I see that sentence.

20 Q All right. So if you've got a software
21 decoder, would that convey to a person of
22 ordinary skill you're going to have computer

1 code running on a processor?

2 A I don't know, I don't know of any other
3 way how you would decode video expect having
4 a decoder with proper processors and memory
5 and software to be able to decode the video.
6 You're not going to do it manually.

7 Q Right. Just to take it one at a time.
8 If you've got a software decoder, does that
9 convey to a person of ordinary skill, you've
10 got a computer program and it's going to be
11 stored on some kind of computer readable
12 storage medium, do you agree with that?

13 A Yeah, you need to have the proper, a
14 decoder in software is still sitting on a
15 computer somewhere and it's got to have --
16 the softwares got to use processor and memory
17 and computer program to do the decoding.

18 Q And so then, if you've got a software
19 decoder, would you agree that to a person of
20 ordinary skill inherently means you're going
21 to have computer memory, you're going to have
22 a buffer, those sort of things?

1 MR. CARTER: Object to form.

2 A I mean, I don't know exactly what you're
3 asking and sometimes the word inherent has
4 legal modifications -- ramifications. So I
5 don't know how you would decode video without
6 having a decoder, whether it has parts and
7 hardware and/or software without having to
8 have some type of a processor, proper memory,
9 and memory management and programming code
10 that would receive a bit stream and has a
11 buffer to buffer the frames and do the
12 decoding for video decoding.

13 Q Now, you still got the '818 Patent lying
14 around, I want to ask you just a few quick
15 questions about that one.

16 A Well, I do have it somewhere, give me
17 one moment here.

18 TECH PYBAS: What number is that, I'm
19 sorry.

20 MR. TSUI: That's Exhibit 3.

21 A Yeah, I do have it.

22 Q Okay. Now, would you agree with me that

1 the claims require a sequence parameter set,
2 picture parameter set and a slice header
3 among other things?

4 A Well, if you look at Claim 6, for
5 instance, it requires a sequence parameter
6 set in Element 6A. It requires a picture
7 parameter set in Element 6B. And it talks
8 about slice header in Element 6C.

9 Q Okay. Now, if you go and you look at
10 Figure 1?

11 A Of the patent?

12 Q Yes. Figure 1 of the '818 Patent.

13 A Yes, sir.

14 Q Figure 1 shows a picture parameter set.
15 Do you agree with that?

16 A Yes. Figure 1 shows a picture parameter
17 set.

18 Q Okay. And then you see where it says on
19 the right side "Independent GOP Parameter
20 Set"?

21 A Yes, I do see that.

22 Q Okay. Is an independent GOP parameter

1 set the same thing as a sequence parameter
2 set?

3 A So as I told you initially when we
4 started this deposition, I wasn't asked to
5 define what -- you know, this parameter set
6 and what could be placed in a parameter set
7 and where they can be placed. I was asked to
8 look at the claims' plain and ordinary
9 meaning and when I applied plain and ordinary
10 meaning from the eyes of a POSITA in light of
11 the specification that we discussed earlier
12 and map that to the prior art that I have
13 done in this deposition -- in this
14 declaration.

15 So I wasn't asked to look specifically
16 at parameter sets and details of parameter
17 sets. I haven't done that analysis, and I
18 would need the proper time to do that to be
19 able to render an opinion.

20 Q Do you recall saying in your declaration
21 that a GOP parameter set satisfies the
22 sequence parameter set at the close?

1 A I don't recall what I said earlier in
2 the deposition.

3 Q No. In your declaration.

4 Why don't I point you to it. If you've
5 got your declaration, you can open it up to
6 Page 90.

7 A Yeah. Go ahead.

8 Q Yeah.

9 So your first sentence there,
10 Paragraph 195, you say, "Each of the GOP
11 parameter set and sequence parameter set is a
12 sequence parameter set as recited by this
13 limitation."

14 You see that sentence?

15 A Yes.

16 Q So you would agree with me that a GOP
17 parameter set is a sequence parameter set of
18 the '818 Patent claimed, right?

19 A Yeah. Just as it says in that sentence,
20 "Each of the GOP parameter set and sequence
21 parameter set is a sequence parameter set as
22 recited by this limitation."

1 Q So in Figure 1, what we were just
2 looking at, Figure 1 of the patent, GOP
3 parameter set, that's a sequence parameter
4 set, right?

5 MR. CARTER: I'll object to form.

6 A I mean, this sentence that you're
7 talking about on Page 90, it was obviously
8 pertaining to the analysis with regards to
9 Ground 4, where I was mapping the claimed
10 elements to the prior art and the combination
11 of N52 and Sriram. So that's essentially
12 what I've done here.

13 Again, as I told you earlier, I wasn't
14 asked to look at different sets of parameter
15 sets and how they could fit together and all
16 this type of thing. That, I wasn't asked to
17 do, and I would need the proper time to do
18 that analysis.

19 Q So, just so I understand, your opinion
20 is that GOP parameter set in the prior art
21 references that you analyzed, you think
22 that's a sequence parameter set, but you did

1 not analyze whether the GOP parameter set in
2 the '818 Patent itself is a sequence
3 parameter set.

4 Is that your testimony?

5 A My testimony is I looked at the claim of
6 the '818 and I looked at the claim elements.
7 And I applied plain and ordinary meaning to
8 the elements and the terms in the elements of
9 the claims from the eyes of a POSITA in light
10 of the specification we discussed earlier.
11 Then I performed an analysis giving that
12 plain and ordinary meaning to where that is
13 found in the prior art. That's all I was
14 asked to do, and that's what I did.

15 MR. TSUI: Okay. Dr. Saber, that's
16 all the questions I have for you.
17 I pass the witness.

18 MR. CARTER: No redirect from me.

19 MR. TSUI: All right. I guess we can
20 go off the record.

21 COURT REPORTER: Off the record.

22 MR. TSUI: I want it by Monday. That

1 would be fine for me.

2 COURT REPORTER: And, Mr. Carter,
3 what's your order for the transcript?

4 MR. CARTER: So I think we just asked
5 for the rough within 24 hours, if I
6 remember correctly. But other than
7 that, I think standard delivery for us
8 is fine.

9 (Whereupon, this examination was
10 concluded at 1:54 PM.)

11

12

13

14 DR. ELI SABER

15

16

17 Subscribed and sworn to
18 before me on this ____ day
of _____, _____.

19

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21 Notary Public

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I N D E X

WITNESS: ELI SABER

EXAMINATION BY	PAGE
MR. TSUI	5

E X H I B I T S

EXHIBITS	DESCRIPTION	PAGE
Exhibit 1	Joint Video Team (JVT) of ISO/IEC MPEG and ITU-T VCEG (Bates Nos. AMAZON 1007)	41
Exhibit 2	Declaration of Dr. Eli Saber, Ph.D. Regarding U.S. Patent No. 7,724,818 (Bates No. AMAZON 1003)	44
Exhibit 3	United States Patent No. 7,724,818 B2, Hannuksela, et al. (Bates No. AMAZON 1001)	59
Exhibit 4	United States Patent No. 6,646,578 B1, Au, November 11, 2023 (Bates No. AMAZON 1008)	90
Exhibit 5	Study Group 16, Video Coding Experts Group (VCEG) Fourteenth Meeting: Santa Barbara, CA	117

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(Bates No. AMAZON
1012)
Exhibit 6 United States Patent 137
No. 6,539,059 B1,
Sriram, et al. March
25, 2023 (Bates No.
AMAZON 1021)

C E R T I F I C A T E

I, KIARA MILLER,
a Shorthand Reporter and Notary Public of the
State of New York, do hereby certify:

That the witness whose examination is
hereinbefore set forth, was duly sworn or
affirmed by me, and the foregoing transcript is
a true record of the testimony given by such
witness.

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.

Kiara Miller

KIARA MILLER