UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CASE IPR2017-01544
PATENT 7,342,967

LG ELECTRONICS, INC.,)
)
Petitioner,)
)
-v-)
)
BROADCOM CORPORATION,)
)
Patent Owner.)

The deposition upon oral examination of EDWARD J. DELP III, PH.D., a witness produced and sworn before me, Dana S. Miller, RPR, CRR, Notary Public in and for the County of Hendricks, State of Indiana, taken on behalf of the Patent Owner at the Courtyard Marriott, Wabash Room, 150 Fairington Avenue, Lafayette, Indiana, on March 2, 2018, at 9:00 a.m., pursuant to the Applicable Rules of Procedure.

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Deposition Exhibit No(s).: (Previously marked)

1001 - U.S. Patent Number 7,342,967 8
1002 - Dr. Delp's Declaration 7
1003 - United States Patent Application 21
Publication No. 2002/0061183
1004 - United States Patent Application 62
Publication No. 2001/0026677

(Newly marked)

2001 - Decision Institution of Inter Partes Review

EDWARD J. DELP III, PH.D., having been first duly sworn or affirmed to tell the truth, the whole truth and nothing but the truth relating to said matter, was examined and testified as follows:

DIRECT EXAMINATION

QUESTIONS BY THOMAS YEBERNETSKY:

Q Good morning.

A Good morning.

Q Can you please state your full name for the record.

A My name is Edward John Delp III.

Q All right. I will just call you Dr. Delp, is that --

A That's fine.

Q Okay. And have you been deposed before?

A Yes.

Q Approximately how many times?

A More than ten.

Q More then ten? Okay. Well, even though you have that solid background, I'm just going to go over some ground rules for today so that we can be on the same page.

First, you're here to answer my questions. So if you don't understand my questions, please just ask me to repeat them or rephrase them, and

I'll do my best to give you a clear question you can answer. Okay?
A Yes. And, please, I sometimes nod and don't talk, so if I'm doing that, please somebody tell me, because I know nodding doesn't go on the record; right?
Q Yes. That is my bullet point number two to go over with you --
A I'm sorry.
Q -- is that the court reporter is here to record, you know, verbal responses.
A Right.
Q So even nods or uh-huhs or some sort of, you know, throat groan of acknowledgment or discord --
A Right.
Q -- you know, can't be in the record. So just clear answers will be helpful.
A If I do nod, would you please --
Q I --
A -- let me know.
Q I will definitely let you know.
THE WITNESS: Or you let me know.
Q And another issue that comes up often is people cutting each other off. You may anticipate what

my question's going to be so you want to answer, or I know what your answer's going to be and I'll cut you off to try to rephrase the question, I'll try not to do that. And I just ask that you try not to do that, and let me finish my question, and it'll be a much clearer record. Okay?

A I will try not to do that.

Q And if I misstate anything or, you know, previous testimony or something in the record, you know, please feel free to correct me. And we just want an accurate account of this. Okay?

A Yes.

Q And your lawyers may make objections. If they do, you're still obligated to answer unless they specifically tell you not to answer. Okay?

A I understand.

Q And you understand your testimony here today is under oath; correct?

A Yes, I understand that.

Q Is there any reason you cannot testify truthfully and accurately today?

A No.

Q Okay. And did you prepare for today's deposition?

A Yes.

Q And how did you prepare?
A I read over some documents.
Q Some documents. What documents did you read?
A I read over my report, my declaration. By the way, I will sometimes call it declaration or report. Is that okay?
Q That is okay.
A So I read over my report and looked at the exhibits relative to the report and talked a little bit with the attorneys.
Q And how long did you talk with your attorneys?
A Probably six hours over a two-day period.
Q Okay. And is that all you did in preparation for today's deposition?
A That's it, yes.
Q You didn't look at any other documents that are not of record in this case?
A No.
Q And did you do anything else besides reading your report outside the presence of counsel to prepare for today?
A I did read my report in their presence. I mean, I -- maybe I'm not understanding your question.
Q Oh, so besides reading your report and meeting with counsel, you did nothing outside the

presence of counsel to prepare for today?
A Well, I mean, I read the report outside their presence. I looked at the exhibits to my report, and that was it.
Q Okay. Since we're talking about it.
A Thank you.
MR. YEBERNETSKY: It's already premarked.
MR. JOHNS: Thank you.
Q So I handed you what has previously been designated as Exhibit 1002 in IPR2017-01544; is that correct?
A Yes. It says that at the bottom right here.
Q And Exhibit 1002 is the declaration that you submitted in this case; correct?
A Yes, I believe it is.
Q And you mentioned that you've been deposed about ten times; correct?
A Yes.
Q And correct me if I'm wrong, but I didn't see any of your consulting work in your CV that you submitted with Exhibit 1002; is that correct?
A No, there is a document that I thought I submitted, but evidently didn't get into this. So that listed my other expert witness work.
Q Okay. And when you say you submitted it, you

mean you sent it to counsel?
A I think I did, but I could have not. Okay? And I was surprised again when I reviewed this that it wasn't in here, so --
Q Okay. And in those ten cases, did you submit written testimony?
A Yes. You mean like expert reports?
Q Yes.
A Yeah, yeah, yes. Several of those cases I did.
Q And has your testimony ever been stricken in those proceedings, to the best of your knowledge?
A No.
Q And I handed you what has been previously designated as Exhibit 1001 in IPR2017-01544; correct?
A Yes.
Q And Exhibit 1001 is U.S. Patent Number 7,342,967; correct?
A That's correct.
Q And as a matter of convenience, I'll refer to Exhibit 1001 as the '967 patent; is that okay?
A Yeah, that's fine.
Q Can you please turn to your declaration on page 22, please.
A Is it okay if I take it apart?

Q It is okay.
A And, I'm sorry, it was page 22, did you say?
Q Yes.
A Okay. Yes.
Q And in paragraph 45 you state: "I have been told by counsel that the claims in the '967 patent should be understood based on their broadest reasonable construction in light of the patent specification for purposes of this inter partes review proceeding."
Did I read that correctly?
A Yes.
Q All right. So let's go back to the '967 patent. You can put that aside.
A Okay.
Q And Claim 1. In looking at Claim 1, one of the terms used is host processor; correct?
A That's correct.
Q And what is your understanding of the broadest reasonable construction of the term host processor?
A Well, I think I talk about it in my report. So I would look at it there.
Q You're free to look at your report to answer the question.

A I -- again, I -- it has to do with the instructions, I believe. And I talk about that -- I'm not finding it right now, but -- well, when I applied my -- when I was applying the prior art references, I did talk about the host processor. And I believe what I said in here is consistent with what the Patent Board said in their review.

I'm not finding it right now. Is there a particular location you want me to look at?

Q Well, I mean, you provided an opinion based on the broadest reasonable construction of the terms.

So I'm just trying to understand what your understanding of the broadest reasonable construction of host processor is.

A And I'm trying to find where there's an example of where I used host processor.

Q I mean, page 40 is where you first applied it in MacInnis --

A Yes.

Q -- if that helps you. I guess stepping back, you did not specifically define host processor in your claim construction section of your report; is that correct?

A That is correct, but I did talk about it in other places in the report starting on page 40 and 41 where I applied the two constructions, so --
Q The two constructions that you're discussing, those are the constructions for instructions; correct?
A Yes, but then I do talk about the host processor starting on page 89. In particular, I used Broadcom's, what they said was their -- host processor meant on page 41, paragraph 89.
Q So you did not independently make a determination of what the broadest reasonable construction of host processor is; is that correct?
A I did not independently, but I did use Broadcom's assertion, which I thought was acceptable. And I believe this is also consistent with what the Patent Board said in their rulings.
Q So is it your testimony that the construction provided by Broadcom is the broadest reasonable construction of host processor?
A I think that I would have to agree with what the Patent Board said as far as what the term host processor meant. And I think that was consistent with what I used throughout my presentation.
(Deposition Exhibit(s) 2001 marked for

identification.)
Q Just to clarify, you've been discussing a construction that the Board has found. And what the court reporter handed you, and has been marked as Exhibit 2001, is the Decision Institution of Inter Partes Review that the Board provided in this case; is that correct?
A Yeah, I believe this is correct.
Q Okay. I will just direct you to pages 9 and 10 where the host processor is discussed.
A Yes.
Q Specifically on page 10. Here the Board says on -- I think it's the last sentence of that paragraph: "Accordingly, consistent with the specification, we construe 'host processor' as 'a device or element that delivers an incoming transport stream (i.e., a stream of packets) that may contain instructions for controlling the playback to a decoder device (such as any audio or visual decoding device or functionality.)'"
Is that the construction of host processor that you were referring to?
A Yeah, that's what it says here. Yes.
Q And do you agree that the construction provided by the Board is the broadest reasonable

construction of the term host processor?
A I agree with the Board. I mean, this is the construction they're providing.
Q Is it your opinion that the term host processor as defined by the Board here is final?
A I don't know how the process works. I mean, this is what the Board has said. I'm not sure what happens next. Is it final?
As far as I know, I think this is the interpretation for this term that will be used for the rest of this proceedings.
Q Okay. I guess that is irrelevant, so --
So, again, your opinion of the broadest reasonable construction of the term host processor you said is consistent with what the Board provided?
A Yes.
Q And you also said it's consistent with what Broadcom provided?
A I believe so.
Q So you believe the two constructions, both Broadcom's and the Board's, are consistent with each other?
A I think they are, yes.
Q Looking at the '967 patent -- I appreciate you

keeping everything in line.
A Otherwise, it's going to be a mess for me, so --
Q Yeah, I've been through that.
So, again, referring to how the '967 patent uses the term host processor, is it your opinion that the '967 patent uses that term, host processor, in its ordinary sense in the specification?
A Where are you talking about? Is there a particular place you're talking about?
Q I guess specifically column 3.
A Okay.
Q Line 40 through -- I'm going to call that 52. Okay?
A Okay. I've read it. I'm sorry, what is your question?
Q Is it your opinion that the '967 patent specification uses the term host processor in its ordinary sense in this paragraph of the '967 patent?
A Well, I mean, the Board has construed the term to mean something in particular. And in my analysis, I construed it or I used a particular construction.
So I'm not sure I'd say ordinary. I used

the proposed construction that I talk about in here, which I think is consistent with what the Board said.

Q My question is just in reference to the '967 patent and how the patentee uses the language host processor in the specification.

A But, again, I'm looking at the specification in light of the constructions that have been provided to me.

Q And I'm asking you to look at the -- just this -- if you're looking at the patent and looking at the term host processor as it's used in the patent, as a person of ordinary skill in the art reading the use of host processor, would you understand that it's being used in its ordinary sense?

A I don't know how to answer that question, because, again, looking at this I have, you know, interpretations from the Board and also what I use in my report.

So, I mean, I think those are probably consistent. Maybe they're con -- I'd have to think about that a little bit. But, again, I applied the constructions that I describe in my report, and which I think are consistent with the

construction applied by the Board. So I'm not really sure how to answer your question.
Q So you've never --
A That's the analysis.
Q Please continue.
A No, I'm sorry.
Q No.
A I apologize for that. I'm not -- I mean, that's the way I did the analysis of the patent, as I describe here in my declaration, so --
Q Well, you didn't have the Board's decision when you did your declaration; correct?
A No, but I did have some construction of that particular term that I used; and it's clearly described in my report.
Q So you never determined whether -- when doing your report whether the term host processor is used in its ordinary sense as to a person of ordinary skill in the art when applying that term to the prior art?
A I -- again, when I applied it to the prior art, I described how I interpreted that term in my report when I applied it to the prior art.
Q Correct. You took a construction handed to you and applied that prior art. Is that what you're

saying you did for your expert report?
A I wouldn't describe it that way. I took a construction that I believe Broadcom was using in one of their other legal matters and applied that to the prior art. I used that construction. That is the construction I used.
Q So you never analyzed whether the term host processor is used in its ordinary sense in the specification and in the claim terms?
A I'm sure I considered that, yes.
Q And what was your -- what was the result of your consideration?
A Again, what I have in my report is the result of all my considerations.
Q So in your report you simply state, "Here's what Broadcom has, and I'm applying that"? You don't provide any analysis of the term host processor; correct?
A I'd have to look everyplace I used host processor, but the part we did mention, that one -- where we were at on page 40, I think it was, I used Broadcom's definition of host processor.
Q So I guess going to your expert report, as we previously determined you didn't define host

processor in the claim construction section of your report; correct?

A I believe I did not.

Q You simply stated that you were going to apply the broadest reasonable construction in light of the patent and specification; correct?

A I did, and I think I did.

Q And then going to the application of the term host processor, which is on page 41, we can look at it again if that helps you, you simply stated, "I understand that Broadcom has asserted in related litigation that the phrase host processor means," then there's a construction; is that correct?

A Yes, and I believe that is the broadest interpretation. And as I said before, I think it's consistent with what the Board has said later.

Q But nowhere in your report do you make a determination or say anything about the term being given its plain and ordinary meaning; correct?

A Again, I think the broadest possible interpretation would also -- seems to me would include plain and ordinary meaning. But, again,

I have what I did in the -- in my report.
Q So to a person of ordinary skill in the art, is the term host processor a common term?
A Well, again, you'd have to read that term in light of specification of the patent. So I think it's a term that's used, but, again, you'd have to look at it in light of the specification of the patent.
Q I understand. So I'm just asking you to take yourself back to prior to ever seeing the '967 patent.

The term host processor, to you as a person of ordinary skill in the art, was that a common term that you could define?
A I think it was a term that was used, yes.
Q Okay. And prior to ever seeing the '967 patent, what would have been your understanding of a host processor?

MR. JOHNS: Objection to scope.
A I would think it was -- a processor would be something that would manipulate data of some sort. And, again, you'd have to look at the -- how it was being used -- the context it was being used.

Again, relative to the patent, the '967, we

would look at it in the context of the specification for what it was doing.

Q Yeah, I understand. In this hypothetical, though, we're time traveling, prior to you knowing the '967 patent's existence, and I just asked you, came up on the street and said, "Host processor, what is that?" and wanted to know your answer, that's what I'm asking for a response of.

What would your response to that question -- hypothetical be?

MR. JOHNS: Objection to scope.

A Again, this is totally outside the context of the '967 patent. I would say it's a processor -- excuse me, it's a device that processes, handles data.

Q Okay. What about the host aspect to the term? What you just mentioned there really didn't -- to me it didn't seem like it factored in that word host.

MR. JOHNS: Objection to form.

A Again, totally outside the context of the patent, it would seem to me the host would be -- could be something that was maybe embedded into a system as part of the system. You might think of it maybe as also the main processor. But, again, it

would be the context under which it was used.
Q I understand all that.
A And, again, it's -- we're outside the -- we're not -- we're outside the scope of the patent here.
Q I understand all that. All right.
So what I just handed you has previously been designated as Exhibit 1003 in IPR2017-01544; correct?
A Yes.
Q And Exhibit 1003 is United States Patent Application Publication No. 2002/0061183; correct?
A Yes.
Q And as a matter of convenience, I will refer to Exhibit 1003 as the MacInnis patent. Is that okay?
A That's fine.
Q Okay. Can you please look at paragraph 68 of the MacInnis patent.
A 68?
Q 68.
A Okay. I am at paragraph 68.
Q So I guess just -- you can just take a second just to read it.

(Witness complied with request.)
A Yes, I've read it.
Q Here MacInnis generally discusses skipping rows below the I-slices in a progressive stream; correct?
A I think it's talking about this use of an index table. Paragraph 68?
Q Correct.
A Yeah, it really talks about the use of an index table.
Q About halfway down the paragraph it says: "In order for the decoder to skip the rows that do not need to be decoded and go directly to the next picture, it is preferable that the decoder knows where the picture starts."
A Yes, it says that.
Q So here it's talking about skipping the rows below the I-slices; correct?
A That's not what it says. It just says skipping the rows that do not need to be decoded.
Q So the sentence before that says: "Only some of the rows need to be decoded in some pictures, for example, the top D (refresh depth) rows of an entry picture." Do you see that?
A Yes.

Q So here it's talking about only decoding the rows that need to be decoded; is that correct?
A That's what it's talking about, yes.
Q And then in the next sentence it's talking about skipping rows that do not need to be decoded?
A That's correct.
Q Okay. And as you pointed out, this whole discussion is in reference to with use of an index table; is that correct?
A Yes.
Q So can you go to paragraph 81.
A Of the same document?
Q Of the MacInnis patent, yes.
A Okay.
Q And paragraph 81 is under the heading, "Normal or Slow Forward Playback"; is that correct?
A That's what it says, yes.
Q Okay. I'll just give you a second to read the paragraph.
(Witness complied with request.)
A Okay. I've read it.
Q Okay. And in this paragraph MacInnis talks about using an index table; right?
A It mentions an index table.
Q It says the use of an index table is preferred;

is that correct?
A It says -- there is a phrase that says the use of an index table is preferred, yes.
Q Okay. And it states: "The use of an index table is preferable, as the decoder may be able to produce a fully decoded picture more quickly when the decoder starts at an entry picture, and an index table can assist by indicating the locations of appropriate E pictures"; is that correct?
A Yes. It also says E pictures, not entry pictures, which I think you said on the record.
Q Okay. I was imparting my extreme knowledge of decoding.

Anyway, so the discussion here about using an index table to more quickly get a fully decoded picture is the general discussion in paragraph 81; correct?
A It just talks about how you could use an index table, that's the way I would characterize it.
Q And tying this back to paragraph 68 where it talks about the benefits of an index table, would a person of ordinary skill understand that the benefits discussed in paragraph 68 would also apply in the sense of paragraph 81?

A 81?

MR. JOHNS: Objection. Form.

A I'm sorry, could you ask the question again?

Q Sure. Paragraph 81 -- I'll rephrase it to hopefully be more clear.

Paragraph 81 talks about using an index table to beneficially get a fully decoded picture more quickly; correct?

A It talks about that, yes.

Q And then going back to paragraph 68, which talks about the benefits of an index table generally, here it talks about skipping rows to provide that decoded picture more quickly; correct?

A It talks about that among other things, yes.

Q So would a person of ordinary skill in the art reading paragraph 81 under the "Normal Slow Forward Playback" section understand that the functionality and process discussed in paragraph 68 would also occur?

A I don't know what you mean by the functionality in paragraph 68.

Q The row-skipping functionality of paragraph 68 specifically.

A It would talk about how the index table -- they would understand how the index table worked, I

guess, yes.
Q Would a person of ordinary skill understand that the row-skipping functionality discussed in paragraph 68 would also occur in the context of paragraph 81?
A Well, paragraph 68 talks about the performance improvement of using an index table; and so does -- in a sense so does also paragraph 81. So I'm not sure how to answer your question.
A person of ordinary skill in the art would understand the benefits -- I would think would understand the benefits of an index table.
Q And as paragraph 68 explains, the benefits of the index table is a quicker method of getting a decoded picture based on skipping rows that don't need to be decoded; correct?
A It talks about that, among other things, yes.
Q So my question is that benefit as discussed in paragraph 68 would also be a benefit that would occur when the index table is used in the context of paragraph 81; correct?
A Yes, but the patent also talks about how you could have a system that didn't have any index table.
Q Okay. Can you please look at paragraph 37 of the

MacInnis patent, please.
A 37?
Q 37.
A Okay. Can I read it?
Q Yes, you can.
A Okay.
(Witness complied with request.)
A Okay. I've read it.
Q Okay. So looking at the first sentence, it states: "A data transport processor 116 preferably de-multiplexes the TS into its constituents"; correct?
A That's what it says, yes.
Q And a person of ordinary skill in the art would understand that MacInnis' reference to the constituents refers to PES packets; correct?
A Well, it's referring to the two transport streams, yes.
Q So MacInnis talks about multiplexing the transport stream into constituents?
A Yes.
Q What would --
A I wasn't sure that was a question. I'm sorry.
Q Sorry. What would a person of ordinary skill in the art understand the constituents to be?

A Well, the audio and video streams, and there might also be some auxiliary data inside the transport stream.
Q The audio and video streams, those would be packetized into PES packets; correct?
A Yes.
Q Okay. So the constituents referred to here would be the audio and video PES packets?
A Well, the audio -- as it says here, the audio and video transport streams.
Q Yes, that's what it says there. But in practice, a person of ordinary skill in the art would understand that the video transport stream would be the video PES packets; correct?
A It probably would be -- yes, it would be packetized.
Q Okay. MacInnis then explains that the video constituents are passed to a video transport processor 118 and then to an MPEG, M-P-E-G, video decoder 120; correct?
A That's what it says, yes.
Q Okay. So the audio and video PES packets would go to the video transport processor; correct?
A Not the audio.
Q Oh, yeah, I misspoke. Let's just focus on video

to make it easier for both of us.
A Okay.
Q The video PES packets would go to the video transport processor 118; correct?
A Well, the video transport stream goes to the video transport processor, and then it goes to the MPEG video decoder 120.
Q Yes, I understand what that says. But as we just discussed, the video transport stream in reality is the video PES packets; correct?
A It has -- it's a packetized stream, yes.
Q And a person of ordinary skill in the art would understand that that packetized stream is known as a PES packet in the MPEG standard; correct?
A That's what it's sometimes referred to as, yes.
Q So the PES packets go to the video transport processor 118; correct?
A The transfer stream goes to the video transport processor, yes.
Q That wasn't what I asked. I said the PES packets -- the video PES packets go to the video transport processor 118?
A Well, they go to -- well, I'm just looking at what it says here. And it says here that the transport stream, the video transport stream,

which would be packetized, goes to the video transport processor 118.

Q I understand what it says there. And what it says there, with the knowledge of a person of ordinary skill in the art reading what is there, would understand that the video PES packets go to the video transport processor 118; correct?

A I believe that's correct.

Q And then the MPEG video decoder would only receive the elementary stream data; correct?

A Probably.

Q Probably?

MR. JOHNS: Objection to form.

A Well, it goes to the transport processor 118 -- actually, let me look at the figure.

Okay. I'm sorry, there was a question pending. Could you ask it again? I think there was a question pending.

Q Yes, I'll repeat it.

A Okay.

Q The MPEG video decoder would only receive the elementary stream data; correct?

A I believe that's correct.

Q Okay. So in MacInnis' system, the transport packets are broken apart, and only the elementary

stream data actually goes to the MPEG video decoder; correct?

A Well, I mean, you could also look at the entire process. You know, you could look at 118 and 120 combined in a sense being a video decoder. But, you know, there's not anything specific here about what each one of these operations are doing. So it really depends.

I could see, also, saying that the transport processor -- I don't see if there's somewhere else in here. I don't remember a discussion about what box 118 does. Let me see.

So, you know, the whole process there eventually decodes the video. So I'm not sure, is there a question pending? I thought I answered the question, but --

Q So I just asked that in MacInnis' system as described in paragraph 37, with the knowledge of a person of ordinary skill in the art reading paragraph 37, would understand that the transport packets are demultiplexed and broken apart such that only the elementary stream data would end up at the MPEG video decoder 120; correct?

A Well, again, it doesn't talk about what -- in here it doesn't talk about what the MPEG video

decoder accepts. It just talks about a transport processor. So that would be one interpretation of what it does, yes.

But also remember that the video transport processor is also part -- later in the paragraph it talks about how that is used to implement the trick modes. So you'd have to read it in the entire context.

Q So correct me if I'm wrong, it's your opinion that it's not clear what packets are or what information is going to the MPEG video decoder 120 in MacInnis?

A No, I'm not saying that. I'm saying it is an MPEG video decoder, 120 is an MPEG video decoder, as it says here. And then the video transport -- it does talk about the video transport processor 118.

And so I think, again, one skilled in the art, there's a couple of different interpretations that would be consistent with what the transport processor does and what the MPEG video decoder does.

Q And what would those interpretations be?

A Well, it actually mentions here in paragraph 38, it says, "In order to support trick modes during

playback, the MPEG video decoder preferably has a way to randomly access the recorded transport streams stored in the storage device."

So it's actually talking about the MPEG decoder actually has some way of, in this particular implementation, accessing the transport stream. That's what it talks about in paragraph 38.

Q But the -- to a person skilled in the art, the actual MPEG video decoder would only be decoding the elementary stream video data; correct?

A Well, MacInnis says that the MPEG -- the video decoder he's talking about here has ways of also randomly accessing the recorded transport stream.

So, again, I think, you know, it's a little bit more complicated.

Q Would you say it's not clear what information is sent to the MPEG video decoder?

A Oh, no, I would not say that at all.

Q So, in your opinion, what information is sent to the MPEG video decoder 120 in MacInnis?

A Well, the MPEG video decoder, you know, accepts the information it needs to be able to decode the video. The trans -- it could be one interpretation of this is that it's the

elementary stream.

Another interpretation of this, that the transport processer just passes along, and the video decoder actually decodes the packetized stream, which might be also consistent with the -- what is said in paragraph 38.

Q Okay. Can you please look at paragraph 40 of MacInnis.

A Oh, we're still in MacInnis. I'm sorry.

Q Yep. I'll give you a second to read paragraph 40.

A Okay.

(Witness complied with request.)

A Okay. I've read it.

Q Okay. Looking at the first sentence there, which states: "In an embodiment according to the present invention," that first sentence. Do you see that?

A Yes.

Q In this sentence it talks about the data transport driver, the DTD --

A Yeah.

Q -- being responsible for data flow of the stream; correct?

A Yes.

Q But MacInnis does not explain what the DTD's responsibilities for data flow of the stream are; correct?
A Well, it goes on and says that -- what it does. It says: "in this embodiment also preferably inserts a command transport packet containing various commands to the video transport processor and the video decoder."
Q Well, MacInnis says that the DTD is responsible for data flow of the stream. What does that mean to you as a person of ordinary skill in the art?
A I think I talked about this in my report when I believed what was going on here. So maybe I should look at the report, then, too.

I'm sorry, if there's a pending question, could you ask it again?

Q Sure. In paragraph 40 MacInnis talks about the DTD being responsible for data flow of the stream.

My question to you is: What is your understanding of MacInnis saying that the DTD is responsible for data flow of the stream?
A Well, I think it further in that paragraph says what it does, you know, "preferably inserts a command transport packet containing various

commands to the video transport processor and the video decoder."

So it's responsible for the data flow of the stream to be played back. I think it's pretty clear what it says it does.

Q So it's your opinion that when MacInnis says the DTD is responsible for data flow of the stream, he means the insertion of command transport packets?

A That's what it also does.

Q So --

A That's what it says right here in paragraph 40.

Q So now I'm confused. Is the insertion of command packets a subset of the responsibilities for controlling data flow, or is that a separate responsibility of the DTD, in your opinion?

A I think it's all the same. It's all part of what it does.

Q I understand that's what it does. My question is: When MacInnis says that the DTD is responsible for data flow of the stream, what is your opinion MacInnis is referring to by that statement?

A It's clear. It just says responsible for the data flow of the stream to be played back. It's

responsible for the -- for data flow. I'm not sure how else I can explain it. I think he did a good job explaining it right here.

Q In the third sentence there it says: "The inserted transport packet preferably contains command fields for controlling the data flow of the MPEG video stream during playback." Do you see that sentence?

A Yeah, I see it.

Q So it's your opinion that the inserted transport packets for controlling the data flow discussed in the third sentence here is a subset of what is discussed in the first sentence under the responsibilities of data flow?

A No, I think it's part of what it does.

Q Part of what it does --

A Of what the DTD does, the DTD does.

Q It's part of what the DTD does in part of -- let me say that again.

It's what the DTD does while it's responsible for the data flow of the stream?

A Yeah, I mean, that's what it says.

Q Okay. In the second sentence there --

A Same paragraph?

Q Same paragraph. Sorry. It says, "The DTD in

this embodiment also preferably inserts a command transport packet containing various commands."

Do you see that sentence?

A Yes.

Q MacInnis does not explain what these various commands are; correct?

A Oh, I think it -- he gives some examples.

Q Such as?

A Well, it has to do with the commands for controlling data flow of the MPEG stream during playback. So it's some of the commands for playback and uniquely identifying the command transport packets.

So I think it -- he does indicate what these things are for. I'm not sure it's an exhaustive list.

And then on 41 he goes on, for example, it talks about how they -- the PIDs, P-I-D numbers, what's going on there as far as the inserting or using the PID numbers.

Q So the commands -- the various commands that are discussed in paragraph 40 are commands for controlling playback?

A Among other things, yes.

Q What are those other things?

A Well, it says various. So you could have other commands other than playback. And it also talks about there may be several unique options identifying the command transport packets. And then 41 goes in for example; and 42 does another example; and 43 does another example.

Q So the end of that paragraph talks about uniquely identifying the command packets, not the commands in the command packets; correct?

A I think it's all the same.

Q Identifying the command packets is the same thing as the commands inside the command packet?

A Yeah, because you're identifying the command packets that tells you what are the commands in the command packets.

Q Paragraph 41 and 42 talk about methods of identifying the command packet; correct?

A It just talks about some examples of different embodiments.

Q Different embodiments of identifying the command packets; correct?

A It just -- it talks about how you could use the PID numbers of the command transport packets so it can parse the command structure accordingly. So, again, it shows you how you could use the

command information.
Q To identify the command packets; correct?
A I don't see where it says identify in paragraph 41.
Q Wouldn't -- when it talks about "the CPU preferably indicates the PID number of the command transport packet," isn't -- wouldn't a person skilled in the art reading that understand that that is how packets are identified?
A Well, it talks about how it can parse the command structure. So I'm not sure that's -- that is identifying, among other things, so you can parse the commands. In other words, how you could parse the commands out of the packets.
Q But paragraphs 41 and 42 do not discuss what commands could be inside the command packets; correct?
A No, but -- they don't say that explicitly. But, again, one of the things that this patent is directed towards is trick modes.

So, among other things, one would understand that's the type of thing that one would be talking about.
Q And then continuing on to paragraph 43. This paragraph starts, "In other embodiments";

correct?
A Those are the words at the beginning of that paragraph.
Q So this paragraph is referring to embodiments that are different from the embodiments referenced in the previous paragraphs; correct?
A It says: "In other embodiments," yeah.
Q So is your understanding that paragraph 43 is discussing embodiments different from the embodiments discussed in paragraphs 40 through 42?
A It just says: "In other embodiments." So it means other ways, I guess. It says: "In other embodiments."
Q And I'm asking a person skilled in the art when you read "In other embodiments," do you understand that to be a different embodiment from those discussed in paragraphs 40 through 42?
A It could be a different embodiment, yes.
Q It could be the same embodiment?
A It's possible, but it does say, "In other embodiments."
Q And why do you think that that language would indicate to a person skilled in the art that you're still in the same embodiment discussed in

the previous paragraphs?
A Well, if you read the paragraph, it says: "Various different software, hardware and/or firmware available to those skilled in the art may be used to provide commands to the data transport processor, the video processor and/or the video decoder to implement and control the trick modes."
It would seem to me that would also apply to the other embodiments.
Q This paragraph's talking about various different software, hardware and firmware to provide commands. And the previous paragraph talked about inserting command packets; correct?
A Yes, that's correct.
Q So rather than being complementary, this paragraph is discussing a different method of providing commands to the data transport processor, video transport processor and video decoder; correct?
A I wouldn't interpret it -- I would not interpret it that way.
Q When paragraph 43 states providing commands, it does not say providing command transport packets; correct?

A Well, it says -- talking about "provide commands to the data transport processor." So, again, this would be ways of implementing the trick modes. So there's nothing -- that's what it says.

Q And paragraph 43 could be referring to methods that do not include command packets; correct?

A Well, it says: "These other embodiments may or may not use command transport packets." So it says may or may not.

MR. YEBERNETSKY: We've been going for an hour. I think this is an okay breaking point.

THE WITNESS: Take a break?

MR. YEBERNETSKY: Yeah.

(A recess was taken.)

BY MR. YEBERNETSKY:

Q So, Dr. Delp, we're going to keep talking about the MacInnis patent. So can you go to paragraph 89.

A Yes.

Q Just a heading that says: "Fast Forward with Skipping Data."

A Yes, that's what it says.

Q Okay. So under this heading is paragraph 95 on the next page, which is actually under a

subheading of "Using an Index Table." Is that all correct?
A Yeah.
Q It's all just to get oriented. And paragraph 9 -- I'll let you read paragraph 95.
(Witness complied with request.)
A Okay. I've read it.
Q Okay. So this section under paragraph 89 through -- you know, continuing through 95, this talks about certain functionality using an index table; correct?
A It talks about using an index table, yes.
Q Paragraph 95 talks about a functionality that's being done on the stream; correct?
A Call it a functionality, it talks about decoding.
Q So paragraph 95 talks about a decoding process that is done on the stream; is that more accurate?
A Yeah, I guess that's correct.
Q And paragraph 95 does not discuss what initiates this decoding process; correct?
A I'm not sure I understand what you mean by initiates.
Q So it talks about a decoding process being done, but it doesn't talk about what starts the

process; correct?
A It doesn't talk about the initiation process, per se, although it does mention about the decoder being able to find the start of each picture. So it does talk about something similar to that last sentence.
Q That last sentence talks about the process still of finding each picture so that it knows where the slices begin and end for each picture; correct?
A Well, it says -- it talks about the decoder being able to find the start of each picture without parsing all of each picture. So I think that would be part of the initiation process.
Q The last sentence doesn't discuss what actually initiates the video decoder to search for the start of each picture; correct?
A It doesn't say that specifically in this particular isolated paragraph, no.
Q In the section that it's in starting with paragraph 89, "Fast Forward with Skipping Data," MacInnis doesn't talk about the initiation of the decoding process in this whole section; correct?
A I don't know. I haven't read the -- I haven't memorized the entire section. So I guess I'd

have to read the whole thing to be able to answer your question. You want me to read the entire section, or do you have a question?

Q Yes, please. I thought you were already reading it.

A I am reading it. I just didn't know if you wanted me to read the whole thing or you want to ask me questions.

Q I didn't want to interrupt you by asking you if you were reading it.

A Okay. I am reading it.

Q Just so we're clear. Thank you, though.

(Witness reviewing document.)

A I've read that Section C. I guess that's the one we're talking about.

Q Correct.

A Yeah, I've finished reading it.

Q So going back to my question, that section, Section C, does not discuss what initiates the decoding functionality discussed in Section C; correct?

A It does not discuss the initiation for this section "Fast Forward with Skipping Data," that is correct. Although, there are -- you know, there are implications that the initiation

sequence has started, but this assumes you want to be able to do fast forward, and this describes how you would do fast forward.

Q So there's nothing in Section C that states that the fast forward decoding functionality is initiated by a command packet; correct?

A Oh, it doesn't state that explicitly here, but the -- earlier on it implies that there are command packets to be able to do this.

So this just describes once you want -- how you would do a particular -- you know, if you had a command packet for fast forward, this tells you how you would do it.

So, I mean, this is an isolated part, it just describes how you would do fast forward. But clearly we talked earlier -- you and I talked earlier about command packets.

Q Yeah, I understand. So Section C doesn't discuss the use of command packets to initiate that decoding functionality; is that correct?

A But there are other places in the patent that do talk about that.

Q I understand. I'm just talking about Section C.

A It just talks about how you would do this one trick mode.

Q So, again, Section C does not discuss the use of command packets to implement the decoding functionality of Section C --
A No, I wouldn't --
Q -- correct?
A -- characterize it that way. I would say that it talks about if you have a command packet that wants to do fast forward, it tells you how you would do fast forward. That's how I would interpret it.
Q The word command packet is not used in Section C; correct?
A But it's used other places. I mean, this is -- again, this is in isolation. This just talks about how you would process the video data, I guess that would be one way to describe it, to be able to do the fast forward.

But this assumes that a command packet or other mechanism was used to start to say you want to do fast forward. So, again, you can't keep it -- take the whole thing in isolation. You'd have to look at the entire specification.

Q So you said this assumes that a command packet initiated it. Isn't it more like you assume a command packet initiates it when you read that?

A No, because, again, it talks about how these index tables are used. And it talks about, okay, I want to do fast forward, this is how I do it.

We clearly, you and I talked earlier about command packets and what the -- those processors did, among other things, to -- for relative to command packets.

Q But then you're assuming the command packet actually initiates the fast forward functionality in MacInnis; is that correct?

A I'm assuming that's one way to do it. We talked about that earlier, back on those paragraphs 40 through 43, I believe.

Q But Section C, Section C only, does not explicitly discuss using command packets to initiate the decoding function; correct?

A The isolated Section C does not say that explicitly.

Q Okay. Can you please look at paragraph 154 of MacInnis.

A 154. Okay.

Q Please take a second to read it.

(Witness complied with request.)

A Okay. I've read 154.

Q Okay. Here MacInnis states: "The preferred

means to control the decoder is for the host to tell the decoder, via an API call"; correct?

A Uh-huh, that's what it says.

Q Can you please explain to me what an API call is?

A It's an application programming interface.

Q So that's what API stands for. Can you explain what it is?

A It's just a command that goes into the decoder.

Q Is it a software command?

A It could be. It could also be part of the hardware system. It depends upon how you implement it.

Q So API calls are commands from hardware or software directly from the host to the video decoder?

A That's not what it says here. It says -- again, we'd have to look at the -- this is just -- you're taking it out of context. I'd have to look at the entire section here, but it's just a way of -- it talks about how it's commanding the decoder to do something, or controlling the decoder, I guess I should say. And it's for the host, so I'm assuming it's meaning the host processor.

Q It appears you're reading now. Do you want a

second to read the section before I ask more questions or --

A Why don't you ask the question, and I'll see where it goes.

Q Okay. I'm -- and just a person of ordinary skill's knowledge of what an API call is when reading this section, I'm just trying to get that understanding right now.

So when it says the host controls the decoder via an API call, this would be implemented in either software on the host processor or through a hardware interface; is that correct?

A Yeah, it's possible.

Q What are the other possibilities?

A I'm not sure there are any other possibilities. Hardware/software, could be a combination of both.

Q And with the exception of going through buses to send the API call, this is a direct communication between the host and the decoder; is that correct?

A It says, "the preferred means." This is just the preferred means, it's not the only means, to control the decoder is for the host to tell the

decoder, via the API call. So there could be other ways of controlling the decoder.

Q I understand that. That's why I just want to focus on an API call method that's discussed here.

A Yeah, this is very specific.

Q Yes. An API call, that is a direct communication, possibly through buses, between the host processor and the decoder; correct?

A It is a communication. It says "for the host to tell the decoder to start decoding from a specific point." So it is a control signal.

Q Okay. Continuing on to paragraph 155, it says: "There may be additional API functions for the host to indicate to the decoder the intended decode rate, and functions for the decoder to tell the host its current progress through the stream, where it is currently in the linked list, and other information."

Did I read that correctly?

A Yes.

Q It continues on, "The host and the decoder may interact dynamically to adjust such parameters as the desired decode rate, either to adapt to an inability of the decoder to maintain a desired

rate, or to change the intended rate of play."
Did I read that correctly?
A Yes.
Q So this paragraph is talking about the API calls being used to control the video decoder's decode rate and playback speed; right?
A That's what it's talking about for one particular way of doing it, yes.
Q And --
A You could also have ways where you could pass information directly in the video stream to be able to control the decoder. I've seen that done, too. As a matter of fact, it's talked about in the patent.
Q I understand. So these API calls that are discussed here for controlling the decoder, could they be used to initiate the decoding process we discussed in paragraph 95?
A It doesn't have that explicitly, so I'd have to actually study this a little bit more, but it talks about to -- in paragraph 154 it does talk about starting the decoding in specific location. But, again, I'd have to study this in more detail.
Q So paragraphs 154 and 155 talk about the host

controlling the decoder through API calls, we've established that; correct?

A It controls the decoder, yes.

Q And as we discussed previously, Section C, which paragraph 95 is a part of, does not explicitly say how that process is initiated; do you remember that?

A No. I mean, it could also be done through the command packets and the video stream.

Q I understand that. Could it also be done through API calls?

A It's possible, and that's one of the things it talks about in this embodiment here.

Q And just to be clear, when I said "it" could be done, I was referring to the functionality of paragraph 95.

A Well, it doesn't explicitly say that. So it just talks about how you start the decoding. It doesn't say a particular mode has been passed to it. It just says start the decoding.

Q Okay. So in reference to what initiates the decoding process of paragraph -- Section C, which includes paragraph 95, the API calls could initiate that process of Section C; correct?

A It doesn't say that explicitly here.

Q I understand that. As we discussed earlier, nothing in Section C explicitly talks about what initiates the decoding process of Section C. Is my recollection correct?
A I'm talking about paragraph 154. That's what you were talking about, I thought.
Q I'm talking about the host processor controlling the decoder. In paragraph 154 and 155, it clearly states that the host can control the decoder through API calls; is that correct?
A Yes, that's what it says. And it talks about to start the decoding process.
Q Okay.
A But it says nothing about modes, says nothing about trick modes, says nothing about fast forward.
Q It talks about API functions for the host to indicate to the decoder the intended decode rate.
Wouldn't that tell a person of ordinary skill in the art that you'd be decoding at rates that are not normal rates?
A It could. But, again, that has nothing -- it doesn't say anything about trick modes.
Q Isn't a trick mode a playback speed other than normal?

A It is other than normal? I guess that's correct, but that's not necessarily what you could interpret this here. Again, it doesn't -- it's not explicit. It says the intended decode rate.
Q Which could be fast forward; correct?
A It doesn't say that. So, again, it doesn't talk about the modes. Again, the modes could be passed through the decoder through the command packets as part of the video data.
Q I understand your testimony that the command packets can pass the decode rates?
A The modes.
Q The modes, I understand that.
A Uh-huh.
Q I just want to talk about the API call functionality between the host and the decoder as discussed here. Okay?

A person skilled in the art reading paragraphs 154 and 155 would understand that an API call could be used to control the trick modes between the host and the decoder; correct?
A It doesn't say that here. So I'm not sure how -- I don't believe one skilled in the art. We'd have to look at other support and specification.

It just talks about how the API could be

used to control the decoder to start the decoding process. It doesn't say anything explicitly about trick modes.

Q If you go up to paragraph 152 --

A Okay.

Q -- which 154 and 155 is discussed under; correct?

A Well, it's after. 155 is after 152.

Q I understand that. This paragraph is talking about trick mode playback; correct?

A It talks about normal speeds, slow forward, pause, and fast forward.

Q And those are trick mode methods of playback; correct?

A They could be.

Q Why did you conditionally answer my question with could be?

A Well, there's other trick modes. I mean, I would look at forward play and pause -- well, I'm not sure pause is a trick mode, per se, but forward play, fast forward, slow forward, I would look at those as being trick modes.

Q And they require the decoder to decode at rates other than 1X forward; correct?

A They have to decode it at different rates, that's correct.

Q Then continuing on to paragraph 155, it talks about API calls being used between the host and the decoder to indicate intended decode rates; is that correct?
A Yeah, but it doesn't say anything about the trick modes.
Q So it's your opinion that API calls could not be used to indicate trick modes between the host and the decoder?
A I'm just talking about what it says right here in the paragraph that we're talking about. I mean, could hypothetically API calls be used for trick modes? You know, outside the context of this patent, probably.
Q But when MacInnis talks about using API calls to send intended decode rates between a host and a decoder, it's your opinion that that does not explicitly talk about using trick modes?
A Yes.
Q If the intended decode rate was always 1X forward, then there would be no need to have the API communicate to the decoder intended decode rates; correct?
A Not necessarily.
Q Why not necessarily?

A Well, the API could be used for other things.
Q Such as?
A Well, here it's used to start the decoding from a specific point. That's what it says it's doing.
Q So starting the decoding from a specific point, tying it back to Section C could the API call be used to start the fast forward decoding discussed in Section C?
MR. JOHNS: Objection to form.
A It doesn't say that explicitly here. I mean, hypothetically outside the context of this patent could you do something like that? I don't know. I'd have to think about it.
Q So I guess can you go to paragraph 127.
A I'm sorry, 127, did you say?
Q 127, yeah.
A Okay. I'm there.
Q About halfway down it talks about "an API indicating abstractions such as 'start decoding at the next earlier entry point' or more abstract commands such as 'play in reverse order at 1X speed.'" Did I read that correct?
A You read that correct.
Q So this section of MacInnis is talking about API commands that can indicate playback speeds;

correct?
A I'm sorry, what is your question?
Q That this section of MacInnis talks about API commands that can indicate playback speeds; correct?
A It says that here, but it also says you can leave more decisions up to the decoder. So the API's not telling the decoder everything to do.
Q So it's still your opinion that a person skilled in the art reading MacInnis would not think that the API commands could send playback speed commands to the decoder?
A It says that it could be used for that, but it also says there were other decisions up to the decoder. And, again, reading what we talked about earlier, there are also command packets in the stream.

So, again, you know, you have the command packets that are also there. The API, that's what it indicates here -- or could do what it indicates here, I guess it says. It says may be ultimately made by the -- so it says, "to start decoding may also be made by the decoder," so --
Q So would it be fair to say that MacInnis talks about the command packets and API calls being

alternative methods for controlling the decoder playback?

A I'm not sure I'd -- I'd have to think about that, because it does talk about the command packets. And, again, it talks about this as one way to do it, where it's talking about this API -- these API calls.

Q So it's your opinion that command packets are one method for the host to control the video decoder; correct?

A I think command packets are one way for -- to control the overall trick mode operation, which would also include telling the decoder things to do, yes.

Q And API calls would be another method for the host to control the video decoder such as with trick modes?

A But you could have a combination of API calls and command packets. So there's nothing in -- that I believe in MacInnis that says you have to use API calls.

Q Would it be fair to say that there's nothing in MacInnis that says you have to use command packets?

A Oh, I think MacInnis basically describes you can

use both, so -- and it talks about these -- in this section about the API.

Q So my question is: Is there anything in MacInnis that requires the use of command packets?

A Well, no, but there's nothing in MacInnis that requires the use of the API.

Q I understand. Would you characterize a system that uses the command packets as a different embodiment from a system that uses API calls?

A I'd have to think about that. I don't know. I'd have to think about that.

Q Can you think about that now, or is it something you would be --

A I might want to think about it a little bit longer than just right now.

Q Okay. To your dismay or pleasure, I think we're done with MacInnis.

A Oh, okay.

Q I said I think. So if I go back to it at some point, do not shoot the messenger.

A I won't hold you to it, I promise you.

Q All right.

A Okay.

Q So what I just handed you has been previously designated as Exhibit 1004 in IPR2017-01544;

correct?
A Yes, that's what it says.
Q And Exhibit 1004 is U.S. Patent Application Publication No. 2001/0026677; correct?
A That's correct.
Q And, again, as a matter of convenience I will refer to Exhibit 1004 as the Chen patent. Is that okay?
A That's fine.
Q Okay. Can you please turn to paragraph 12 of Chen.
A Paragraph 12.
Q And please take a second to read it, and we'll discuss.
A I've read it.
Q Okay. So paragraph 12 is under the heading "Summary of the Invention"; correct?
A That's what it says, yes.
Q Okay. And it talks about that "The invention provides transcoding of progressive I-slice refreshed MPEG data streams to I-frame based MPEG data streams to enable trick play modes on a television appliance"; correct?
A That's correct.
Q So Chen's system will perform the transcoding

operation on every progressive I-slice refreshed MPEG data stream that enters the system; correct?

A I'm not -- no, I don't believe that to be true.

Q So I guess looking at Figure 3, Figure 3 shows a system of Chen and the progressive I-slice refreshed MPEG data streams entering the system; correct?

A You mean -- you're on Figure 3; right?

Q Yeah.

A Okay. I'm sorry, would you please ask your question again?

Q I was just -- as a reference point it shows that the progressive I-slice refreshed MPEG data stream 10 enters the system; right?

A I see that, yes.

Q And in Chen the purpose of it is to convert those progressive I-slice refreshed MPEG data streams into I-frame based MPEG data streams; correct?

A That's what it does in this figure, yes.

Q And I believe you said you weren't sure that it does it on every progressive I-slice refreshed MPEG data stream. Why do you think that?

A Well, this is just for enabling trick modes. I mean, this would be for trick mode implementation.

So if you're not doing a trick mode, you wouldn't use this. So if you're just playing the stream back, even the title of the patent says to enable trick modes, so --

Q So I guess looking at Figure 2 --

A Figure 2?

Q Yes.

A Okay. I'm at Figure 2, yeah.

Q Figure 2 is a flow diagram of the conversion of the progressive I-slice refreshed data stream to I-frame based data stream; correct?

A I'm not sure I'd characterize it that way. It's a Figure 2 of the patent.

Q And the only input is progressive I-slice refreshed data stream 10; correct?

A Yes.

Q And the only output is I-frame based stream 200; correct?

A Yes, this is for during trick mode.

Q So this system prepares the video for trick mode operation; is that correct?

A I'm not sure I'd characterize it that way. It's a way of doing trick mode. Clearly that's what the patent's talking about.

Q So looking at the summary of the invention, it

talks about preparing the progressive I-slice refreshed MPEG data stream for trick mode use; correct?

A Where does it say prepare? I'm sorry, I'm not seeing that.

Q I guess I was characterizing it. That's my characterization.

A That's not the way I would characterize it. The summary of the invention says what it says.

Q And it says that the progressive I-slice refreshed MPEG data stream is converted into an I-frame based MPEG data stream to enable trick mode play; correct?

A It's transcoded.

Q And it's -- if you look at the last sentence, "The I-frame based data stream is stored for trick play mode use"; correct?

A That's what the sentence says, yes.

Q So Chen's system converts the stream for later trick play use; correct?

A I don't know about later. It stores it, as we just said.

Q Chen does not discuss implementation of the trick mode; correct?

A It talks about it in here.

Q Where?
A It talks about how you could do -- how you could use this for doing the trick modes. It mentions, for example, pause, scan forward, scan backward, jump, things like that.
Q Yes, I will agree that Chen discusses a system that can set up the video for trick mode use, but Chen's system does not implement that trick mode; correct?
A I'm not sure I'd characterize it that way.
Q In Chen's system, a video comes in a progressive I-slice refreshed MPEG data stream, it is then converted to an I-frame based MPEG data stream and stored.

That is the end of the Chen system; is that a fair characterization?
A I'm not sure I would use that as a fair -- I mean, it's obvious that this -- these are used for trick modes. And one would understand -- one skilled in the art would understand that using the output of this, this I-frame based stuff, would be used for trick modes. He clearly talks about it in here, even in the background of the invention.
Q Okay. So will you agree that the I-frame based

data stream which is stored at the end of Chen is what is used to implement the trick modes?

A It is used for part of the trick modes, yes.

Q The progressive I-slice refreshed MPEG data stream is not played back for the trick mode; correct?

A I would disagree with that characterization, just one step. There's nothing in here that precludes this being used as far as playing back. I would disagree with that characterization.

Q Chen never discusses using the progressive I-slice refreshed MPEG data stream in playing that back in a trick mode; correct?

A I believe he does. Talks about that in the introduction to the patent. I believe it's talked about later. But he does talk about this transcoding step.

Q You say he talks about that in the introduction to the patent?

A I mean, the patent talks about the transcoding step, yes.

Q My point is that's all the patent talks about, is transcoding the progressive I-slice refreshed MPEG data stream to an I-frame based data stream for later trick play. That's Chen's patent;

correct?
A I wouldn't characterize it as later trick play. It's for trick play.
Q Chen does not discuss displaying videos in a trick play mode; correct?
A I think he does, yes.
Q Where does he discuss that?
A He talks about how you could enable this idea of what his invention is. Transcoding is to enable the trick play. So it's allowed to minimize this use for this real-time performance it talks about.

So one skilled in the art would know that, you know, going to an I-frame only transcoding step would allow all these trick play modes to be done.
Q Allow them to be done later?
A You could be doing them in real time.
Q But Chen does not discuss that; correct?
A There's nothing here that says you can't do it in real time.
Q There's nothing in there that says you can do it in real time; is that correct?
A But one -- again, one skilled in the art would understand you could do this in real time.

It's -- yes.
Q Would you agree that Chen does not explicitly say either way whether you're doing it real time or later; would that be fair?
A I don't know if I'd say that was fair. Again, I'd have to read the entire patent to be able to answer that question.
Q Would you agree that Figure 2 ends with an I-frame based data stream being produced?
A I guess I would agree that Figure 2 as stated, the output of Figure 2, is I-frame based stream 200, that's what Figure 2 shows.
Q Okay. Let's go to Figure 3. Would you agree that the output of Figure 3 is an I-frame based MPEG data stream?
A Again, this is for doing strike modes, yes.
Q But the end of Figure 3 is not display, it is an I-frame based MPEG data stream; correct?
A No, I think he talks about display in here, how you would display that.
Q I'm just talking about Figure 3.
A Well, again, you're sort of talking to me about the entire patent, but Figure 3 talks about the output as this I-frame based data stream. But, again, this is -- he clearly talks about

displaying this, because you're talking about trick modes.

If you're not -- trick modes are not useful unless you have display. Okay? Who cares about trick modes other than for display?

Q So would it be safe to say that it could be inferred that these -- the Chen's invention is only used for displaying video?

A No, it's much more complicated than that.

Q Would you agree that the focus of Chen's invention is the conversion of progressive I-slice refreshed MPEG data streams to I-frame based data streams?

A No.

Q Would you not agree that the -- that is the focus of the summary of the invention paragraph, paragraph 12?

A No.

Q How would you characterize the central focus of the summary of the invention?

A Well, just what it says. You're talking about trick modes. He talks about how -- in his particular invention how he's going to do trick mode.

Q Chen does not discuss how they -- let me

rephrase.

Chen does not discuss how the I-frame based data stream is then played back at different trick mode speeds; correct?

A But that would be very obvious about how you do it. He even talks about how people have done trick modes in the past in the introduction to the patent, so --

Q And what would that obvious method be?

A Depends on what the trick mode is.

Q So how does Chen explain the display of the I-frame based data stream in fast forward?

A Again, he talks about that, this idea -- you know, how you would do some of these trick modes. But, you know, the concept of trick modes were known way before this patent.

So as far as an I-frame based approach, one way to do it would be to skip I-frames if you want to do fast forward. And I think he even talks about skipping I-frames in here, too, so --

So one would know how to do that.

Q But Chen does not explicitly say how to do that, and that being trick mode playback?

A I disagree with that. Again, I'd have to look at the entire patent, but I -- is there a question

pending? I'm sorry, because I was just reading the patent.

Q I said that Chen does not explicitly say how to perform the trick modes to display the video in trick modes; correct?

A No, I disagree with that. I disagree with that.

Q And why do you disagree with that?

A Well, number one, one skilled in the art would understand how to do trick modes with an I-frame based video -- with an I-frame only based video sequence.

And he talks about this other places, like in paragraph 33 he mentions it. I think maybe I even talk about it in my report. I'll take a look at that.

So, I mean, it's very clear that the I-frame based method -- and, as a matter of fact, let me look. Yeah, I mean, Chen clearly talks about these modes and how his invention makes it easier to be able to do these modes with this I-frame based stream. And he also talks about an image -- a television appliance. So to me, again, that implies display.

Q Okay. I think we can both agree that Chen discusses trick modes; do you agree with that?

A Yeah, let me make sure -- yes. I'm sorry.
Q So Chen discusses trick modes?
A Uh-huh.
Q Chen discusses creating an I-frame based video stream that is stored so that trick modes can be implemented; do you agree with that?
A He talks about implementing trick modes, yes.
Q Using the I-frame based video stream that's saved in memory; correct?
A Yes.
Q Chen does not discuss how the I-frame based video stream that's stored in memory is then implemented on the display via trick mode; would you agree with that?
A I disagree with that.
Q Can you point me to somewhere in Chen that specifically discusses how the I-frame based video stream is implemented in a trick mode on a display?
A Well, he talks about that. I mean, clearly this I-frame only method -- and, again, one skilled in the art would understand that once you had this I-frame method -- I-frame based video, any of these trick modes would be very easy to do. And so, you know, as far as doing fast forward or

fast reverse, because you don't have to worry about decoding any of the predicted data.

Q For the sake of argument, we'll say that you are right, it would be obvious to do, to implement the I-frame based video stream on the display.

I'm asking where does Chen explicitly discuss implementing the I-frame based video stream on a display via trick mode?

A Well, we probably would have to go through and look at my analysis of Chen, I guess. So why don't I take a look at that. It's interesting that the '967 patent doesn't say anything about trick modes in the claims. Sort of interesting.

So, again, I think relative to my analysis of Chen, as far as how it covers the claims of the '967 patent, I don't have to say anything explicitly about trick mode implementation.

So I'm not sure how your point is relevant. I believe that Chen does talk about trick modes and how one would do it. So I'm not sure how to answer your question.

Q My question relates to the -- what's explicitly disclosed in Chen. Okay?

A Uh-huh.

Q And Chen explicitly discusses taking a

progressive I-slice refreshed MPEG data stream and converting it to an I-frame based MPEG data stream. Do you agree with that?

A That's one of the things it does, yes, among others.

Q Chen then does not explicitly take the next step of controlling the playback of that I-frame based video stream on a television appliance?

A It talks about doing that on a television appliance, yes. It clearly talks about that on a television appliance.

Q Chen does not talk about how that is done; is that correct?

A I think he does talk about that. I mean, I think that's the implication of everything he's talking -- he mentioned the patent describes. I mean, he clearly talks about using this on a television appliance to display trick modes.

Q So I agree that it's implicated --

A But that's --

Q -- I'm just saying where does Chen explicitly discuss how that is done?

A Again, I think that Chen talks about displaying this I-frame only video for doing trick modes. And he describes how once you have this I-frame

data, it would be obvious to be able to do these trick modes.

Q And I am agreeing with you for the sake of argument that it would be obvious. You can stop convincing me of that. I'm on board, hypothetically, for this scenario. I'm just trying to get to what explicitly is discussed in Chen.

Chen does not explicitly discuss how to play back the I-frame based video that's stored in memory onto a display in trick mode; do you agree?

A No, I don't agree.

Q Can you please point to me somewhere in Chen where he does explicitly discuss how to play back the I-frame based video that's stored in memory onto display?

A Well, playing back on a display is obvious. I mean, it's described in here. He talks about a TV appliance. So the display functionality, it's described in here. It's given.

So as far as playing back the trick modes, he talks about that, like in paragraph 33. So he talks about the various modes and how they can be done. And, again, the concept of playing back,

you know, he talks about this issue -- let me see, where is it? Hold on.

So, again, he clearly talks about these things being used for trick modes. I'm not sure -- I mean, that's the best answer I can give you, is what I just said. We've been around this several times.

Q So I agree that we have been around it, and I think my question is fairly direct, that I am asking you to point me to a place in Chen that discusses how the I-frame based video stored in memory is implemented in a trick mode on a display. Can you do that sitting here today?

A Again, I think it's talked about in here. And, again, I believe that one would understand by reading the patent how to do the trick modes, where this idea of being able to take that data stream and play it, rate it out any way you want, the I-frame based data stream.

So, again, the answer to me is yes, it's described in here.

MR. YEBERNETSKY: Okay. We can take a break.

THE WITNESS: I'm sorry, do what?

MR. YEBERNETSKY: We can take a break.

THE WITNESS: Oh, I'm sorry. I thought you were asking me a question.

MR. YEBERNETSKY: No, way better words than that.

(A recess was taken.)

BY MR. YEBERNETSKY:

Q We're still going to be looking at Chen. Can you look at Figure 3, please.

A Figure 3?

Q Yeah.

A Yes.

Q Helps if I pull up Chen. Chen's system shown in Figure 3 includes a receiver 210; correct?

A Yes.

Q And Chen does not describe the receiver as a processor; correct?

A Again, I think I talked about that in my analysis of Chen. Again, looking at my analysis of 10 -- of Chen, I'm sorry, I talk about how one -- how Chen teaches the claimed host processor, so --

Q But Chen does not explain that the receiver 210 is a processor; correct?

A I don't agree with that.

Q Why do you not agree with that?

A Well, again, I talk about my -- just my analysis

of Chen starting on paragraph 157 where I believe it discloses the host processor, Chen does.

Q But Chen does not explicitly call receiver 210 a processor; correct?

A No, I don't agree with that.

Q Where does Chen explicitly call the receiver 210 a processor?

A Well, when it talks about the operation, it's clearly this host processor as far as what Chen describes the receiver to do.

So, again, I fall back on my analysis that I did in my report.

Q So in your report you point to paragraphs 25 through 27 of Chen; is that correct?

A Where are you referring to?

Q In the totality of your analysis of Chen teaching the claimed processor, which I believe is paragraphs 157 through 159 of your report.

A Well, let me look real quick. Yeah, I'd mentioned paragraphs 25 through 27.

Q Those are the only paragraphs that you mentioned in -- from Chen in order to say that Chen teaches the claimed host processor; correct?

A I believe that's correct.

Q And in paragraphs 25 through 27 of Chen, Chen

never states that the receiver 210 is a processor; correct?

A It talks about what the receiver does and is definitely doing host processor operations. There's no doubt about that.

Q So Chen talks about receiver 210 receiving the progressive I-slice refreshed MPEG data stream 10 and then decoding that to either decoder 220 or memory 240; correct?

A Where are you referring to in Chen?

Q Figure 3.

A Oh, I was looking at paragraphs 25 through 27, but let me go back and look at Figure 3. Talks about the receiver passing information to 220 and 240.

Q So it's your opinion that that's all that is required for the receiver 210 to be a host processor?

A Well, again, we'd have to look at the claim construction, we certainly can do that and even look at the claim construction.

I have here Broadcom's claim construction. We could look at the claim construction the Board used. And I believe that this construction for host processor is disclosed in Chen.

Q So the construction that was proposed by Broadcom, for example, requires or states any device or element that processes an incoming transport stream; correct?
A Uh-huh.
Q Can you explain how Chen's receiver 210 processes the incoming transport stream?
A Well, it has to process the stream if it's passing it onto the decoder.
Q Why?
A Well, why not? I mean, that's one of the functions it's doing. Look at --
Q Hypothetically it could be -- I'm sorry to interrupt you.
A No, go ahead.
Q Hypothetically it could just be a dumb piece of hardware that takes a stream in and sends it to two places; right?
A But that also would be processing, even if it was that dumb, which I don't think it's that dumb.
Q How is that still processing?
A Of course it's processing. You're taking the data and sending it two different places. That's processing.
Q So just simply moving data is processing, in your

opinion?
A It is a form of processing, but I think the receiver 210 does more than that. I'm trying to read here where it describes it. Is there a question pending?
Q You said, "I'm trying to read here," so I was --
A Oh, I just read it.
Q -- giving you an opportunity.
A I'm sorry, I should have told you that.
Q No worries. So where did you read that -- I guess you said you were reading for where -- trying to find where the receiver does more than that.

Where did you read, and did you come to a conclusion?
A Yeah, I was looking at paragraphs 25 through 27 and then refreshing -- or looking again what I wrote here. And, again, I believe that it does exactly what the host processor -- teaches the host processor as defined by the claim construction I had in my report and also what the PTAB said.
Q So I said it just simply moves data. You said it does more than that. And you were looking for somewhere where you could identify where it does

more than that.
A Well, it says the stream is transmitted to receiver 210 -- excuse me, from receiver 210 to the decoder where the P-frames of the stream are decoded. Okay?
And so this idea of the transmitting is definitely what I believe is the host processor.
Q And, again, looking at Figure 3, which I think you have reproduced in your expert report -- or declaration, explicitly shows a processor 230; correct?
A Yes.
Q So Chen explicitly calls one component in Figure 3's system a processor; correct?
A Yes.
Q Chen does not call the receiver 210 a processor; correct?
A Yeah, and it doesn't call the decoder a processor either, but I would argue that the decoder is also processing data.
Q Okay. So are you saying the receiver necessarily must be a processor?
A The receiver is the host processor, that's what I'm saying in my analysis here.
Q Even if it would be implemented in a pure

hardware, no CPU-based system?
A Oh, absolutely. That answer is yes with probability one.
Q So it's your opinion that a host processor doesn't necessarily need to contain a CPU?
A Oh, could still contain a CPU.
Q But a host processor doesn't necessarily need to include a CPU?
A It depends upon what you mean by CPU structure. I mean, it depends upon -- you can have very simple CPUs. So yes.
Q So is it your opinion a processor doesn't necessarily need to implement software?
A Processor doesn't need to implement software.
Q It can -- a processor can be a purely hardware-based solution?
A Yes.
Q Okay. And receiver 210 in Chen does not control the trick mode playback; correct?
A I didn't mention that in my Section 158. I just talked about what -- the fact that it met the construction that I described in 157. And I also believe it meets the construction from the Patent Board.
Q So sitting here today, can you state whether

Chen's receiver 210 controls the playback in the trick modes?

A Again, the construction I use doesn't require that it controls the playback. It could control the playback, but again, I -- the construction I use, which is consistent with the Board's construction, indicates that this is -- I believe it teaches that this is a host processor.

Q So in the construction that you applied, it also requires a host processor to extract the packets from the stream.

Can you identify where Chen states that the receiver 210 extracts the packets from the stream?

A Well, again, it passes it to the decoder. So the decoder that it's talking about is the video decoder. So it did the extraction.

Q Are you assuming it did the extraction?

A Well, Chen -- of course, it has to do the extraction, because we're only talking about the -- a video processing here relative to that figure.

Q But Chen does not explicitly state that the receiver 210 extracts packets from the stream; correct?

A I disagree with that.
Q Can you point to where Chen explicitly states that packets are extracted from the stream?
A Well, it explicitly states that the output of the receiver uses the input to the decoder, and that decoder is an MPEG video decoder.
Q The decoder 220 could also include a transport stream demultiplexer; correct?
A That's not the way I read Chen. Is there a question pending?
Q I said, "The decoder 220 could include a transport stream demultiplexer; correct?"

You disagreed with me and then started reading. I presume that was to show where --

A No, I disagree with you. I was waiting for the next question.
Q Why do you think that the decoder 220 cannot include a transport stream demultiplexer?
A Because it clearly is an MPEG decoder. Also, it talks about -- in Figure 4 they talk about the fact that you're reading the transport stream and you're looking for the header, and then you're sort of taking apart the I-frames. This is Figure 4.
Q How does that demonstrate that the decoder 220

does not include a transport stream demultiplexer?

A Well, again, when you read the patent, they're clearly talking about this is an MPEG video decoder.

Now, it could -- it probably -- it could be -- the decoder also could -- you know, this could be an elementary stream here. It says MPEG video and coder. It really doesn't make any difference in this sense. I still believe that, as I mentioned in my opinion, that this still is the host processor.

Q Okay. So still going back to my question, why can't the decoder 220 receive a transport stream and then demultiplex the transport stream?

A Which transfer stream are you talking about?

Q The incoming MPEG transport stream.

A That's not the implication here. I mean, again, the way I read this, as I mentioned in here, that this is a video coder.

And, again, this serves the purpose, as I mentioned in my analysis in 158, that this is the host processor. I'm not sure how to answer it any other way.

Q I'm not asking anything about what is or is not a

host processor right now. I'm simply asking whether the decoder 220 could include a transport stream demultiplexer and thus receive a transport stream?

A I don't believe it does.

Q Why do you not believe it does?

A Because of the way this is written and also the figure.

Q What in the figure makes you think that that is not the case?

A Because it says decoder.

Q And demultiplexing the transfer stream is not decoding?

A No, I don't look at that as decoding. That's not the way the patent reads. This is obviously an MPEG video decoder.

Q So it's your opinion that the decoder's only receiving the elementary stream?

A I believe that -- yes, I believe that that's true, but -- yes, I believe that's true.

Q Okay. Can you go to page 59 of your declaration.

A Page 59?

Q Yes, please.

A Okay. I am there.

Q Faster than me. I had the wrong page number

written down. My apologies. Page 69.
A Page 69. Okay.
Q Paragraph 165, please. Here you state that "Chen '677 does not explicitly explain that the MPEG data stream 10 comprises 'transport packets'"; correct?
A That's correct.
Q And then you continue by stating that "a POSITA," P-O-S-I-T-A, "would understand that it discloses MPEG streams, which comprise transport packets"; correct?
A Yes.
Q If you'd flip to the next page.
A Page 70?
Q Page 70.
A Uh-huh.
Q Here you mention packetized elementary stream; correct?
A I do.
Q Could the MPEG stream in Chen be a packetized elementary stream?
A Let me read this.
Q Please do.
(Witness complied with request.)
A Okay. What is your question?

Q Could the incoming MPEG stream in Chen be a packetized elementary stream?
A Which incoming stream?
Q The MPEG data stream 10.
A Which figure are we talking about?
Q Figure 3.
A Well, Chen -- I believe not. I believe that -- you're talking about the input one. I think I was -- which is consistent with what I say here.
Q Why can it not be a packetized element -- why can the input stream 10 not be a packetized elementary stream?
A Well, because Chen talks about that later in Figure 4 where he talks about reading the MPEG transport stream. So I believe he's talking about MPEG transport streams.
Q So I acknowledge that Chen later talks about the MPEG transport stream, but in Figure 3 it only talks about an MPEG data stream.

Chen clearly knows the word transport stream and chose not to use that here when describing the input stream 10; correct?
A He didn't use it one way or the other, but then later he clearly talks about transport streams.
Q Correct. But another type of data stream in the

MPEG standard is a packetized elementary stream; correct?

A Yes, that's correct. That's part of the MPEG standard, yeah.

Q So the incoming MPEG data stream 10 could be a packetized elementary stream; correct?

A Well, if that was true, why is he talking about transport streams? That makes no sense.

Q It -- why would he not have called this the MPEG transport stream instead of a broad term MPEG data stream if he meant transport stream, which is a term he clearly knows?

A Well, as I talk about even here, one skilled in the art would know that that data coming in is going to be in a transport stream, and then that figure even emphasizes it more.

Q That figure being?

A Figure 4. I'm sorry, I should have been explicit.

Q So Figure 4 is described as -- in paragraph 17, "Figure 4 shows a flowchart illustrating a further procedure for transcoding a progressive I-slice refreshed MPEG data stream to an I-frame based MPEG data stream in accordance with the present invention."

A Which paragraph? I'm sorry, I missed the paragraph.
Q 17, just describes Figure 4.
A Yes.
Q So Figure 4 is a further procedure that can be done; correct?
A I'm just -- that's what the -- what you read is what the paragraph 17 says.
Q So a further procedure means in addition to the previously disclosed procedures; correct?
A But I think this figure is consistent with what he talked about before. And, again, I do analysis here in my report starting on, you know, page 69 where I talk about how one skilled in the art would understand that those are packetized streams coming in.
Q I agree that it's a packetized stream coming in. The packetized elementary stream is a packetized MPEG-based data stream; correct?
A Yes. But, again, I talk about in my report about why that would be transport packets and why those would be -- again, on paragraphs 165 and going on to 166, and even in 167, I talk about the fact that you would have transport streams in there.
Q I would posit that you assume the MPEG data

stream is a transport stream in paragraph 165?

MR. JOHNS: Objection to form.

A No, I disagree with that.

Q Why -- what evidence in Chen is there that the incoming MPEG data stream 10 necessarily must be a transport stream?

A Again, I do my analysis in paragraph 165, and I really can't say anything more beyond that. I mean, I spent a lot of time thinking about this.

Q So at the end of that paragraph, you also mention a program stream --

A Yes.

Q -- correct? Sorry. Why could the MPEG data stream 10 not be a program stream?

A Well, again, because Chen does talk about the data coming in as transport streams clearly in Figure 4.

And my analysis here describes why I think it's a transport stream. But, again, it's packet -- the point here was saying it is transport packets, there's no doubt about that, that that stream 10 has transport packets in it.

Q Are program stream packets not transport packets?

A Not? I don't know what you mean.

Q A program stream is also a packetized data stream

based on the MPEG standard; correct?
A Yes.
Q Would program stream packets not be transport packets?
A No.
Q So program stream packets are transport packets?
A Yeah, they're transport packets, there's no doubt about that. Oh, yeah, absolutely.
Q So why could the MPEG data stream 10 not be program stream packets?
A Again, I'm just basing on reading the patent, my analysis I did here, and also the additional part of Figure 4.
Q So in paragraph 165, you do not explain why the incoming data stream cannot be program stream packets; correct?
A Well, the main part -- I'm sorry --
Q Correct?
A -- are you done?
Q Yeah.
A Do you want to say it again just to make sure it got on the record properly?
Q It did.
A It's on there? Okay. So on paragraph 165, I talk about transport packets. And I talk about

how Chen explains that the stream is an MPEG stream. And then I talk about how such MPEG streams are elementary streams that are multiplex and transport streams. Okay?

So the fact that this was also a TV system -- a broadcast TV system, this is -- the transport streams were used, and one skilled in the art would know that transport streams were the method that was used for transmitting video.

Q I don't think Chen limits itself to transmission of television signals; correct?

A I'd have to look at that. That's one of the things he definitely talks about.

Q I'll admit that he talks about it being displayed on a television appliance, but I don't think he limits the input to a television transmission?

A But he limits it -- I mean, he does talk about the fact that it is MPEG video. And the way I read this, he's talking about transport streams. Again, I don't know how I could read it any other way.

Q Well, when you're reading that as a transport stream, you're excluding the possibility that the incoming MPEG stream is a program stream; correct?

A But I don't believe that it's a program stream. Again, the whole idea of this section was to talk about the fact that we were talking about transport packets. Okay?

And as I mentioned here -- yeah, again, I believe that it's a transport stream. I mean, clearly that's what I say in 165 and 166.

Q So it's your opinion that if there are transport stream packets, they are transport packets; correct?

A I would think so.

Q If they were program stream packets, would they be transport packets, in your opinion?

A Well, the program stream packets are inside the transport -- multiplex inside the transport stream. So we get into semantics here about whether they're transform packets or program packets. But, again, we're talking about transport streams here.

Q The program elementary stream packets are inside the transport stream, but --

A Yes.

Q -- program stream packets aren't inside of a transport stream?

A No, I'm not sure that's correct, no.

Q So in your paragraph 165 on page 70 --
A 70, I'm sorry.
Q Yeah. "In MPEG 2, after the media stream has been digitized and compressed" --
A Wait, wait, wait, where are you at? Oh, the thing that's indented.
Q Yeah.
A I'm sorry.
Q Here you state: "In MPEG 2, after the media stream has been digitized and compressed, it is formatted into packets before it is multiplexed into either a Program Stream or Transport Stream"; correct?
A That's correct.
Q And you italicized transport stream?
A I did.
Q So the packetized elementary stream could also be in a program stream; correct?
A A packetized elementary stream could be inside a transport stream?
Q Inside of a program stream?
A No, that's not what I thought you -- ask the question again.
Q A packetized elementary stream could be multiplexed into a program stream; correct?

A Yes.
Q And would the program stream packets then be transport packets, in your opinion?
A Yeah, they'd be transport packets, sure.
Q If the packetized elementary stream was not multiplexed, would each packetized elementary stream packet be a transport packet?
A Multiplexed into what?
Q I'm saying if the packetized elementary stream was not multiplexed.
A Multiplexed with what?
Q Well, it's normally multiplexed with audio, video, other things, that's what the program stream and the transport streams do.
A Program streams do not necessarily have multiplex with the audio.
Q I'm just trying to say if a program element -- you have a video program elementary stream, and you do not multiplex that --
A With what?
Q You're not multiplexing it, so it doesn't matter with what.
A Okay.
Q You're not multiplexing it.
A Okay.

Q You just have the packetized elementary video stream.
A Okay.
Q Would each of those packetized elementary stream packets be a transport stream -- or sorry, a transport packet, in your opinion?
A They would have transport like -- yeah, I think they would be transport packets, because they would have many of the -- yeah, they would be transport packets.
Q Okay. Can you please look at Figure 1 of Chen.
A Yes. Figure 1, uh-huh.
Q Figure 1 shows I-slices and P-slices in various pictures; is that correct?
A Yes.
Q And each I-slice and P-slice is a fixed length, which is the total length of the frame; correct?
A What do you mean by the total length of the frame?
Q The -- for example, I-slice 20.
A I-slice 20, yes.
Q Picture 1.
A Yes.
Q Is a fixed length from the beginning to the end of that slice; correct?

A Yes.
Q It's not subdivided into macroblocks along the way?
A Oh, it is -- yeah, there's macroblocks in there, absolutely.
Q That was my fault. So there are macroblocks in there, but the I-slice is the full fixed length of the frame; correct?
A Again, I don't know what you mean by fixed length of the frame.
Q There could be in the -- assuming that the I-slice 20 is not labeled I-slice. It's just a row, a slice of macroblocks. A slice of macroblocks can be divided to I macroblocks or P macroblocks; correct?
A Yes.
Q Okay. What's shown here is that the entire row, the entire slice is all I macroblocks; correct?
A Yes.
Q And then in P-4, where it says P-slice 40, it shows an entire slice that is P-based macroblocks; correct?
A Yes.
Q And Chen doesn't contemplate dividing up these slices into -- on the macroblock level; correct?

A Well, they are divided up in the macroblock level. So I don't know --
Q Chen does not distinguish the macroblocks and each slice as being different types of macroblocks; correct?
A What do you mean by different types of macroblocks? You mean -- like what do you mean?
Q In Chen he assumes that every macroblock in each slice is of the same characteristics, I or P; is that correct?
A I believe that's correct, yes.

MR. YEBERNETSKY: That is all my questions. You guys need five minutes, I assume?

MS. ARNER: Yeah, if we could.

(A recess was taken.)

MR. JOHNS: We have no questions for Dr. Delp.

MR. YEBERNETSKY: All right. We're good.

COURT REPORTER: Signature?

MR. JOHNS: Yes, he'd like to.

MS. ARNER: He'd like to review and sign.

(The deposition adjourned at 12:27 p.m.)

AND FURTHER THE DEPONENT SAITH NOT

_____
EDWARD J. DELP III, PH.D.

STATE OF INDIANA)
)
COUNTY OF HENDRICKS)

I, Dana S. Miller, Notary Public in and for the County of Hendricks and State of Indiana, do hereby certify that the above-named deponent herein was by me first duly sworn to tell the truth, the whole truth, and nothing but the truth in the aforementioned matter;

That the foregoing deposition was taken on behalf of the Patent Owner at the time and place heretofore mentioned, with all counsel being present as duly noted;

That the deposition was taken down by means of stenograph notes, was reduced to typewriting under my direction, and is a true record of the testimony given by said deponent, and was thereafter presented to the deponent for signature;

I do hereby further certify that I am a disinterested person in this cause of action, that I am not a relative of the attorneys for any of the parties or otherwise interested in the event of this cause of action.

IN WITNESS WHEREOF, I have hereunto set my hand and have affixed my official notarial seal on this 12th day of March, 2018.

Dana S. Miller

DANA S. MILLER, RPR, CRR, NOTARY PUBLIC

County of Residence:

Hendricks County

My Commission Expires:

January 17, 2024

Reference No.: 1562657

Case: LG ELECTRONICS vs BROADCOM CORP

DECLARATION UNDER PENALTY OF PERJURY

I declare under penalty of perjury that I have read the entire transcript of my Deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath.

_____

Edward Delp, III, PH.D.

NOTARIZATION OF CHANGES
(If Required)

Subscribed and sworn to on the _____ day of

_____, 20____ before me,

(Notary Sign)_____

(Print Name) Notary Public,

in and for the State of _____

Reference No.: 1562657

Case: LG ELECTRONICS vs BROADCOM CORP

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Edward Delp, III, PH.D.

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Edward Delp, III, PH.D.