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

SAMSUNG ELECTRONICS CO, LTD.,

Petitioner,

v.

CERTIFIED COPY

ADVANCED CODING TECHNOLOGIES, LLC,

Patent Owner.

Proceeding No. IPR2023-00910 (US Patent No. 9,445,041)

VIDEOCONFERENCE DEPOSITION OF

HARI KALVA, PH.D.

JUNE 14, 2024

Page 1 - 78 9:15 A.M. - 12:51 P.M. EST

REPORTED BY:
Tamara L. Houston
CA CSR No. 7244, RPR, CCRR No. 140
Job Number 24-137845
FR Ref. 39843-0170IP1

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**REMOTE VIDEOCONFERENCE DEPOSITION OF HARI KALVA,
Ph.D., taken on behalf of the Petitioner, commencing
from 9:15 a.m. to 12:51 p.m., EST, Friday, June 14,
2024, before Tamara L. Houston, CSR No. 7244, CCRR, RPR.**

THE SULLIVAN GROUP OF COURT REPORTERS

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INDEX TO EXAMINATION

WITNESS: HARI KALVA, PH.D.

EXAMINATIONS	PAGE
Mr. Katz.....	6
Mr. Pymonto.....	70

QUESTIONS INSTRUCTED NOT TO ANSWER

Page Line
NONE

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

INDEX TO EXHIBITS

HARI KALVA, PH.D.

SAMSUNG ELECTRONICS CO, LTD. vs. ADVANCED CODING

TECHNOLOGIES, LLC

JUNE 14, 2024

Tamara L. Houston, CSR No. 7244, CRR No. 140, RPR

EXHIBIT	DESCRIPTION	PAGE
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None .

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1 FRIDAY, JUNE 14, 2024, 9:15 A.M. EST

2 --000--

3 All counsel present stipulate
4 that the witness shall be sworn remotely
5 by the court reporter

6 * * *

7 (Whereupon HARI KALVA, Ph.D., having
8 been

9 called as a witness was sworn to
10 tell the truth, the whole truth,
11 nothing but the truth.)

12 --000--

13 EXAMINATION BY MR. KATZ:

14 Q. Welcome. Why don't you just tell me what
15 you view to be the subject matter of the '041 patent.

16 MR. PYMENTO: Objection. Form.

17 THE WITNESS: Can I open the patent on my
18 side, the document?

19 BY MR. KATZ:

20 Q. Oh, yeah, please do. Let me -- let me just
21 be clear what I'm asking.

22 A. Yeah.

23 Q. What is, like, the -- you know, you're
24 going to give testimony about the point of view of a
25 person of ordinary skill in the art.

1 I'd like to know: What do you view the art
2 to be that's related to the '041 patent?

3 MR. PYMENTO: Objection. Form.

4 THE WITNESS: It relates to broad media for
5 video processing.

6 BY MR. KATZ:

7 Q. So the field of video processing?

8 A. Yes, it relates to field of video
9 processing. It relates to what can we input, video
10 converting, frame rate, plain video type of topics.

11 Q. And so -- and you believe that you are an
12 expert in that field?

13 A. Yes.

14 Q. Okay. Can you just tell me a little bit
15 about what expertise pertains specifically to the
16 field of video processing and the conversion of frame
17 rates and that sort of thing.

18 MR. PYMENTO: Objection. Form.

19 THE WITNESS: Are you -- are you asking me
20 on what my expertise related to the topic?

21 BY MR. KATZ:

22 Q. Yes.

23 A. Yeah. I've been working with the video
24 systems for, you know, many years now, right? Our
25 experience with the video processing rate includes my

1 work in video compression, right? I worked with
2 developing video services. I worked developing video
3 --

4 (Reporter requested clarification.)

5 MR. KATZ: He said "video servers and video
6 players."

7 COURT REPORTER: Thank you.

8 THE WITNESS: Yeah. Video players,
9 including, you know, compression systems, right, and
10 such, yeah. Broadly -- broadly the video pipeline of
11 taking in the video, processing it, compressing, and
12 playing back video.

13 BY MR. KATZ:

14 Q. And the filing date of the patent was 2013;
15 claims to foreign party, 2012.

16 Do you remember what were you doing around
17 that time? Let's say the 2012 timeframe.

18 A. I was -- I was associate professor at
19 Florida Atlantic University working in broad research
20 area; again, video processing. So we are working on
21 video-related research that would play broadly,
22 compression, transcoding, adaptation, these types of
23 research. I had to look back to see if you need more
24 specific.

25 Q. Okay. Did you ever work on video editing

1 software?

2 A. Sure. I -- I've used video editing
3 software. We used video filters in some
4 applications.

5 Q. I'm sorry, video what? I missed that.
6 Video what?

7 A. Video editing and some filtering related to
8 video editing.

9 (Reporter requested clarification.)

10 THE WITNESS: Filtering. Video filtering.

11 MR. KATZ: We're missing that.

12 Filtering?

13 MR. PYMENTO: "Filtering" is what I heard.

14 THE WITNESS: Yes.

15 BY MR. KATZ:

16 Q. Oh, video filtering. Okay. Thank you.

17 A. I work with video editing, right? I've
18 used video editors, right? I developed the video
19 editor. I have used it. And I've used video --
20 yeah, that was pertaining to the question, right?

21 Yeah, I have used video editor adaptations,
22 yes.

23 Q. Just to be clear, did you say you have
24 developed video editing software or you've just used
25 video editing software?

1 A. I've used video editing software.

2 Q. Okay. Prior to the 2012 timeframe, do you
3 recall which video editing software you've used?

4 A. I don't remember specifically any number of
5 tools that I've used.

6 Q. Okay. So Exhibit 1004 in the IPR
7 proceedings is the Morikawa reference.

8 Do you have a copy of that in front of you?

9 A. Yes, I have it.

10 Q. And if you will look at the -- the Figure
11 1, see there's a Video Playing Apparatus 101.

12 Do you see that?

13 A. Yes, I see that.

14 Q. And then the video comes in from that arrow
15 on the left-hand side into Input Unit 102?

16 A. Yes, I see arrow into input unit, yes.

17 (Reporter requested clarification.)

18 MR. KATZ: He said, "arrow into input unit,
19 yes."

20 BY MR. KATZ:

21 Q. And do you understand that in Morikawa,
22 that input unit is bringing in video that was
23 captured by some external device?

24 MR. PYMENTO: Objection. Form.

25 THE WITNESS: Yeah. Generally had to

1 reference the figure description to see what it says.
2 I don't remember exactly what it says, but it...

3 BY MR. KATZ:

4 Q. Okay. Well, if you just refer to paragraph
5 23 then and see if that refreshes your recollection.

6 A. Okay.

7 Q. And if it doesn't, that's fine. You can
8 just let me know that you don't recall how the video
9 is getting in there.

10 A. Yeah, it describes video input sources like
11 a digital TV broadcast, external equipment, and a
12 server via a network --

13 (Reporter requested clarification.)

14 COURT REPORTER: Mr. Katz, I'm really,
15 really struggling, and I'm concerned about the
16 accuracy of the transcript.

17 MR. PYMENTO: I'll just -- I mean, for this
18 one, I'll just copy what it says in the patent, but
19 that's what it says.

20 BY MR. KATZ:

21 Q. Yes. You're just reading the part, sir,
22 that said the input sources can be digital TV
23 broadcast, external equipment, or content from a
24 server over network?

25 A. Yes. Yeah. Input -- unit is receiving

1 video from multiple sources.

2 Q. Okay. Now, do you recall -- and I'll show
3 it to you if necessary -- that you had filed a
4 declaration in an earlier IPR proceeding, which
5 actually is a record in this case? I believe that's
6 Exhibit 2003 where you asserted that the Morikawa
7 reference did not disclose a moving image data input
8 unit.

9 Do you recall that?

10 A. I'll have to see. I don't recall. I have
11 to look at what it is.

12 Q. Okay.

13 A. We change everything --

14 Q. Well, let me just ask you this: Do you
15 recall dropping any opinions from your new
16 declaration when you -- strike that.

17 As you sit here today, based on your prep
18 for this deposition, do you recall that you -- your
19 opinions changed from your original declaration
20 that's Exhibit 2003 to the newer declaration that you
21 filed in this case as Exhibit 2006?

22 MR. PYMENTO: Objection. Form.

23 THE WITNESS: Yeah, I don't recall anything
24 specifically.

25

1 BY MR. KATZ:

2 Q. Okay. Well, let's take a look at it.

3 Okay.

4 So as you sit here today, you don't recall
5 your opinions changing between those two
6 declarations?

7 A. Yeah, I don't -- I don't specifically
8 recall. It's been some time since I have looked at
9 this.

10 Q. Okay. So I'm going to drop Exhibit 2003 in
11 the chat.

12 A. 003.

13 Q. One second. Let's see if this works.
14 Okay.

15 So let me know if you can open 2003 that I
16 just dropped in the chat.

17 A. Okay. Yeah, looking at 2003, yeah.

18 Q. Okay. Can you turn to, I guess, what
19 begins with paragraph 79. It's Section 6 of that
20 report. Or Section 6A specifically.

21 A. I have 79. Okay.

22 Q. Yeah. Let me know when you're there.

23 A. Yeah, I'm looking at 79, paragraph 79.

24 Q. Okay. And I think I will share it on the
25 screen just for everyone's benefit as well if I can

1 figure out the right document to share.

2 Okay. And do you see -- do you see
3 paragraph -- the beginning of paragraph 79 on the
4 screen now --

5 A. Yes.

6 Q. -- as well? Okay.

7 So above paragraph 79, in your original
8 declaration for the '041 patent, there is a paragraph
9 in bold labeled "6A."

10 Do you see that?

11 A. Yes.

12 Q. And in that paragraph, you say that
13 Morikawa does not disclose a moving image data input
14 unit as laid out as the first limitation of Claim 1.

15 Do you see that?

16 A. Yes.

17 Q. Okay. And so in this declaration under
18 2003, you have an opinion that Morikawa did not
19 disclose the moving image data input unit; is that
20 correct?

21 A. Can you -- yeah, it says moving data input.
22 Image configured to do a specific thing. The input
23 fast --

24 (Reporter requested clarification.)

25 MR. KATZ: Withdraw the question. Let me

1 just ask a different question.

2 THE WITNESS: Yeah.

3 BY MR. KATZ:

4 Q. Am I correct that in this declaration
5 marked Exhibit 2003, which was filed originally in
6 another IPR matter, you had the opinion that Morikawa
7 did not disclose the moving image data input unit of
8 Claim 1 of the '041 patent?

9 A. Yes, that's the -- yeah, my opinion as
10 shown.

11 Q. Okay. Now, in the -- your declaration for
12 this case that we'll be getting into, which is
13 Exhibit 2006, I did not see any opinion about the
14 moving data image input unit.

15 Do you recall whether in your current
16 declaration you formed an opinion that Morikawa did
17 not disclose that limitation? Do you recall having
18 that opinion in there?

19 A. In the current declaration, I -- I --

20 Q. In your current declaration you were saying
21 what, sir?

22 A. I don't specifically -- the number of
23 opinions there, I have to look at it and see what
24 opinion states, what opinions are they.

25 Q. Okay. So I sent you -- you a copy of your

1 declaration, 2006. I put it in the chat.

2 A. Yeah.

3 Q. Can you just confirm for me that, in fact,
4 you have no opinion in there stating that Morikawa is
5 missing that -- the input unit limitation?

6 A. Okay. I'm looking at this document.

7 (Pause on the record.)

8 THE WITNESS: I don't seem to find the
9 input -- same opinions.

10 Q. All right. And, in fact, for example, on
11 page 36 of Exhibit 2006, the first limitation you
12 address as shown on the screen here is an output
13 frame rate specification unit, right?

14 A. Yes, on page 36. Yes.

15 Q. Do you recall why you did not discuss the
16 moving input -- excuse me. Strike that.

17 Do you recall why you did not discuss the
18 moving image data input unit in this declaration?

19 A. No, I don't recall.

20 Q. Okay. Is it fair to say that if you --
21 because you did not discuss the moving image data
22 input unit in this declaration that you no longer
23 hold the opinion that Morikawa is missing that
24 element?

25 MR. PYMENTO: Objection. Form.

1 THE WITNESS: I just don't have opinion on
2 it in the situation. Didn't say anything about it.

3 BY MR. KATZ:

4 Q. Right. Right. You don't -- so this
5 declaration, Exhibit 2006, you don't have an opinion
6 about whether Morikawa discloses the moving image
7 data input unit, right?

8 A. Yes, I didn't include any opinion on that.

9 Q. All right. And is it -- and, again, is --
10 did you drop that opinion because you no longer hold
11 that opinion?

12 A. It was not explicitly considered. I did
13 not consider it and drop it. I just don't recall any
14 specific reasons why I did not include. It is just
15 not here.

16 Q. Okay. So you -- so you recognize that the
17 opinion is -- regarding the moving image data input
18 unit is not in Exhibit 2006, but you don't recall why
19 it's not there?

20 A. Yeah. It's just not there. Yes.

21 Q. Well, let me ask you: Do you stand by the
22 opinion stated in paragraph 79 of Exhibit 2003 as you
23 are testifying today, or you're actually just not
24 sure whether you still believe that to be accurate?

25 MR. PYMENTO: Objection. Form.

1 THE WITNESS: Yeah, I don't -- I can't
2 recall anything that would make me reconsider that
3 opinion. I think if I give an opinion, that would
4 still stand here. I have to further look at it if
5 you want any --

6 BY MR. KATZ:

7 Q. Well, yeah, I would like to know whether
8 this -- I guess it's the wrong document. Let me just
9 put it back on the screen. One second. Let me just
10 pull it back up. Okay.

11 Okay. Yes. So I think I would like to
12 just know, so the record is clear, whether, in fact,
13 the opinion you express in paragraph 79 of
14 Exhibit 2003 is an opinion you are currently holding,
15 not currently holding, or you're just not sure what
16 your opinion is today?

17 MR. PYMENTO: Objection. Form.

18 THE WITNESS: So that the opinion I gave, I
19 guess considering, you know, what the inputs at that
20 time, right? And -- yeah, having the -- having this
21 declaration page.

22 BY MR. KATZ:

23 Q. Okay. I'm just trying to understand what
24 your position is today. I see three choices; either
25 you are going to reaffirm the opinion on the record

1 today, you are going to disavow the opinion on the
2 record today, or you just have no position on the
3 matter today.

4 I just need to know which of the three it
5 is.

6 MR. PYMENTO: Objection. Form.

7 THE WITNESS: Again, having the -- I don't
8 have submission -- I don't -- no. Are you asking me
9 to analyze this opinion? I'm trying to understand
10 that.

11 That opinion is in the previous
12 declaration, right? So are you asking me to revisit
13 that or...

14 BY MR. KATZ:

15 Q. No, no. What I'm asking is: What is your
16 position today at this deposition? Is it that you
17 are reaffirming that opinion or you're not taking a
18 position on whether that opinion is correct or not in
19 this deposition?

20 MR. PYMENTO: Objection. Form.

21 THE WITNESS: Yeah, I think -- yeah, I
22 don't have anything to reconsider that opinion. That
23 opinion is that opinion, I would say.

24 BY MR. KATZ:

25 Q. I'm sorry. You broke up there.

1 That opinion is what?

2 A. That opinion stands as stated. I don't
3 have anything to reconsider, having to look at, you
4 know, to further analyze it. That's the opinion I
5 gave. Right.

6 Q. That is the opinion --

7 A. When I look -- yeah.

8 Q. Yeah. Are you standing by that opinion
9 today? Is that -- are you -- are you -- do you still
10 hold that opinion today, or you're just not sure?
11 That's just what I'm trying to get on the record.

12 MR. PYMENTO: Objection. Form.

13 THE WITNESS: Having reconsidered, I still
14 stand by that opinion because it just shows that --
15 yeah.

16 So having reconsidered, so I would say that
17 my opinion still holds what I give. That still
18 stands.

19 BY MR. KATZ:

20 Q. Okay. Great.

21 A. Yeah.

22 Q. All right. So let's look at Exhibit 2006.
23 Let's go to paragraph 77.

24 A. Paragraph 77.

25 Q. Yeah. One second. Just let me bring it up

1 here too. I'll just bring it up on the screen for
2 everyone.

3 Okay. Okay. Just let me know when you're
4 there at 77.

5 A. Yeah, I'm at 77.

6 Q. In this paragraph, if you could just read
7 it to yourself, I'm going to ask you about the quote
8 from Column 15 that you cite here, but why don't you
9 just read the paragraph to yourself and let me know
10 when you're ready.

11 (Pause on the record.)

12 THE WITNESS: Okay. I read through it.

13 BY MR. KATZ:

14 Q. Okay. And if you have your -- a copy of
15 the patent handy as well, because you're quoting
16 paragraph -- excuse me, you're quoting Column 15.
17 I'm going to be drawing your attention there.

18 A. Column 15. Okay. I'm at Column 15.

19 Q. Okay. And in this paragraph, you quote
20 from Column 15 from lines 11-19, the patent says
21 that, "The frame rate conversion unit can convert the
22 frame rate of each piece of the moving image data so
23 as to have a predetermined output frame rate and the
24 same playback speed between the first and second
25 moving image data."

1 Do you see that?

2 A. Yes.

3 Q. What is your understanding of what the
4 patent means by having a predetermined output frame
5 rate?

6 A. This would mean output frame rate that was
7 set for those videos.

8 Q. So it's just an output frame rate that's
9 set before the frame rate conversion takes place?

10 MR. PYMENTO: Objection. Form.

11 THE WITNESS: I'll have to -- yes, output
12 frame rate that would be set before such a conversion
13 takes place.

14 BY MR. KATZ:

15 Q. And I think you'd agree that
16 "predetermined" in this context doesn't mean fixed;
17 is that correct? Actually, I'm going to take that
18 back. Strike that. I'm going to ask it again
19 without a contraction just so the record is clear.
20 So let me ask it again.

21 The word "predetermined" being used within
22 context of the invention in this paragraph, it does
23 not mean that the frame rate is fixed, correct?

24 MR. PYMENTO: Objection. Form.

25 THE WITNESS: Yes, correct. In this

1 context, it doesn't mean it's like a fixed output
2 frame.

3 BY MR. KATZ:

4 Q. It means it's determined before the
5 conversion takes place?

6 A. Correct.

7 Q. All right. And in this paragraph 77 of
8 your declaration in Exhibit 2006, you say, "In my
9 opinion, the benefit to which the '041 patent is
10 directed is sequentially or continuously playing back
11 multiple moving image data so as to have the same
12 playback speed between the first and second moving
13 image data, despite being generated at different
14 frame rates."

15 Do you see that?

16 A. Yes.

17 Q. Now, if the playback speed was just fixed
18 at a normal playback speed, is that something that
19 you think the '041 patent -- that the benefit of the
20 '041 patent would cover that situation?

21 MR. PYMENTO: Objection. Form.

22 BY MR. KATZ:

23 Q. Yeah. Let me -- let me ask it again.

24 So in paragraph 77, you discuss the benefit
25 of the '041 patent. And I'm wondering, would that

1 benefit apply to a system that only supports a normal
2 playback speed? Right, it doesn't have a playback
3 speed adjustment?

4 MR. PYMENTO: Objection. Form.

5 THE WITNESS: Let me try to understand.

6 You're asking if this benefit applies to a
7 system that has only one playback speed; is that
8 correct?

9 BY MR. KATZ:

10 Q. Yes, that's correct.

11 A. Yeah, it would -- whatever the playback
12 speed of the system, right, it would make sure that
13 both videos would have the same playback speed.

14 Q. And so in -- in your opinion, does the '041
15 patent cover systems that only provide for normal
16 playback speed?

17 A. Yeah, it would, if you mean by normal
18 playback speed.

19 What -- can you repeat? What do you mean
20 by "normal playback speed" in this context?

21 Q. What is your understanding of the meaning
22 of normal playback speed in the context of the '041
23 patent?

24 A. Normal playback speed generally refers to
25 playing back contents, right, at which they're

1 happening in real-world.

2 (Reporter requested clarification.)

3 THE WITNESS: I don't know. I said how
4 they are recorded. I'm not sure about this.

5 BY MR. KATZ:

6 Q. How they are acquired? What was that last
7 phrase? We just didn't catch the last phrase.

8 A. Recorded. I think, like, recording in a --

9 Q. Oh, I see. How they are recorded.

10 A. Yes.

11 Q. Okay. So was your answer how something
12 occurs in the real-world, that is how they are
13 recorded?

14 A. Like a normal speed is the speed that is --
15 the reality is happening, right, if you play back.
16 That is the normal speed generally.

17 Q. Okay.

18 A. Which is you distinguish from following
19 what is slowing down the playback.

20 Q. Okay. So using that definition, is it your
21 opinion that the '041 patent covers systems that only
22 provide for a single, normal playback speed and do
23 not provide for a playback speed adjustment?

24 MR. PYMENTO: Objection. Form.

25 (Pause on the record.)

1 THE WITNESS: It would apply to -- the
2 benefits would also apply whatever playback the video
3 is playing, right? It would still apply to --

4 (Porter requested clarification.)

5 BY MR. KATZ:

6 Q. I'm sorry. Did you finish that answer?

7 A. Yeah. It would -- benefits would apply,
8 you know, when you have a playback speed, whatever
9 playback speed you have.

10 Q. Well, can you turn to Claim 6 in the '041
11 patent.

12 A. Claim 6?

13 Q. Claim 6, which is in exhibit -- Claim 6 of
14 the '041 patent, which is Exhibit 1001.

15 A. Yes, yeah. I'm looking.

16 Q. Okay. Do you have an opinion as to whether
17 a system that has only a single playback speed --
18 normal playback speed, would be covered by Claim 6?

19 (Pause on the record.)

20 THE WITNESS: I'll have to analyze to form
21 a new opinion about it. I don't have anything -- any
22 data. I don't have anything to form a new opinion
23 now.

24 BY MR. KATZ:

25 Q. That's fine. I just want to establish

1 today you have no opinion --

2 A. Yeah.

3 Q. -- on whether this claim would or would not
4 cover a system that only provides normal playback
5 speed; is that correct?

6 A. It would apply if it -- normal playback
7 speed if you -- if the system is normal playback
8 speed, that would still apply. Benefits would still
9 apply.

10 Q. Okay. I just -- let me just ask it again
11 just so we're clear.

12 A. Yeah. Yeah.

13 Q. Do you have an opinion as to whether
14 Claim 6 would apply to a system that only provides
15 normal playback speed, or do you not have an opinion
16 about that question?

17 MR. PYMENTO: Objection. Form.

18 MR. KATZ: That was a terrible -- that was
19 a terrible question. We'll break it down. I'll ask
20 it in two stages.

21 BY MR. KATZ:

22 Q. You see Claim 6, Dr. Kalva, correct?

23 A. Yes.

24 Q. Okay. Okay. Do you have an opinion as to
25 whether Claim 6 would cover a system that only

1 provides normal playback speed?

2 A. I don't have opinion in that particular
3 case.

4 Q. Okay. Excellent. We're going to move on
5 to another section of your report.

6 We've been going about an hour. Let's take
7 about a five-minute break, and then we'll resume.
8 How about 10:15?

9 (Recess: 10:07 a.m. to 10:18 a.m.)

10 BY MR. KATZ:

11 Q. Dr. Kalva, so before the break, we were
12 talking about paragraph 77. And if I understand your
13 testimony, you're saying you have no opinion on
14 whether Claim 6 would cover a system that only has a
15 single playback speed but that the benefits you talk
16 about in paragraph 77 would apply to a system with a
17 single playback speed; is that correct?

18 A. Yes.

19 Q. And would you also agree that the benefits
20 you describe in paragraph 77 would relate to a system
21 with a single output frame rate?

22 A. To the output frame rates for each of these
23 image inputs, rate could be same or different. Could
24 be any number of variation. They can also be the
25 same, yeah.

1 Q. All right. My question was a little
2 different.

3 The benefit you describe here of being able
4 to have the same playback speed for two different
5 pieces of video that were generated at different
6 frame rates, that benefit would apply to a system
7 that has a single predetermined output frame rate,
8 right?

9 A. It would still have two videos, right?
10 Each has an output frame rate set. And that output
11 frame rate -- you are asking me if the output frame
12 rate is same for both of those, then in that case,
13 how's the benefit apply.

14 (Reporter requested clarification.)

15 THE WITNESS: So the system has two input
16 images, right? Image input, image data, as it's
17 called, right, and the specific output frame rate for
18 each of these input image data, and these output
19 frame rates could be -- could be same. Right. And
20 the benefit would still apply.

21 BY MR. KATZ:

22 Q. Okay. And, in fact, the benefit you
23 describe in paragraph 77 specifically would apply to
24 a system with a fixed output frame rate of, let's
25 say, you know, 60 frames per second, right?

1 A. Yes, but it specify 60 frames per second as
2 frame rate for image data, first image data, and also
3 60 frames per second --

4 (Reporter requested clarification.)

5 MR. KATZ: Yeah, can you just read back my
6 question so he hears the question?

7 Sorry, we just didn't get that answer,
8 Dr. Kalva, so I'll have to repeat it. But why don't
9 you listen to the question again, and then you'll
10 provide your answer slowly. Very slowly.

11 THE WITNESS: Yes. I apologize.

12 MR. KATZ: Part of the problem is the Zoom
13 delay and echo cutoff. It's -- it is a problem with
14 Zoom as well.

15 (Whereupon the certified court reporter
16 read the record.)

17 THE WITNESS: So the benefits would apply
18 to the system, right? You can have some request if
19 you have first image data and second image data.

20 (Reporter requested clarification.)

21 MR. KATZ: First image data and second
22 image data.

23 THE WITNESS: And if we specify the same
24 frame rate as 60 frames per second for output frame
25 rate for the first image data and the second image

1 data, right, the benefits would still apply for the
2 same -- having the same output frame rate for both of
3 these -- these column.

4 BY MR. KATZ:

5 Q. And those benefits would still apply even
6 if that system didn't allow any other frame rate
7 other than 60 frames per second, for example?

8 MR. PYMENTO: Objection. Form.

9 THE WITNESS: If you only specify 60 frames
10 per second all of the time, right, that would still
11 -- you know, benefits would still apply as to the
12 output frame rates are.

13 BY MR. KATZ:

14 Q. Okay. Now let's jump to paragraph 32 of
15 Exhibit 2006, which is your declaration. I'm just
16 going there.

17 So, actually, this is a section discussing
18 the input frame rate specification unit in your
19 declaration.

20 And do you have your own copy in front of
21 you as well?

22 A. Yes. Yeah, I can see that.

23 Q. I'm actually going to ask you about
24 paragraph 37, but the section begins with paragraph
25 32.

1 A. Okay.

2 Q. Okay. So do you have 37 in front of you?

3 A. Yes.

4 Q. All right. And the first sentence here
5 says that, "A person of ordinary skill in the art
6 would further understand, based on the '041 patent
7 specification, that the specifying step of the
8 algorithm can be programmed in several ways to
9 specify the input frame rate" -- and that says, "such
10 as based on the image capture frame rate information,
11 analyzing moving image data to be input, analyzing
12 the frame configuration of the moving" data -- "image
13 data and the like."

14 Do you see that in your report?

15 A. Yes.

16 Q. I'd like to understand what each of these
17 examples you mentioned are referring to.

18 What would image capture frame rate
19 information be?

20 A. That is the frame rate obtained from the
21 image capturing site. Could be camera that is
22 capturing a certain frame rate and provide that
23 information.

24 Q. All right. And what about -- okay.

25 Go ahead. I'm sorry. Sorry to interrupt.

1 A. Yeah. Such information sometimes including
2 metadata depending how the images are received.

3 Q. Okay. And what about the next one,
4 "analyzing moving image data to be input"? What does
5 that mean? How do you determine a frame rate by
6 analyzing the moving image data to be input?

7 MR. PYMENTO: Objection. Form.

8 THE WITNESS: You could look at the
9 receiving images and how many images are being
10 received per unit of time. That's one way to analyze
11 the sequence of image data input that is being
12 received and determining the rate at which, you know,
13 that image data that is outgoing.

14 BY MR. KATZ:

15 Q. Can you just give any other way you would
16 analyze the moving image data to the input to specify
17 an input frame rate?

18 A. I can't think of further at the moment, but
19 I'm sure there may be other ways to analyze.

20 Q. And what about the last one, analyzing the
21 frame configuration of moving image data? What does
22 that mean?

23 A. So depending on the input you are
24 receiving, right, your input image data may have a
25 configuration information associated with it that

1 describes, you know, the frame rate and the other
2 information. This could be sort of metadata
3 potentially.

4 Q. Is that any different than the image
5 capture frame rate information?

6 A. There may be some similarities between you
7 analyzing frame configuration. You can call it
8 configuration maybe -- how additional data point.
9 It's just example of where you could include frame
10 rate on input data.

11 Q. All right. Yeah. Let's jump to paragraph
12 51 of your declaration here.

13 And why don't you just read that to
14 yourself and then let me know when you've read it.

15 (Pause on the record.)

16 THE WITNESS: Okay. I read through that.

17 BY MR. KATZ:

18 Q. Okay. And you're referring -- you're
19 discussing here the '041 patent, Column 8, lines 49
20 to 53.

21 Do you see that?

22 A. Yes, 29 to -- 49 to 53, okay.

23 Q. And you state in the last sentence of this
24 paragraph, "The frame rate for the external device is
25 acquired by the central control unit, which then uses

1 this as one factor to specify the output frame rate."

2 Do you see that statement?

3 A. Yes.

4 Q. In fact, in the cited passage in the '041
5 patent -- isn't the '041 patent simply setting the
6 output frame rate to the frame rate compatible with
7 the external device?

8 A. Let me look at that. Okay.

9 What was the question? I read through that
10 part, the responding lines, yeah.

11 Q. So in Column 8 starting at line 49 of the
12 '041 patent, the patent is saying that there may be
13 circumstances where the external device is limited
14 only to 60 frames per second as an example.

15 Isn't that correct?

16 A. Yes.

17 Q. Okay. And it's saying, if that's the case,
18 it's possible to get information about the frame rate
19 requirement of the external device. And the one
20 example they give here is by recognizing the model
21 number of the device, and I guess presumably the
22 processor would know that that display is limited to,
23 in this example, 60 frames per second?

24 A. Yes.

25 MR. PYMENTO: Objection to form.

1 BY MR. KATZ:

2 Q. And then what it says is, "In this case,
3 the output frame rate is specified based on the
4 acquired information on the model number and
5 correspondence of the information of the model number
6 pre-recorded in the ROM of the central control unit
7 300 and the playable frame rate."

8 Do you see that?

9 A. Yes.

10 Q. And so in this example, because the
11 computer recognizes that the display is limited to 60
12 frames per second, it would specify 60 frames per
13 second as the output frame rate; is that correct?

14 A. So in this example, it is saying your model
15 number is input to the system, and system will look
16 up what is the corresponding frame rate for that
17 model number, which is pre-recorded on the ROM.

18 Q. Right. But would you agree that because
19 the display in this example is -- is limited to 60
20 frames per second, that the system will therefore
21 specify an output frame rate of 60 frames per second?

22 A. The system would specify 60 frames per
23 second because that is setting for that particular
24 model number. That's right. You have a lookup table
25 here for a model number. This is the frame rate.

1 Q. Right. And the '041 system is not going to
2 specify an output frame rate that is incompatible
3 with the external monitor, right?

4 A. Yeah. It would set with whatever the
5 corresponding frame rate of the model number that is
6 used according to the system.

7 Q. And so for example --

8 A. It is using --

9 Q. Yeah. Go ahead.

10 A. No. I was just saying, in this particular
11 example that's given, right, so you input a model
12 number and so the model number and the corresponding
13 frame rate is retrieved and set.

14 Q. Okay. And if the model number, you know,
15 as recorded is only handling 60 frames per second,
16 then you'll specify 60 frames per second as the
17 output frame rate?

18 A. Yeah, in the model number, corresponding
19 frame rate in the system is recorded as 60 frames per
20 second that is selected as the output frame rate for
21 that model in this particular case.

22 Q. In paragraph 48 of your declaration,
23 Exhibit 2006, you discuss the Iwata reference.

24 Do you recall that?

25 A. 48?

1 Q. Yeah, paragraph 48.

2 A. I'm looking at it now.

3 Q. Okay. When you're done reviewing that
4 paragraph, let me know.

5 A. Okay. Yes. I've read through this.

6 Q. Actually, we're going to start at
7 paragraph 47, actually. The paragraph before.

8 A. Okay.

9 Q. Fairly short.

10 My first question is: Did you review the
11 Iwata reference itself, or did you just review the
12 prosecution history for the '041 patent?

13 A. I think I would review both, I think.

14 Q. And paragraph 47 you state, "I understand
15 that during prosecution, the pending claims of the
16 '041 patent were rejected under 35 U.S.C., Section
17 102(b), as being anticipated by" -- what's referred
18 to as the Iwata reference.

19 Do you see that?

20 A. Yes.

21 Q. And do you understand that when a reference
22 is said to be anticipated -- excuse me -- when a
23 patent claim is said to be anticipated, that means
24 that the prior reference discloses each element of
25 that claim?

1 A. Yeah, I have a general understanding of it,
2 yeah.

3 Q. And so what you're saying here is that the
4 examiner had rejected the claims that were pending on
5 the basis of Iwata saying Iwata discloses everything,
6 and then the applicant responded with arguments as to
7 why that wasn't the case; is that correct?

8 A. Yes, yeah, yes.

9 Q. And am I correct that in paragraphs 48 and
10 49, you point out that the applicant argued that
11 Iwata was missing the output frame rate specification
12 unit supposedly because Iwata had a fixed output
13 frame rate?

14 A. Okay. Yeah, I see that 49, paragraph 49.

15 Q. Okay. And do you recall any other
16 distinction between Iwata and the claims of the '041
17 patent other than the alleged lack of an output frame
18 rate specification unit?

19 A. I don't recall the details of that.

20 Q. Let's go back up to paragraph 48 where you
21 discuss Iwata. And do you see in the middle of that
22 paragraph you state that Iwata discloses a method
23 that involves decimation or interpolation of the
24 frames, and then you say it's based on a relationship
25 between the playback speed and a shooting frame rate

1 and a playback frame rate.

2 Do you see that?

3 A. Yes.

4 Q. Okay. And here, you're discussing the
5 prior art, right? You're not discussing the '041
6 patent; is that correct?

7 A. This is discuss Iwata.

8 Q. Right. So what you're saying here is the
9 prior art disclosed that video data was either
10 decimated or interpolated based on input frame rate,
11 output frame rate, and a playback speed?

12 MR. PYMENTO: Objection. Form.

13 THE WITNESS: Okay. So first to decimation
14 and interpolation based on -- yeah, based on this
15 playback speed, shooting frame rate, playback frame
16 rate.

17 BY MR. KATZ:

18 Q. And, in fact, interpolation and decimation
19 were prior art techniques for adjusting video long
20 before the '041 patent invention date, right?

21 A. Yeah, interpolation and decimation are
22 general methods.

23 (Reporter requested clarification.)

24 BY MR. KATZ:

25 Q. And if we jump to paragraph 66 of your

1 report, you actually quote the '041 patent at Column
2 9, lines 18 to 27. Let's bring it up on the screen
3 as well.

4 A. 66, you said?

5 Q. Yeah, 66.

6 And do you see in the middle of that
7 paragraph, you quote the '041 patent at Column 9,
8 lines 18 to 27, where you say -- where you're quoting
9 them, where the patent says, "The conversion of the
10 frame rate is performed based on a known method such
11 as interpolation in addition to decimation described
12 in the above-mentioned example?"

13 Do you see that?

14 A. Yes.

15 Q. And when the patent says that interpolation
16 was a known method, that's the patent saying this is
17 something that existed generally in the art; it
18 wasn't invented in the '041 patent, right?

19 A. Correct.

20 Q. And can you just confirm that not only was
21 interpolation a known method for modifying video, but
22 decimation was also a known method of modifying video
23 before the '041 patent?

24 A. Yes.

25 Q. Okay. Now let's jump to paragraph 72 of

1 your report -- of your declaration. And here, you're
2 talking about the Morikawa reference which, again,
3 was -- the record was Exhibit 1004.

4 If you can just read paragraph 72 and let
5 me know when you've read it.

6 (Pause on the record.)

7 THE WITNESS: Okay. Yeah, I read -- I read
8 72.

9 BY MR. KATZ:

10 Q. Can you tell me what is your understanding
11 of the quote from Morikawa you have here where you
12 quote Morikawa saying, "When display frame rate is
13 60 Hz, 120 Hz, 240 Hz, the playback frame rate is set
14 to 60 Hz"?

15 What is your understanding of the display
16 being discussed here? Let me be more -- let me be
17 more specific.

18 Is this referring to capabilities of a
19 single display? Three different displays? What is
20 your understanding in that regard?

21 MR. PYMENTO: Objection. Form.

22 THE WITNESS: I'd have to look at
23 Morikawa's context. I don't remember the details of
24 it.

25

1 BY MR. KATZ:

2 Q. Okay. I think I put it in the chat, so you
3 should have it there or might already have it in the
4 files.

5 (Pause on the record.)

6 THE WITNESS: So Morikawa here states
7 display frame rate is -- can be 60, 120, or 220
8 [sic]. That's right. In all those cases, frame rate
9 is -- playback frame rate is -- sets it to 60 Hz.

10 BY MR. KATZ:

11 Q. Okay. So you read this as kind of having
12 an "or" after the 120 that then it's saying that if
13 the display rate is 60, 120, or 240?

14 A. Yeah, I think that -- right. Yeah, that
15 different -- even when you're -- yeah. Display frame
16 rate is different output. The Morikawa's playback
17 frame rate is 60.

18 Q. All right. Is it your understanding that a
19 display that can -- that is specified as 120 Hz
20 display, that that can handle either 60 or 120 frames
21 per second?

22 MR. PYMENTO: Objection. Form.

23 THE WITNESS: It would depend on the
24 display. If the display is expecting only 120 Hz, it
25 would not be able to play 60. Depends on the

1 specific display cell.

2 BY MR. KATZ:

3 Q. Okay. So a display that is specified as,
4 let's say, 120 or 240 Hz will not necessarily be able
5 to play video received at 60 Hz -- or excuse me,
6 received at 60 frames per second?

7 A. It -- it would depend on specific displays
8 that have the time, right. Some displays may be able
9 to play; some displays may not be able to. It
10 depends on the display hardware.

11 Q. Okay. So you -- so you couldn't state
12 with -- with confidence that displays specified as a
13 multiple of 60 Hz could play 60 frames per second?
14 That's not -- that's not something that could be made
15 as a general statement?

16 MR. PYMENTO: Objection to form.

17 THE WITNESS: Can you repeat that? Display
18 specified as a multiple of 60? Can you repeat that?

19 BY MR. KATZ:

20 Q. Yes.

21 (Reporter requested clarification.)

22 MR. PYMENTO: I said objection to form.

23 BY MR. KATZ:

24 Q. Yeah. My -- let me ask it in a better way.
25 Are you saying as a general matter, one

1 cannot assume that a display specified at a frequency
2 that's a multiple of 60 Hz would be able to
3 successfully play a 60 frame per second video?

4 A. It would depend on the hardware. It could
5 depend on the hardware capabilities, whether they're
6 designed to handle such variations of that.

7 Q. I'm sorry. I missed that last part.

8 Would depend on the hardware capabilities
9 if what -- to what?

10 A. Hardware capabilities of your display would
11 determine what frame rates the display would be able
12 to handle.

13 Q. Okay. And, again, so I'm just trying to
14 clarify exactly what your testimony is.

15 You're saying displays at multiples of 60
16 Hz cannot be assumed to work at 60 Hz; you'd have to
17 look at the hardware-specific display?

18 A. Yeah, display hardware would dictate --
19 yeah, display hardware and display design, right,
20 would determine what frame rate could be handled.

21 Q. Okay. And, actually, I'm just going to ask
22 the question one more time with the proper wording.

23 So displays that are specified at a
24 frequency that's a multiple of 60 Hz, such as 120 or
25 240, would not necessarily be able to play a

1 60-frame-per-second video, correct?

2 A. Depends on the displays, correct?

3 Q. Okay. In the sentence after the Morikawa
4 quote, you state, "Nowhere does Morikawa disclose
5 setting the output frame rate to any other value
6 other than 60 even when the required display frame
7 rate is a multiple of 60."

8 Do you see that statement?

9 I was reading your paragraph 72.

10 A. Okay. I see below the quote, right?

11 Q. Yes.

12 A. "Nowhere."

13 Q. Are you suggesting a person of ordinary
14 skill in the art would read Morikawa to say that it
15 will send 60 frames per second to a display that
16 cannot handle 60 frames per second?

17 A. As -- in case of Morikawa as described in
18 26, the Morikawa's example has displays at 60, 120,
19 and 240 Hz, right? And from this example in this
20 case, they are able to handle 60 Hz with the --

21 (Reporter requested clarification.)

22 THE WITNESS: Playback -- with the playback
23 frame rate along with 60, this, you know, independent
24 of the display frame rate here. In this particular
25 example, Morikawa displays, right, are able to play

1 60 Hz video on 120 display, et cetera. That's one
2 example Morikawa -- that's what Morikawa states here.
3 General, yeah.

4 BY MR. KATZ:

5 Q. All right. So the assumption of a person
6 of ordinary skill in the art reading Morikawa is that
7 the 120 Hz display or the 240 Hz display can handle
8 60 Hz as well, correct?

9 A. And the Morikawa all three displays --
10 state the playback frame rate at 60 Hz, yeah.

11 Q. Do you think it would be a fair reading of
12 Morikawa to understand this phrase to be saying where
13 a display can handle frame rates of 60 Hz, 120 Hz,
14 and 240 Hz, set the playback frame rate to 60 Hz?

15 A. In my opinion, these are separate displays
16 at 60 Hz, 120 Hz, or 240 Hz. In all of those cases,
17 the frame rate is output at play -- playback frame
18 rate is set to 60 Hz.

19 Q. So isn't the assumption of Morikawa, if we
20 assume -- strike that.

21 If we assume you are correct that these are
22 three different displays, wouldn't a person of
23 ordinary skill in the art reading Morikawa understand
24 that the 120 Hz display and the 240 Hz display can
25 handle 60 frames per second?

1 A. Sure. They could be displays, right.
2 There could be displays that could handle that.

3 Q. Well, more than there could be. Someone
4 reading Morikawa would understand that these three
5 displays, as you call it, would be capable of
6 handling the 60 Hz because Morikawa wouldn't suggest
7 sending 60 Hz to a display that could not handle it;
8 would you agree with that?

9 MR. PYMENTO: Objection. Form.

10 THE WITNESS: Yeah. Morikawa would, in
11 this particular system, right, he's considering
12 displays that can process a 60 Hz.

13 BY MR. KATZ:

14 Q. All right. And then in the next paragraph,
15 paragraph 73 of your report, we'll go there. And in
16 paragraph 73, you discuss what Morikawa's device
17 might be capable of.

18 Do you see that? You used the word
19 "capable" in the third line.

20 A. Okay. I see -- yeah, on third line, yes.

21 Q. Okay. So let me just ask you a more
22 general question first.

23 The frame rate is simply the speed at which
24 frames are sent to some output interface; is that
25 correct?

1 A. Are you -- are you referring to the output
2 frame rate here in your question --

3 Q. Yes. I'm sorry. Yes. The output frame
4 rate.

5 So let me ask again with that
6 clarification.

7 Do you agree that an output frame rate is
8 simply the periodic time at which frames are sent to
9 the output interface?

10 A. Yeah, generally that's -- yeah.

11 Q. And so if I've got frames queued up for
12 sending out, I set the output frame rate by having
13 some timer set to some periodic time, whether it's
14 1/60th of a second or 1/30th of a second; is that
15 correct?

16 A. Yeah. It could depend on how you're
17 implementing your display drivers, how you are
18 receiving frames rate, and how you're outputting,
19 right.

20 Q. Okay. As a general matter, you are setting
21 the timing of how often you're sending frames to the
22 output interface?

23 A. How -- yeah, generally right. Output frame
24 rate -- let's see. Output frame rate -- yeah, output
25 frame rate would refer to the rate at which your

1 system is outputting frames.

2 Q. And would you agree that it's certainly
3 within the capability of a person of ordinary skill
4 in the art to change the timing in which frames are
5 output to vary the output frame rate; that it's a
6 trivial matter to change from, let's say, 60 Hz or --
7 excuse me, 60 frames per second to 50 frames per
8 second? Isn't that correct?

9 MR. PYMENTO: Objection to form.

10 THE WITNESS: No, I wouldn't say it's a
11 trivial matter. It depends -- frame -- it depends on
12 number of variables in the system, rate at which the
13 frames are produced, synchronization, right, a number
14 of factors to be considered, I would think.

15 BY MR. KATZ:

16 Q. So you think in a Morikawa system -- let's
17 assume that someone wanted to send out the frames at
18 50 frames per second instead of 60 frames per second.

19 Would you agree it would be within the
20 ordinary skill of the art to design the Morikawa
21 system with a 50-frame-per-second output instead of a
22 60-frame-per-second output?

23 A. Morikawa discusses output which is -- fits
24 with whatever this example is, 60 frame.
25 Irrespective of the output display rate, input rate

1 is --

2 (Reporter requested clarification.)

3 THE WITNESS: So Morikawa discusses output
4 frame rate at 60, right, when display frame rate is
5 60 or 120 or 240.

6 Are you asking if Morikawa, can it be 60,
7 can it be 50? I'm not sure what the question.

8 BY MR. KATZ:

9 Q. Wouldn't you agree that it would be well
10 within the skill of someone of ordinary skill in the
11 art to build the Morikawa system and set the
12 different output frame rate such as, for instance, 50
13 frames per second instead of 60 frames per second?

14 A. If somebody were building a system at --
15 you know, who knows how to build a system at 60 Hz
16 output would also, I would think, know how to build a
17 system at, you know... yeah, to design it for a
18 different frame rate, yeah.

19 Q. And, in fact, it would have also been
20 within the level of ordinary skill in the art to have
21 some sort of user selectability where a user could
22 pick a frame rate and it would simply implement the
23 frame rate chosen; isn't that correct?

24 A. Morikawa doesn't discuss that option. He
25 just discusses that irrespective of what it is, the

1 output is set, you know, at a fixed frame rate of --
2 playback frame rate is set to 60. Right. There is
3 no selectability that was discussed.

4 Q. All right. Now my question to you is about
5 capability.

6 In the system as described in Morikawa,
7 even though it's not disclosed as such, wouldn't you
8 agree that a person of ordinary skill in the art
9 could easily have a user interface with some sort of
10 selectability and then direct Morikawa to set
11 whatever the user-selected frame rate was as the
12 output frame rate?

13 MR. PYMENTO: Objection. Form.

14 THE WITNESS: It depends -- I don't know
15 whether there is a need to do that. I don't know how
16 I would answer that, right?

17 You are asking can somebody add new
18 features to all of this? I would think you can do
19 lot of things, but I'm not sure why -- how somebody
20 would go about that.

21 BY MR. KATZ:

22 Q. Okay. I guess -- let me just ask you this:
23 Is it your opinion that there is something in
24 Morikawa that would prevent a user from controlling
25 the output frame rate or just there's not specific

1 disclosure of that feature?

2 MR. PYMENTO: Objection. Form.

3 THE WITNESS: Morikawa just discuss a need
4 to change output playback rate. That's the Morikawa
5 system.

6 BY MR. KATZ:

7 Q. So just does not discuss such a need; is
8 that correct?

9 A. Yeah. There is no -- Morikawa system just
10 has a fixed playback frame rate. That's all.

11 Q. Morikawa doesn't use the word "fixed,"
12 right? It just provides an example whereby 60 frames
13 per second is selected; is that correct?

14 MR. PYMENTO: Objection. Form.

15 THE WITNESS: Morikawa discusses -- I mean
16 he says playback frame rate is set to 60, right?
17 That's the only discussion of the frame rate --
18 setting of the frame rate, right. So to me that
19 implies it's set at 60. That's what he is
20 envisioning the system.

21 BY MR. KATZ:

22 Q. Okay. But is there anything else other
23 than the two -- than this sentence that you quote
24 from paragraph 26 to support your position that
25 Morikawa says the frame rate is fixed?

1 A. Morikawa doesn't say frame rate -- this
2 playback frame rate is variable or changeable. It
3 says it is set.

4 Q. Okay. So, yeah, my question is: Is there
5 anything other than this sentence shown in paragraph
6 72 for Morikawa from -- that's from Morikawa
7 paragraph 26, but you repeat it in your paragraph 72.

8 Is there anything other than what you quote
9 here that you're basing your opinion on that Morikawa
10 has a fixed output frame rate?

11 A. I do not think so. Morikawa -- I don't
12 specifically recall, but that's what I -- I would --

13 (Reporter requested clarification.)

14 THE WITNESS: I don't specific --

15 MR. KATZ: He said, "I don't recall."

16 Yeah.

17 Go ahead, Dr. Kalva. Sorry.

18 THE WITNESS: I said I don't specifically
19 recall. I don't remember all of the details of
20 Morikawa to be able to answer.

21 BY MR. KATZ:

22 Q. Okay. Let's go to paragraph 78. Should be
23 on the screen as I pull it up here.

24 A. Okay.

25 Q. So read this paragraph. Let me know when

1 you've read it.

2 (Pause on the record.)

3 THE WITNESS: Okay. Yeah, I read through
4 that. Yeah.

5 BY MR. KATZ:

6 Q. Okay. I'm trying to understand your
7 opinions here.

8 Are you saying that in your opinion in
9 Morikawa, a frame rate conversion process happens
10 before the user selects a playback speed?

11 A. So here, the playback time is calculated,
12 right, based on the -- if you play in a slow mode or
13 a normal mode. And then these are displayed. And if
14 you -- what would be the time of playback? It's the
15 first in playback time calculation.

16 Q. Right. And if we look at Figure 7 of
17 Morikawa, Exhibit 1004, you see -- I'll just bring it
18 up here.

19 A. Figure 7?

20 Q. Yeah, I'm going to try to bring it up on
21 the screen, make it easier. Okay.

22 Is Figure 7 showing up on the screen?

23 A. Yes. I can see it.

24 Q. And you're familiar with Figure 7 of
25 Morikawa?

1 A. Yeah. Generally, yes.

2 Q. Okay. Well, am I correct that what this is
3 showing is that if you're going to do a slow playback
4 then the high frame rate portion in gray, each frame
5 is going to be played out at the slower speed and
6 will then create a slow motion effect? That's going
7 from 7A to 7B.

8 A. Okay. Yeah.

9 Q. And then it's saying for normal playback,
10 7A to 7C, it's actually going to decimate. It's
11 going to drop frames so it's only going to play some
12 of the high frame rate frames; is that correct?

13 A. 7C. Yeah, that seems to be right. Yeah.
14 7C.

15 Q. So as a general matter, if a user selects
16 slow playback, the -- every frame of the high frame
17 rate portion will be played, and if the user selects
18 normal playback, then there's going to be decimation.
19 Only some of the high frame rate frames will be
20 played; is that correct?

21 A. Not -- yes. Yeah. Generally, that seems
22 to be. Yeah.

23 Q. All right. And so the actual frame rate
24 conversion, whether you go to 7B or 7C is -- depends
25 on whether the user selected slow or normal playback?

1 A. 7B or 7C.

2 Yes. Yeah, playback time would vary
3 whether you're in slow or normal.

4 Q. And so the playback -- the frame rate
5 conversion, because it depends on the user selection,
6 necessarily happens after the user selection?

7 A. The frame rate conversion.

8 (Pause on the record.)

9 THE WITNESS: Sorry, can you ask the
10 question? I lost track of the question.

11 BY MR. KATZ:

12 Q. Sure.

13 As shown in Figure 7, the frame rate
14 conversion process depends on which playback type is
15 selected; isn't that correct?

16 A. So in Figure 7, right, in 7B and 7C, in
17 both cases, the output frame rate is the same.

18 Q. All right.

19 A. Yeah, the same number of frames, right, are
20 the same rate basically, right. Because there is a
21 certain high frame rate content present, it appears
22 slow in one case, right? The frame rate here is
23 independent of how -- in the case of 7B or 7C, an
24 output frame rate is the same.

25 Q. Right. But the output frame rate is the

1 same but the process of frame conversion is different
2 because one will use decimation in Figure 7C but
3 there's no decimation in Figure 7B; is that correct?

4 A. Yeah. It's decimating in one case and not
5 in the other.

6 Q. Right. And to know whether to decimate,
7 you need to wait for the user to make a selection
8 between slow or normal playback; is that correct?

9 A. Right. Yeah. So 7B, you are not
10 decimating, and 7C, example here is you are
11 decimating here.

12 Q. Okay. So I guess it would be fair to
13 characterize it this way: The frame rate, the output
14 frame rate is selected before or can be selected
15 before the user chooses the playback speed; but the
16 actual conversion process follows the user's
17 selection of playback speed?

18 MR. PYMENTO: Objection.

19 THE WITNESS: Playback on -- the frame rate
20 is independent of the playback speed in this case.
21 The frame rate, you know, it's not based on the
22 playback speed because it's fixed here. Right. It's
23 always -- in both cases, it's at the same frame rate.

24 BY MR. KATZ:

25 Q. Right. But the frame rate conversion

1 process, that is whether to decimate or not, would be
2 after the user selects the playback speed, correct?

3 A. I believe Morikawa, if I remember, is
4 referring to the case -- let me see. Give me one
5 moment to check the input.

6 I'm sorry. Can you repeat the question?
7 The question: When is the submission happening; is
8 that last question?

9 Q. Close. All right.

10 Would you agree that in Morikawa, the --
11 the frame rate conversion process must follow the
12 user selection of playback speed because the process
13 will depend on the user's selection of playback
14 speed?

15 A. Yeah. I think that could be -- yeah. So
16 the -- in one, you are playing back -- you determine,
17 I guess, the playback times, how long it will take,
18 and playback begins upon user selection.

19 Q. So was your answer to that question "yes"?

20 MR. PYMENTO: Objection. Form.

21 THE WITNESS: Yeah, the frames are played
22 back by playing the submission as needed.

23 BY MR. KATZ:

24 Q. Okay.

25 A. But the frame rate -- frame rate itself

1 doesn't depend on, right, whether you select the
2 playback speed of normal or slow. Frame rate itself
3 is, you know --

4 Q. Okay.

5 A. Okay.

6 Q. Okay. So if I heard you correctly, you're
7 saying, yes, the decimation process will follow the
8 selection of the playback speed, but the frame rate,
9 in your view, is fixed; is that correct?

10 A. Frame rate is -- frame rate is independent
11 of your playback, you know -- of the selection of the
12 frame rate.

13 Q. Okay. I'm going to have to ask it just one
14 more time just so the record is clear. I'm not
15 asking you to change your answer at all; I'm just not
16 sure if the court reporter got it.

17 Am I correct that your answer to the
18 question of whether the frame conversion process, and
19 specifically whether decimation occurs, follows the
20 selection of playback speed? And I believe your
21 answer was "yes"; is that correct?

22 MR. PYMENTO: Objection. Form.

23 THE WITNESS: Yes.

24 BY MR. KATZ:

25 Q. Okay. Thank you. Just glad we got that

1 clear on the record.

2 We've definitely gone more than an hour --

3 A. I --

4 Q. I'm sorry. Go ahead.

5 A. I would like to clarify that second part
6 which is that, you know, frame rate is independent of
7 the playback speed of --

8 Q. Okay. Thank you.

9 So let's take a ten-minute break, so about
10 five after the hour. I really only have one more
11 section to go through. I can't estimate how long it
12 will take. Could go quickly; maybe not. But I only
13 need to do one little more -- one little section that
14 remains just for planning purposes.

15 MR. PYMENTO: Sounds good.

16 MR. KATZ: Okay. So reconvene at five
17 after the hour, or do you want to take a slightly
18 longer break? It's up to you, Dr. Kalva.

19 Would you like to --

20 THE WITNESS: That's okay. A short break
21 is fine.

22 (Recess: 11:57 a.m. to 12:10 a.m.)

23 BY MR. KATZ:

24 Q. Okay. We're back on the record.

25 So, Dr. Kalva, I just want to turn to the

1 '041 patent which, of course, is Exhibit 1001. I
2 have here on the screen these Figures 2A and 2B, just
3 to refresh your recollection that indeed the -- at
4 least primary embodiment of the '041 patent is a
5 camera.

6 Do you recall that?

7 A. Yeah. It's in the -- I can look at the
8 descriptions of 2A, 2B.

9 Q. Yeah. The description -- the short
10 description is -- Figures 2A and 2B are exterior
11 views illustrating the appearance of the imaging
12 apparatus 1.

13 A. Yeah. Okay. Yes.

14 Q. Just so we're on the same page. And then
15 you understand that Figures 4A, B, and C are
16 screenshots of what, like, the user interface on the
17 back of the camera would look like.

18 A. Yeah. Examples for selecting, you know,
19 input modes.

20 Q. And so, for example, in 4A, a person that
21 selects either normal image capture or high-speed
22 image capture, for example; is that correct?

23 A. Yeah, there are options for normal.

24 Q. And then we jump back, I think, to the
25 preceding Figure 3, which is described as a flowchart

1 illustrating an image capture process by the imaging
2 apparatus 1. We see kind of a start of an image
3 capture process at the top, and then it flows
4 downward to where the image is -- the video is
5 captured at the end.

6 Do you see that?

7 THE WITNESS: I see Figure 3, yeah.

8 BY MR. KATZ:

9 Q. And then these images are captured by a
10 camera or stored within the memory of the camera?

11 A. I can check.

12 Yeah, I guess they could be stored on the
13 camera.

14 Q. And then if we turn to Figure 6, that
15 discusses playback mode. Let's see how it describes.
16 "Figure 6 is a flowchart illustrating a playback
17 process of moving image data by the imaging
18 apparatus."

19 Have you looked at Figure 6 before?

20 A. Yes.

21 Q. And so this is the process that will be
22 followed if you wanted to play back videos that were
23 recorded by the camera; is that correct?

24 A. Yeah. It's -- it's describing the playback
25 process.

1 Q. And the first step of the playback process
2 is to specify the playback frame rate shown here in
3 S201; is that correct?

4 A. S201. Okay. S201 says "specified playback
5 frame."

6 Q. And am I correct that if we go to the next
7 figure, 7A, that would be an example screen where
8 you're picking the playback frame rate that you want
9 to use for the playback?

10 A. I can't remember the description of the
11 program.

12 Q. Well, if you look at Column 4 where it
13 gives a brief description, 7A is described as -- it
14 says -- I quote, "Fig. 7A and 7B are diagrams
15 schematically illustrating the displays of images
16 that prompt a user to select an output frame rate."

17 A. Yeah. I see it. Yes.

18 Q. And then the next step in the process in
19 Figure 6 is to specify a playback speed; do you see
20 that?

21 A. Yeah.

22 Q. And then once those are selected, the next
23 diamond says, "Is moving image data output?"

24 You see that, I assume?

25 A. Yes, I see that too.

1 Q. Do you recall whether in the '041 patent
2 the first two steps, the playback frame rate and
3 speed, are selected and then applied to each video
4 selected for playback, or is it your understanding
5 that for each video you need to run through this
6 entire flowchart of Figure 6?

7 If it helps, there's some description on
8 the bottom of Column 13.

9 A. Yeah, I'm looking at that now.

10 Q. And, actually, maybe I'll just withdraw
11 that question and ask a better question, if I may.

12 A. Okay. Sure.

13 Q. Am I correct that in Figure 6, the two
14 first boxes where the playback frame rate and
15 playback speed are specified, those two boxes
16 illustrate choices made by the user that will be
17 applied to -- that can be applied to a plurality of
18 moving image data, correct?

19 A. Yeah. It can do both. One is the
20 plurality of --

21 Q. I'm sorry. I missed -- I missed that
22 answer.

23 Can you say it again slowly near the
24 microphone?

25 A. Yeah.

1 At the bottom of Column 13, right, the user
2 can both designate one piece of moving image data or
3 a plurality of moving image data.

4 Q. All right. So a user can basically select
5 the playback frame rate and the playback speed just
6 as the -- to be applied to multiple videos; the
7 selections don't need to be made on a video-by-video
8 basis, correct?

9 A. Yes. Yeah.

10 Q. All right. And so if I understand it
11 correctly -- now kind of look at Figure 7A. I'm not
12 selecting the frame rate -- output frame rate for a
13 particular video; I'm basically selecting it for the
14 device, and then I'm going to choose the videos that
15 are going to be played at the selected frame rate.

16 A. Yeah. So I think this Figure 6 is showing
17 for one example of how that could be connected.

18 Q. Right. And I'm just trying to see if I'm
19 interpreting Figure 7A correctly.

20 Am I correct that in Figure 7A, which is
21 shown on the screen now, the user is selecting an
22 output frame rate that will be for the camera, for
23 the device, that will just be applied to any video
24 selected for playback?

25 A. Yeah, that's one example -- I would say

1 that's example of 61.

2 Q. Okay.

3 A. That is showing different methods to
4 specific Claim --

5 Q. Okay. And if we turn to your paragraph 81
6 of your declaration, Exhibit 2006. It's still up
7 here.

8 A. 81?

9 Q. 81. If you'll just read 81 to yourself. I
10 have a question about it.

11 A. Okay. I'm looking at 81. Yeah.

12 Q. And you say in the first sentence, "The
13 converted frame rates of the first and second moving
14 image data in the challenged claims are based on the
15 specified output frame rates of both the first and
16 second moving image data."

17 Do you see that sentence?

18 A. Yes.

19 Q. Are you -- is it your opinion that you need
20 to individually specify output frame rates in the
21 '041 patent as opposed to having a single output
22 frame rate specified for a device?

23 A. Yeah, that's what claim -- the Claim 1 say,
24 for example, an output frame rate specification unit
25 configured to specify --

1 (Reporter requested clarification.)

2 THE WITNESS: Yeah. Part of Claim 1 reads,
3 right, "output frame rate specification unit
4 configured to specify output frame rate of the first
5 moving image data and output frame rate of the second
6 moving image data that has been input into this."

7 So the claim requires output frame rate
8 specification. You need to specify output frame rate
9 of the first and output frame rate of the second
10 moving image data.

11 BY MR. KATZ:

12 Q. And is it your opinion that if a device
13 specifies the output frame rate through a user
14 input -- strike that.

15 I'll back up. Let's go back to Figure 7A
16 that we were just discussing.

17 So is it your opinion that a device such as
18 the example in Figure -- of the camera on Figure 7A
19 where a user chooses the output frame rate once and
20 it is then applied to multiple videos, that that is
21 outside the scope of Claim 1?

22 MR. PYMENTO: Objection. Form.

23 THE WITNESS: I don't have opinion on that,
24 I don't think, in my declaration.

25

1 BY MR. KATZ:

2 Q. Well, I guess I'm trying to clarify what
3 you mean in paragraph 81 in your last statement about
4 Claim 1.

5 A. Paragraph 81, okay.

6 Q. Is it your opinion that Claim 1, for
7 example, requires that a user would specify an output
8 frame rate for each piece of video separately?

9 A. Yeah, the Claim 1 recites output frame rate
10 specification unit is configured to specify output
11 frame rate of the first moving image and output frame
12 rate of second moving image.

13 Q. Okay. Are you done?

14 A. What did you ask?

15 Q. I'm asking if you're done with your answer.

16 A. Yes.

17 Q. Okay. Great.

18 So to clarify, so it's your opinion that if
19 an output frame rate is specified for all videos as
20 opposed to on a video-by-video basis, that's outside
21 the scope of Claim 1?

22 A. No, I don't -- I don't have an opinion on
23 that. I didn't give an opinion on that.

24 MR. KATZ: Okay.

25 I have no further questions. Thank you.

1 MR. PYMENTO: If we can take five minutes,
2 I think I just have a couple of clarifying questions.
3 It shouldn't take too long.

4 MR. KATZ: All right.

5 (Recess: 12:36 p.m. to 12:45 p.m.)

6 EXAMINATION BY MR. PYMENTO:

7 Q. Dr. Kalva, could you please turn to Claim 6
8 in the '041 patent. May be better if I share a
9 screen as well.

10 A. Yeah.

11 Q. Can everyone see my screen?

12 A. Yeah, I have Claim 6.

13 Q. Do you see the claim limitation that
14 discusses "Specified output frame rate of the first
15 moving image data and output frame rate of the second
16 moving image data that have been input"?

17 A. Yes.

18 Q. Is it your opinion that Claim 6 is
19 discussing two separate output frame rates here?

20 MR. KATZ: Objection to form.

21 THE WITNESS: Yes.

22 BY MR. PYMENTO:

23 Q. And just to be clear, the two separate
24 output frame rates are one output frame rate
25 corresponding to the first moving image data and one

1 output frame rate corresponding to the second moving
2 image data, correct?

3 MR. KATZ: Objection to form.

4 THE WITNESS: Yes, that's correct.

5 BY MR. PYMENTO:

6 Q. And is it your opinion that method 6 --
7 that Method Claim 6 requires two specifying processes
8 for each of the output frame rates?

9 MR. KATZ: Objection to form.

10 THE WITNESS: Yes, because it says, and
11 specifying --

12 (Reporter requested clarification.)

13 THE WITNESS: I said, yes, it's specifying
14 output frame rate of the first moving image data and
15 specifying output frame rate of the second moving
16 image data.

17 BY MR. PYMENTO:

18 Q. And do you see in Claim 6 the limitations
19 changing a frame rate of the first moving image data
20 based on the first frame rate, the output frame rate,
21 and the playback speed, and then another limitation
22 saying changing the frame rate of the second moving
23 image data based on the second frame rate, the output
24 frame rate, and the playback speed?

25 MR. KATZ: Objection to form.

1 THE WITNESS: Yes.

2 BY MR. PYMENTO:

3 Q. The frame rate changing process described
4 in Claim 6 can't be based on the specified playback
5 speed if a system plays back at the same output frame
6 rate regardless of playback speed, correct?

7 MR. KATZ: Objection to form.

8 THE WITNESS: Yes, that's right.

9 BY MR. PYMENTO:

10 Q. Let's turn to Morikawa.

11 Is it generally your understanding that
12 Morikawa discloses and describes multi frame rate
13 content?

14 A. Yes.

15 Q. Okay. Let's turn to paragraph 27 of
16 Morikawa. And specifically, the first sentence.

17 Do you see where it says, "In contrast, a
18 playback time in the slow playback mode is calculated
19 as a playback time of the entire contents when all of
20 the frames of the high frame rate portion are played
21 back at the playback frame rate"?

22 Do you see that?

23 A. Yes, I think.

24 Q. Right. It's the first sentence of
25 paragraph 27 in Morikawa.

1 A. Yes. I read that. Yes.

2 Q. Is it your understanding that when the
3 playback speed in Morikawa is specified to a slow
4 mode, Morikawa adjusts only the high frame rate
5 portion of the multi frame rate contents to be slowed
6 down?

7 A. Yes. That's right. Yes.

8 Q. And do you recall discussing with Counsel
9 Figure 7 of Morikawa earlier?

10 A. Yes.

11 Q. Figure 7 shows only the high frame rate
12 portion of 300 frames per second being slowed down in
13 the slow playback mode shown in Figure 7B, right?

14 A. Yes, that's right. Yeah.

15 Q. In the slow playback frame of Figure 7B,
16 all of the frames of the 300-frame-per-second portion
17 are retained but slowed down to 60 frames per second,
18 correct?

19 A. Yes.

20 Q. And you can tell that the
21 300-frame-per-second portion is slowed down to 60
22 frames per second because the same size block is used
23 for 60 frames per second at the start of Figure 7A,
24 right?

25 A. Yes, yeah, right. 60 frame portion remains

1 the same and nothing changes.

2 Q. And in normal playback -- in the normal
3 playback mode in Figure 7C, the playback frame rate
4 also appears to be 60 frames per second based on the
5 block size, correct?

6 A. Yes. Frame rate is the same, correct.

7 Q. So regardless of slow playback mode or
8 normal playback mode, the playback frame rate in
9 Figure 7 is 60 frames per second, correct?

10 A. Yes, that's right.

11 MR. PYMENTO: I have no further questions.

12 MR. KATZ: I'm done. Thank you.

13 COURT REPORTER: Counsel, may I get
14 transcript requests on the record, please?

15 MR. PYMENTO: I think I'm fine from my end
16 because I assume you guys are going to be filing the
17 transcript as an exhibit, right?

18 MR. KATZ: Yes.

19 And I assume we have a standing order for
20 expedited. Whatever our standing order is.

21 COURT REPORTER: Okay.

22 So no copy, Mr. Pymonto?

23 MR. PYMENTO: That's right. I think we're
24 fine.

25 (Whereupon the proceedings concluded at

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1 12:50 p.m. EST)

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	ERRATA SHEET		
1	NAME OF CASE: SAMSUNG ELECTRONICS CO, LTD. V.		
2	ADVANCED CODING TECHNOLOGIES, LLC		
3	DATE OF DEPOSITION: JUNE 14, 2024		
4	NAME OF WITNESS: HARI KALVA, Ph.D.		
5	Reason Codes:		
6	1: To clarify the record.		
7	2: To conform to the facts.		
8	3: To correct transcription error.		
9	Page	Line	Reason
10	From		to
11	Page	Line	Reason
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18	From		to
19	Page	Line	Reason
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DECLARATION UNDER PENALTY OF PERJURY

I, HARI KALVA, Ph.D., do hereby certify
under penalty of perjury that I have read the
foregoing transcript of my deposition taken on
June 14, 2024; that I have made such corrections as
appear noted on the Deposition Errata Page(s),
attached hereto, signed by me; that my testimony as
contained herein, as corrected, is true and correct.

This Declaration is executed this _____
day of _____, 20____, at
_____, California.

HARI KALVA, Ph.D.

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I, Tamara Houston, RPR, CCRR, CSR No. 7244,
a Certified Shorthand Reporter in the State of
California, duly empowered to administer oaths, do
hereby certify:

That said deposition was taken down by me in shorthand at the time and place therein named, and thereafter reduced to typewriting by computer-aided transcription under my direction;

I further certify that I am not interested in the event of the action.

Dated: 21st of June, 2024.

TAMARA L. HOUSTON
CSR 7244, RPR, CCRR 140

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0	12:10 61:22	3	27:14,22,25 28:14 63:14,16,19 64:19 65:6, 13 66:16 70:7,12,18 71:6,7,18 72:4
003 13:12	12:36 70:5	3 62:25 63:7	60
041 7:2 14:8 15:8 23:9,19, 20,25 24:14,22 25:21 26:10,14 32:6 34:19 35:4,5,12 37:1 38:12,16 39:16 40:5,20 41:1,7, 18,23 62:1,4 65:1 67:21 70:8	12:45 70:5	300 36:7 73:12	29:25 30:1,3,24 31:7,9 35:14,23 36:11,12,19, 21,22 37:15,16,19 42:13,14 43:7,9,13,17, 20,25 44:5,6,13,18 45:2,3,15,16,24 46:6,7, 15,16,18,20,23 47:1,8, 10,13,14,16,18,25 48:6, 7,12 50:6,7,18,24 51:4, 5,6,13,15 52:2 53:12, 16,19 73:17,21,23,25 74:4,9
1	13 65:8 66:1	300-frame-per-second 73:16,21	60-frame-per-second 46:1 50:22
1 10:11 14:14 15:8 62:12 63:2 67:23 68:2,21 69:4,6,9,21	15 21:8,16,18,20	32 31:14,25	61 67:1
1/30th 49:14	2	35 38:16	66 40:25 41:4,5
1/60th 49:14	2003 12:6,20 13:10,15,17 14:18 15:5 17:22 18:14	36 16:11,14	6A 13:20 14:9
1001 26:14 62:1	2006 12:21 15:13 16:1,11 17:5,18 20:22 23:8 31:15 37:23 67:6	37 31:24 32:2	7
1004 10:6 42:3 55:17	2012 8:15,17 10:2	4	7 55:16,19,22,24 57:13, 16 73:9,11 74:9
101 10:11	2013 8:14	4 64:12	72 41:25 42:4,8 46:9 54:6, 7
102 10:15	220 43:7	47 38:7,14	73 48:15,16
102(b) 38:17	23 11:5	48 37:22,25 38:1 39:9,20	77 20:23,24 21:4,5 23:7,24 28:12,16,20 29:23
10:07 28:9	240 42:13 43:13 44:4 45:25 46:19 47:7,14,16,24 51:5	49 34:19,22 35:11 39:10, 14	78 54:22
10:15 28:8	26 46:18 53:24 54:7	4A 62:15,20	79 13:19,21,23 14:3,7 17:22 18:13
10:18 28:9	27 41:2,8 72:15,25	5	7A 56:7,10 64:7,13,14 66:11,19,20 68:15,18 73:23
11-19 21:20	29 34:22	50 50:7,18 51:7,12	
11:57 61:22	2A 62:2,8,10	50-frame-per-second 50:21	
120 42:13 43:7,12,13,19,20, 24 44:4 45:24 46:18 47:1,7,13,16,24 51:5	2B 62:2,8,10	51 34:12	
		53 34:20,22	
		6	
		6 13:19 26:10,12,13,18	

Index: 003-7A

THE SULLIVAN GROUP OF COURT REPORTERS

7B 56:7,24 57:1,16,23 58:3,9 64:14 73:13,15 7C 56:10,13,14,24 57:1,16, 23 58:2,10 74:3 8 8 34:19 35:11 81 67:5,8,9,11 69:3,5 9 9 41:2,7 A a.m. 28:9 61:22 above-mentioned 41:12 accuracy 11:16 accurate 17:24 acquired 25:6 34:25 36:4 actual 56:23 58:16 adaptation 8:22 adaptions 9:21 add 52:17 addition 41:11 additional 34:8 address 16:12 adjusting 40:19	adjustment 24:3 25:23 adjusts 73:4 agree 22:15 28:19 36:18 48:8 49:7 50:2,19 51:9 52:8 59:10 ahead 32:25 37:9 54:17 61:4 algorithm 32:8 alleged 39:17 analyze 19:9 20:4 26:20 33:10, 16,19 analyzing 32:11 33:4,6,20 34:7 anticipated 38:17,22,23 apologize 30:11 apparatus 10:11 62:12 63:2,18 appearance 62:11 appears 57:21 74:4 applicant 39:6,10 applications 9:4 applied 65:3,17 66:6,23 68:20 applies 24:6 apply 24:1 26:1,2,3,7 27:6,8, 9,14 28:16 29:6,13,20, 23 30:17 31:1,5,11 area 8:20 argued 39:10	arguments 39:6 arrow 10:14,16,18 art 7:1 32:5 40:5,9,19 41:17 46:14 47:6,23 50:4,20 51:11,20 52:8 asserted 12:6 associate 8:18 assume 45:1 47:20,21 50:17 64:24 74:16,19 assumed 45:16 assumption 47:5,19 Atlantic 8:19 attention 21:17 B back 8:12,23 18:9,10 22:18 23:10 24:25 25:15 30:5 39:20 59:16,22 61:24 62:17,24 63:22 68:15 72:5,21 based 12:17 32:6,10 36:3 39:24 40:10,14 41:10 55:12 58:21 67:14 71:20,23 72:4 74:4 basically 57:20 66:4,13 basing 54:9 basis 39:5 66:8 69:20 beginning 14:3 begins 13:19 31:24 59:18	benefit 13:25 23:9,19,24 24:1,6 29:3,6,13,20,22 benefits 26:2,7 27:8 28:15,19 30:17 31:1,5,11 bit 7:14 block 73:22 74:5 bold 14:9 bottom 65:8 66:1 boxes 65:14,15 break 27:19 28:7,11 61:9,18, 20 bring 20:25 21:1 41:2 55:17, 20 bringing 10:22 broad 7:4 8:19 broadcast 11:11,23 broadly 8:10,21 broke 19:25 build 51:11,15,16 building 51:14 C calculated 55:11 72:18 calculation 55:15 call 34:7 48:5
--	--	--	---

Index: 7B-call

THE SULLIVAN GROUP OF COURT REPORTERS

called 29:17	characterize 58:13	34:19 35:11 41:1,7 64:12 65:8 66:1	7:16 21:21 22:9,12 23:5 41:9 55:9 56:24 57:5,7, 14 58:1,16,25 59:11 60:18
camera 32:21 62:5,17 63:10,13, 23 66:22 68:18	chat 13:11,16 16:1 43:2	compatible 35:6	convert 21:21
capabilities 42:18 45:5,8,10	check 59:5 63:11	compressing 8:11	converted 67:13
capability 50:3 52:5	choices 18:24 65:16	compression 8:1,9,22	converting 7:10
capable 48:5,17,19	choose 66:14	computer 36:11	copy 10:8 11:18 15:25 21:14 31:20 74:22
capture 32:10,18 34:5 62:21,22 63:1,3	chooses 58:15 68:19	concerned 11:15	correct 14:20 15:4 19:18 22:17, 23,25 23:6 24:8,10 27:5,22 28:17 35:15 36:13 39:7,9 40:6 41:19 46:1,2 47:8,21 48:25 49:15 50:8 51:23 53:8, 13 56:2,12,20 57:15 58:3,8 59:2 60:9,17,21 62:22 63:23 64:3,6 65:13,18 66:8,20 71:2,4 72:6 73:18 74:5,6,9
captured 10:23 63:5,9	chosen 51:23	concluded 74:25	correctly 60:6 66:11,19
capturing 32:21,22	circumstances 35:13	confidence 44:12	correspondence 36:5
case 12:5,21 15:12 28:3 29:12 35:17 36:2 37:21 39:7 46:17,20 57:22,23 58:4,20 59:4	cite 21:8	configuration 32:12 33:21,25 34:7,8	Counsel 73:8 74:13
cases 43:8 47:16 57:17 58:23	cited 35:4	configured 14:22 67:25 68:4 69:10	couple 70:2
catch 25:7	claim 14:14 15:8 26:10,12,13, 18 27:3,14,22,25 28:14 38:23,25 67:4,23 68:2, 7,21 69:4,6,9,21 70:7, 12,13,18 71:7,18 72:4	confirm 16:3 41:20	court 8:7 11:14 30:15 60:16 74:13,21
cell 44:1	claims 8:15 38:15 39:4,16 67:14	connected 66:17	cover 23:20 24:15 27:4,25 28:14
central 34:25 36:6	clarification 8:4 9:9 10:17 11:13 14:24 25:2 26:4 29:14 30:4,20 40:23 44:21 46:21 49:6 51:2 54:13 68:1 71:12	considered 17:12 50:14	covered 26:18
certified 30:15	clarify 45:14 61:5 69:2,18	content 11:23 57:21 72:13	covers 25:21
cetera 47:1	clarifying 70:2	contents 24:25 72:19 73:5	create 56:6
challenged 67:14	clear 9:23 18:12 22:19 27:11 60:14 61:1 70:23	context 22:16,22 23:1 24:20,22 42:23	current 15:15,19,20
change 12:13 50:4,6 53:4 60:15	Close 59:9	continuously 23:10	
changeable 54:2	column 21:8,16,18,20 31:3	contraction 22:19	
changed 12:19		contrast 72:17	
changing 13:5 71:19,22 72:3		control 34:25 36:6	
		controlling 52:24	
		conversion	

Index: called-current

THE SULLIVAN GROUP OF COURT REPORTERS

cutoff 30:13	deposition 12:18 19:16,19	directed 23:10	document 14:1 16:6 18:8
	describe 28:20 29:3,23	disavow 19:1	downward 63:4
D	describes 11:10 34:1 63:15 72:12	disclose 12:7 14:13,19 15:7,17 46:4	drawing 21:17
data 12:7 14:13,19,21 15:7, 14 16:18,21 17:7,17 21:22,25 23:11,13 26:22 29:16,18 30:2,19, 21,22,25 31:1 32:11,12, 13 33:4,6,11,13,16,21, 24 34:8,10 40:9 63:17 64:23 65:18 66:2,3 67:14,16 68:5,6,10 70:15,16,25 71:2,14,16, 19,23	describing 63:24	disclosed 40:9 52:7	drivers 49:17
date 8:14 40:20	description 11:1 62:9,10 64:10,13 65:7	discloses 17:6 38:24 39:5,22 72:12	drop 13:10 17:10,13 56:11
decimate 56:10 58:6 59:1	descriptions 62:8	disclosure 53:1	dropped 13:16
decimated 40:10	design 45:19 50:20 51:17	discuss 16:15,17,21 23:24 37:23 39:21 40:7 48:16 51:24 53:3,7	dropping 12:15
decimating 58:4,10,11	designate 66:2	discussed 42:16 52:3	
decimation 39:23 40:13,18,21 41:11,22 56:18 58:2,3 60:7,19	designed 45:6	discusses 50:23 51:3,25 53:15 63:15 70:14	E
declaration 12:4,16,19,20 14:8,17 15:4,11,16,19,20 16:1, 18,22 17:5 18:21 19:12 23:8 31:15,19 34:12 37:22 42:1 67:6 68:24	details 39:19 42:23 54:19	discussing 31:17 34:19 40:4,5 68:16 70:19 73:8	earlier 12:4 73:9
declarations 13:6	determine 33:5 45:11,20 59:16	discussion 53:17	easier 55:21
definition 25:20	determined 23:4	display 35:22 36:11,19 42:12, 15,19 43:7,13,15,19,20, 24 44:1,3,10,17 45:1, 10,11,17,18,19 46:6,15, 24 47:1,7,13,24 48:7 49:17 50:25 51:4	easily 52:9
delay 30:13	determining 33:12	displayed 55:13	echo 30:13
depend 43:23 44:7 45:4,5,8 49:16 59:13 60:1	developed 9:18,24	displays 42:19 44:7,8,9,12 45:15,23 46:2,18,25 47:9,15,22 48:1,2,5,12 64:15	editing 8:25 9:2,7,8,17,24,25 10:1,3
depending 33:2,23	developing 8:2	distinction 39:16	editor 9:19,21
depends 43:25 44:10 46:2 50:11 52:14 56:24 57:5,14	device 10:23 34:24 35:7,13,19, 21 48:16 66:14,23 67:22 68:12,17	distinguish 25:18	editors 9:18
	diagrams 64:14		effect 56:6
	diamond 64:23		element 16:24 38:24
	dictate 45:18		embodiment 62:4
	digital 11:11,22		end 63:5 74:15
	direct 52:10		entire 65:6 72:19
			envisioning 53:20
			equipment

Index: cutoff-equipment

THE SULLIVAN GROUP OF COURT REPORTERS

11:11,23	35:7,13,19 37:3	find 16:8	11,15 41:10 42:12,13
establish 26:25	F	fine 11:7 26:25 61:21 74:15, 24	43:7,8,9,15,17 45:3,11, 20 46:5,6,23,24 47:10, 13,14,17 48:23 49:2,3, 7,12,23,24,25 50:5,11, 24 51:4,12,18,22,23
estimate 61:11	fact 16:3,10 18:12 29:22 35:4 40:18 51:19	finish 26:6	52:1,2,11,12,25 53:10, 16,17,18,25 54:1,2,10 55:9 56:4,12,16,19,23 57:4,7,13,17,21,22,24, 25 58:1,13,14,19,21,23, 25 59:11,25 60:2,8,10, 12,18 61:6 64:2,5,8,16 65:2,14 66:5,12,15,22 67:13,15,20,22,24 68:3, 4,5,7,8,9,13,19 69:8,9, 11,19 70:14,15,19,24 71:1,8,14,15,19,20,22, 23,24 72:3,5,12,20,21 73:4,5,11,15,25 74:3,6, 8
everyone's 13:25	factor 35:1	fits 50:23	frames 29:25 30:1,3,24 31:7,9 35:14,23 36:12,20,21, 22 37:15,16,19 39:24 43:20 44:6,13 46:15,16 47:25 48:24 49:8,11,18, 21 50:1,4,7,13,17,18 51:13 53:12 56:11,12, 19 57:19 59:21 72:20 73:12,16,17,22,23 74:4, 9
EXAMINATION 70:6	factors 50:14	five-minute 28:7	frequency 45:1,24
examiner 39:4	fair 16:20 47:11 58:12	fixed 22:16,23 23:1,17 29:24 39:12 52:1 53:10,11,25 54:10 58:22 60:9	front 10:8 31:20 32:2
examples 32:17 62:18	Fairly 38:9	Florida 8:19	G
Excellent 28:4	familiar 55:24	flowchart 62:25 63:16 65:6	gave 18:18 20:5
excuse 16:16 21:16 38:22 44:5 50:7	fast 14:23	flows 63:3	general 39:1 40:22 44:15,25 47:3 48:22 49:20 56:15
exhibit 10:6 12:6,20,21 13:10 15:5,13 16:11 17:5,18, 22 18:14 20:22 23:8 26:13,14 31:15 37:23 42:3 55:17 62:1 67:6 74:17	feature 53:1	follow 59:11 60:7	generally 10:25 24:24 25:16 41:17 49:10,23 56:1,21 72:11
existed 41:17	features 52:18	foreign 8:15	generated 23:13 29:5
expecting 43:24	field 7:7,8,12,16	form 7:3,18 10:24 12:22 16:25 17:25 18:17 19:6, 20 20:12 22:10,24 23:21 24:4 25:24 26:20, 22 27:17 31:8 33:7 35:25 40:12 42:21 43:22 44:16,22 48:9 50:9 52:13 53:2,14 59:20 60:22 68:22 70:20 71:3,9,25 72:7	give
expedited 74:20	Fig 64:14	formed 15:16	
experience 7:25	figure 10:10 11:1 14:1 55:16, 19,22,24 57:13,16 58:2, 3 62:25 63:7,14,16,19 64:7,19 65:6,13 66:11, 16,19,20 68:15,18 73:9, 11,13,15,23 74:3,9	frame 7:10,16 16:13 21:21,22, 23 22:4,6,8,9,12,23 23:2,14 28:21,22 29:6, 7,10,11,17,19,24 30:2, 24 31:2,6,12,18 32:9, 10,12,18,20,22 33:5,17, 21 34:1,5,7,9,24 35:1,6, 18 36:3,7,13,16,21,25 37:2,5,13,17,19,20 39:11,13,17,25 40:1,10,	
expert 7:12	Figures 62:2,10,15		
expertise 7:15,20	filed 12:3,21 15:5		
explicitly 17:12	files 43:4		
express 18:13	filing 8:14 74:16		
exterior 62:10	filtering 9:7,10,12,13,16		
external 10:23 11:11,23 34:24	filters 9:3		

Index: establish-give

THE SULLIVAN GROUP OF COURT REPORTERS

18:3 20:17 33:15 35:20 59:4 69:23	history 38:12	include 17:8,14 34:9	involves 39:23
glad 60:25	hold 16:23 17:10 20:10	includes 7:25	IPR 10:6 12:4 15:6
good 61:15	holding 18:14,15	including 8:9 33:1	irrespective 50:25 51:25
gray 56:4	holds 20:17	incompatible 37:2	Iwata 37:23 38:11,18 39:5,11, 12,16,21,22 40:7
Great 20:20 69:17	hour 28:6 61:2,10,17	independent 46:23 57:23 58:20 60:10 61:6	J
guess 13:18 18:8,19 35:21 52:22 58:12 59:17 63:12 69:2	how's 29:13	individually 67:20	jump 31:14 34:11 40:25 41:25 62:24
guys 74:16	Hz 42:13,14 43:9,19,24 44:4,5,13 45:2,16,24 46:19,20 47:1,7,8,10, 13,14,16,18,24 48:6,7, 12 50:6 51:15	information 32:10,19,23 33:1,25 34:2,5 35:18 36:4,5	K
H	I	input 7:9 10:15,16,18,22 11:10,22,25 12:7 14:13, 19,21,22 15:7,14 16:5, 9,16,18,22 17:7,17 29:15,16,18 31:18 32:9, 11 33:4,6,11,16,17,23, 24 34:10 36:15 37:11 40:10 50:25 59:5 62:19 68:6,14 70:16	Kalva 27:22 28:11 30:8 54:17 61:18,25 70:7
handle 43:20 45:6,12 46:16,20 47:7,13,25 48:2,7	illustrate 65:16	inputs 18:19 28:23	Katz 7:6,21 8:5,13 9:11,15 10:18,20 11:3,14,20 13:1 14:25 15:3 17:3 18:6,22 19:14,24 20:19 21:13 22:14 23:3,22 24:9 25:5 26:5,24 27:18,21 28:10 29:21 30:5,12,21 31:4,13 33:14 34:17 36:1 40:17, 24 42:9 43:1,10 44:2, 19,23 47:4 48:13 50:15 51:8 52:21 53:6,21 54:15,21 55:5 57:11 58:24 59:23 60:24 61:16,23 63:8 68:11 69:1,24 70:4,20 71:3,9, 25 72:7 74:12,18
handled 45:20	illustrating 62:11 63:1,16 64:15	instance 51:12	kind 43:11 63:2 66:11
handling 37:15 48:6	image 12:7 14:13,19,22 15:7, 14 16:18,21 17:6,17 21:22,25 23:11,13 28:23 29:16,18 30:2,19, 21,22,25 32:10,11,12, 18,21 33:4,6,11,13,16, 21,24 34:4 62:21,22 63:1,2,4,17 64:23 65:18 66:2,3 67:14,16 68:5,6, 10 69:11,12 70:15,16, 25 71:2,14,16,19,23	interface 48:24 49:9,22 52:9 62:16	L
handy 21:15	images 29:16 33:2,9 63:9 64:15	interpolated 40:10	labeled 14:9
happening 25:1,15 59:7	imaging 62:11 63:1,17	interpolation 39:23 40:14,18,21 41:11,15,21	lack 39:17
hardware 44:10 45:4,5,8,10,18,19	implement 51:22	interpreting 66:19	laid 14:14
hardware-specific 45:17	implementing 49:17	interrupt 32:25	
heard 9:13 60:6	implies 53:19	invented 41:18	
hears 30:6		invention 22:22 40:20	
helps 65:7			
high 56:4,12,16,19 57:21 72:20 73:4,11			
high-speed 62:21			

Index: glad-laid

THE SULLIVAN GROUP OF COURT REPORTERS

left-hand 10:15 level 51:20 limitation 14:14 15:17 16:5,11 70:13 71:21 limitations 71:18 limited 35:13,22 36:11,19 lines 21:20 34:19 35:10 41:2, 8 listen 30:9 long 40:19 59:17 61:11 70:3 longer 16:22 17:10 61:18 looked 13:8 63:19 lookup 36:24 lost 57:10 lot 52:19 M made 44:14 65:16 66:7 make 18:2 24:12 55:21 58:7 marked 15:5 matter 15:6 19:3 44:25 49:20 50:6,11 56:15 meaning 24:21 means 22:4 23:4 38:23 media 7:4	memory 63:10 mentioned 32:17 metadata 33:2 34:2 method 39:22 41:10,16,21,22 71:6,7 methods 40:22 67:3 microphone 65:24 middle 39:21 41:6 minutes 70:1 missed 9:5 45:7 65:21 missing 9:11 16:5,23 39:11 mode 55:12,13 63:15 72:18 73:4,13 74:3,7,8 model 35:20 36:4,5,14,17,24, 25 37:5,11,12,14,18,21 modes 62:19 modifying 41:21,22 moment 33:18 59:5 monitor 37:3 Morikawa 10:7,21 12:6 14:13,18 15:6,16 16:4,23 17:6 42:2,11,12 43:6 46:3,4, 14,17,25 47:2,6,9,12, 19,23 48:4,6,10 50:16, 20,23 51:3,6,11,24 52:6,10,24 53:3,4,9,11, 15,25 54:1,6,9,11,20 55:9,17,25 59:3,10 72:10,12,16,25 73:3,4,9	Morikawa's 42:23 43:16 46:18 48:16 motion 56:6 move 28:4 moving 12:7 14:13,19,21 15:7, 14 16:16,18,21 17:6,17 21:22,25 23:11,12 32:11,12 33:4,6,16,21 63:17 64:23 65:18 66:2, 3 67:13,16 68:5,6,10 69:11,12 70:15,16,25 71:1,14,15,19,22 multi 72:12 73:5 multiple 12:1 23:11 44:13,18 45:2,24 46:7 66:6 68:20 multiples 45:15 N necessarily 44:4 45:25 57:6 needed 59:22 network 11:12,24 newer 12:20 normal 23:18 24:1,15,17,20,22, 24 25:14,16,22 26:18 27:4,6,7,15 28:1 55:13 56:9,18,25 57:3 58:8 60:2 62:21,23 74:2,8 number 10:4 15:22 28:24 35:21 36:4,5,15,17,24,25 37:5,12,14,18 50:12,13 57:19 O objection	7:3,18 10:24 12:22 16:25 17:25 18:17 19:6, 20 20:12 22:10,24 23:21 24:4 25:24 27:17 31:8 33:7 35:25 40:12 42:21 43:22 44:16,22 48:9 50:9 52:13 53:2,14 58:18 59:20 60:22 68:22 70:20 71:3,9,25 72:7 obtained 32:20 occurs 25:12 60:19 open 13:15 opinion 14:18 15:6,9,13,16,18, 24 16:4,23 17:1,5,8,10, 11,17,22 18:3,13,14,16, 18,25 19:1,9,11,17,18, 22,23 20:1,2,4,6,8,10, 14,17 23:9 24:14 25:21 26:16,21,22 27:1,13,15, 24 28:2,13 47:15 52:23 54:9 55:8 67:19 68:12, 17,23 69:6,18,22,23 70:18 71:6 opinions 12:15,19 13:5 15:23,24 16:9 55:7 opposed 67:21 69:20 option 51:24 options 62:23 order 74:19,20 ordinary 32:5 46:13 47:6,23 50:3,20 51:10,20 52:8 original 12:19 14:7 originally 15:5 outgoing 33:13
---	---	---	--

Index: left-hand-outgoing

THE SULLIVAN GROUP OF COURT REPORTERS

output 16:12 21:23 22:4,6,8,11 23:1 28:21,22 29:7,10, 11,17,18,24 30:24 31:2, 12 35:1,6 36:3,13,21 37:2,17,20 39:11,12,17 40:11 43:16 46:5 47:17 48:24 49:1,3,7,9,12,22, 23,24 50:5,21,22,23,25 51:3,12,16 52:1,12,25 53:4 54:10 57:17,24,25 58:13 64:16,23 66:12, 22 67:15,20,21,24 68:3, 4,5,7,8,9,13,19 69:7,9, 10,11,19 70:14,15,19, 24 71:1,8,14,15,20,23 72:5 outputting 49:18 50:1 P p.m. 70:5 paragraph 11:4 13:19,23 14:3,7,8, 12 17:22 18:13 20:23, 24 21:6,9,16,19 22:22 23:7,24 28:12,16,20 29:23 31:14,24 34:11, 24 37:22 38:1,4,7,14 39:14,20,22 40:25 41:7, 25 42:4 46:9 48:14,15, 16 53:24 54:5,7,22,25 67:5 69:3,5 72:15,25 paragraphs 39:9 part 11:21 30:12 35:10 45:7 61:5 68:2 party 8:15 passage 35:4 patent 7:2 8:14 11:18 14:8 15:8 21:15,20 22:4 23:9,19,20,25 24:15,23 25:21 26:11,14 32:6 34:19 35:5,12 38:12,16, 23 39:17 40:6,20 41:1,	7,9,15,16,18,23 62:1,4 65:1 67:21 70:8 pause 16:7 21:11 25:25 26:19 34:15 42:6 43:5 55:2 57:8 pending 38:15 39:4 performed 41:10 periodic 49:8,13 person 32:5 46:13 47:5,22 50:3 52:8 62:20 pertaining 9:20 pertains 7:15 phrase 25:7 47:12 pick 51:22 picking 64:8 piece 21:22 66:2 69:8 pieces 29:5 pipeline 8:10 place 22:9,13 23:5 plain 7:10 planning 61:14 play 8:21 25:15 43:25 44:5, 9,13 45:3,25 46:25 47:17 55:12 56:11 63:22 playable 36:7 playback	21:24 23:12,17,18 24:2, 7,11,13,16,18,20,22,24 25:19,22,23 26:2,8,9, 17,18 27:4,6,7,15 28:1, 15,17 29:4 39:25 40:1, 11,15 42:13 43:9,16 46:22 47:10,14,17 52:2 53:4,10,16 54:2 55:10, 11,14,15 56:3,9,16,18, 25 57:2,4,14 58:8,15, 17,19,20,22 59:2,12,13, 17,18 60:2,8,11,20 61:7 63:15,16,24 64:1,2,4,8, 9,19 65:2,4,14,15 66:5, 24 71:21,24 72:4,6,18, 19,21 73:3,13,15 74:2, 3,7,8 played 56:5,17,20 59:21 66:15 72:20 players 8:6,8 playing 8:12 10:11 23:10 24:25 26:3 59:16,22 plays 72:5 plurality 65:17,20 66:3 point 34:8 39:10 portion 56:4,17 72:20 73:5,12, 16,21,25 position 18:24 19:2,16,18 53:24 potentially 34:3 pre-recorded 36:6,17 preceding 62:25 predetermined 21:23 22:4,16,21 29:7 prep 12:17 present 57:21	prevent 52:24 previous 19:11 primary 62:4 prior 10:2 38:24 40:5,9,19 problem 30:12,13 proceeding 12:4 proceedings 10:7 74:25 process 48:12 55:9 57:14 58:1, 16 59:1,11,12 60:7,18 63:1,3,17,21,25 64:1,18 72:3 processes 71:7 processing 7:5,7,9,16,25 8:11,20 processor 35:22 produced 50:13 professor 8:18 program 64:11 programmed 32:8 prompt 64:16 proper 45:22 prosecution 38:12,15 provide 24:15 25:22,23 30:10 32:22 pull 18:10 54:23
---	---	---	--

Index: output-pull

THE SULLIVAN GROUP OF COURT REPORTERS

purposes 61:14 put 16:1 18:9 43:2 Pymonto 7:3,18 9:13 10:24 11:17 12:22 16:25 17:25 18:17 19:6,20 20:12 22:10,24 23:21 24:4 25:24 27:17 31:8 33:7 35:25 40:12 42:21 43:22 44:16,22 48:9 50:9 52:13 53:2,14 58:18 59:20 60:22 61:15 68:22 70:1,6,22 71:5,17 72:2,9 74:11, 15,22,23	20 39:11,13,18,25 40:1, 10,11,15,16 41:10 42:12,13 43:7,8,9,13, 16,17 45:20 46:5,7,23, 24 47:10,14,17,18 48:23 49:2,4,7,12,18, 24,25 50:5,12,25 51:4, 12,18,22,23 52:1,2,11, 12,25 53:4,10,16,17,18, 25 54:1,2,10 55:9 56:4, 12,17,19,23 57:4,7,13, 17,20,21,22,24,25 58:13,14,19,21,23,25 59:11,25 60:2,8,10,12 61:6 64:2,8,16 65:2,14 66:5,12,15,22 67:22,24 68:3,4,5,7,8,9,13,19 69:8,9,11,12,19 70:14, 15,24 71:1,14,15,19,20, 22,23,24 72:3,6,12,20, 21 73:4,5,11 74:3,6,8	18,23 13:4,8 15:15,17 16:15,17,19 17:13,18 18:2 37:24 39:15,19 54:12,15,19 62:6 65:1 73:8 received 33:2,10,12 44:5,6 receiving 11:25 33:9,24 49:18 recess 28:9 61:22 70:5 recites 69:9 recognize 17:16 recognizes 36:11 recognizing 35:20 recollection 11:5 62:3 reconsider 18:2 19:22 20:3 reconsidered 20:13,16 reconvene 61:16 record 12:5 16:7 18:12,25 19:2 20:11 21:11 22:19 25:25 26:19 30:16 34:15 42:3,6 43:5 55:2 57:8 60:14 61:1,24 74:14 recorded 25:4,8,9,13 37:15,19 63:23 recording 25:8 refer 11:4 49:25 reference 10:7 11:1 12:7 37:23 38:11,18,21,24 42:2 referred 38:17	referring 32:17 34:18 42:18 49:1 59:4 refers 24:24 refresh 62:3 refreshes 11:5 regard 42:20 rejected 38:16 39:4 relate 28:20 related 7:2,20 9:7 relates 7:4,8,9 relationship 39:24 remains 61:14 73:25 remember 8:16 10:4 11:2 42:23 54:19 59:3 64:10 repeat 24:19 30:8 44:17,18 54:7 59:6 report 13:20 28:5 32:14 41:1 42:1 48:15 reporter 8:4,7 9:9 10:17 11:13, 14 14:24 25:2 26:4 29:14 30:4,15,20 40:23 44:21 46:21 51:2 54:13 60:16 68:1 71:12 74:13, 21 request 30:18 requested 8:4 9:9 10:17 11:13 14:24 25:2 26:4 29:14 30:4,20 40:23 44:21 46:21 51:2 54:13 68:1 71:12
Q question 9:20 14:25 15:1 27:16, 19 29:1 30:6,9 35:9 38:10 45:22 48:22 49:2 51:7 52:4 54:4 57:10 59:6,7,8,19 60:18 65:11 67:10 questions 69:25 70:2 74:11 queued 49:11 quickly 61:12 quote 21:7,19 41:1,7 42:11,12 46:4,10 53:23 54:8 64:14 quoting 21:15,16 41:8	rates 7:17 23:14 28:22 29:6, 19 31:12 45:11 47:13 67:13,15,20 70:19,24 71:8 read 21:6,9,12 30:5,16 34:13,14,16 35:9 38:5 42:4,5,7 43:11 46:14 54:25 55:1,3 67:9 73:1 reading 11:21 46:9 47:6,11,23 48:4 reads 68:2 ready 21:10 reaffirm 18:25 reaffirming 19:17 real-world 25:1,12 reality 25:15 reasons 17:14 recall 10:3 11:8 12:2,9,10,15,	referring 32:17 34:18 42:18 49:1 59:4 refers 24:24 refresh 62:3 refreshes 11:5 regard 42:20 rejected 38:16 39:4 relate 28:20 related 7:2,20 9:7 relates 7:4,8,9 relationship 39:24 remains 61:14 73:25 remember 8:16 10:4 11:2 42:23 54:19 59:3 64:10 repeat 24:19 30:8 44:17,18 54:7 59:6 report 13:20 28:5 32:14 41:1 42:1 48:15 reporter 8:4,7 9:9 10:17 11:13, 14 14:24 25:2 26:4 29:14 30:4,15,20 40:23 44:21 46:21 51:2 54:13 60:16 68:1 71:12 74:13, 21 request 30:18 requested 8:4 9:9 10:17 11:13 14:24 25:2 26:4 29:14 30:4,20 40:23 44:21 46:21 51:2 54:13 68:1 71:12	R rate 7:10,25 16:13 21:21,22, 23 22:5,6,8,9,12,23 28:21,23 29:7,10,11,12, 17,24 30:2,24,25 31:2, 6,18 32:9,10,18,20,22 33:5,12,17 34:1,5,10,24 35:1,6,18 36:3,7,13,16, 21,25 37:2,5,13,17,19,

Index: purposes-requested

THE SULLIVAN GROUP OF COURT REPORTERS

requests 74:14 required 46:6 requirement 35:19 requires 68:7 69:7 71:7 research 8:19,21,23 responded 39:6 responding 35:10 resume 28:7 retained 73:17 retrieved 37:13 review 38:10,11,13 reviewing 38:3 revisit 19:12 ROM 36:6,17 run 65:5 S S201 64:3,4 schematically 64:15 scope 68:21 69:21 screen 13:25 14:4 16:12 18:9 21:1 41:2 54:23 55:21, 22 62:2 64:7 66:21 70:9,11 screenshots 62:16	section 13:19,20 28:5 31:17,24 38:16 61:11,13 select 60:1 64:16 66:4 selectability 51:21 52:3,10 selected 37:20 53:13 56:25 57:15 58:14 64:22 65:3, 4 66:15,24 selecting 62:18 66:12,13,21 selection 57:5,6 58:7,17 59:12, 13,18 60:8,11,20 selections 66:7 selects 55:10 56:15,17 59:2 62:21 send 46:15 50:17 sending 48:7 49:12,21 sentence 32:4 34:23 46:3 53:23 54:5 67:12,17 72:16,24 separate 47:15 70:19,23 separately 69:8 sequence 33:11 sequentially 23:10 server 11:12,24 servers 8:5 services 8:2 set 22:7,9,12 29:10 37:4,13 42:13 47:14,18 49:12, 13 51:11 52:1,2,10	53:16,19 54:3 sets 43:9 setting 35:5 36:23 46:5 49:20 53:18 share 13:24 14:1 70:8 shooting 39:25 40:15 short 38:9 61:20 62:9 show 12:2 showing 55:22 56:3 66:16 67:3 shown 15:10 16:12 54:5 57:13 64:2 66:21 73:13 shows 20:14 73:11 sic 43:8 side 10:15 similarities 34:6 simply 35:5 48:23 49:8 51:22 single 25:22 26:17 28:15,17, 21 29:7 42:19 67:21 sir 11:21 15:21 sit 12:17 13:4 site 32:21 situation 17:2 23:20 size 73:22 74:5 skill 32:5 46:14 47:6,23 50:3,20 51:10,20 52:8	slightly 61:17 slow 55:12 56:3,6,16,25 57:3,22 58:8 60:2 72:18 73:3,13,15 74:7 slowed 73:5,12,17,21 slower 56:5 slowing 25:19 slowly 30:10 65:23 software 9:1,3,24,25 10:1,3 sort 7:17 34:2 51:21 52:9 Sounds 61:15 sources 11:10,22 12:1 specific 8:24 14:22 17:14 29:17 42:17 44:1,7 52:25 54:14 67:4 specifically 7:15 10:4 12:24 13:7,20 15:22 29:23 54:12,18 60:19 72:16 specification 16:13 31:18 32:7 39:11, 18 67:24 68:3,8 69:10 specifies 68:13 speed 21:24 23:12,17,18 24:2, 3,7,12,13,16,18,20,22, 24 25:14,16,22,23 26:8, 9,17,18 27:5,7,8,15 28:1,15,17 29:4 39:25 40:11,15 48:23 55:10 56:5 58:15,17,20,22 59:2,12,14 60:2,8,20 61:7 64:19 65:3,15 66:5 71:21,24 72:5,6 73:3 stages
---	--	--	--

Index: requests–stages

THE SULLIVAN GROUP OF COURT REPORTERS

27:20 stand 17:21 18:4 20:14 standing 20:8 74:19,20 stands 20:2,18 start 38:6 63:2 73:23 starting 35:11 state 34:23 38:14 39:22 44:11 46:4 47:10 stated 17:22 20:2 statement 35:2 44:15 46:8 69:3 states 15:24 43:6 47:2 stating 16:4 step 32:7 64:1,18 steps 65:2 stored 63:10,12 strike 12:16 16:16 22:18 47:20 68:14 struggling 11:15 submission 19:8 59:7,22 successfully 45:3 suggest 48:6 suggesting 46:13 support 53:24 supports	24:1 supposedly 39:12 synchronization 50:13 system 24:1,7,12 26:17 27:4,7, 14,25 28:14,16,20 29:6, 15,24 30:18 31:6 36:15, 20,22 37:1,6,19 48:11 50:1,12,16,21 51:11,14, 15,17 52:6 53:5,9,20 72:5 systems 7:24 8:9 24:15 25:21 T table 36:24 takes 22:9,13 23:5 taking 8:11 19:17 talk 28:15 talking 28:12 42:2 techniques 40:19 ten-minute 61:9 terrible 27:18,19 testifying 17:23 testimony 28:13 45:14 thing 7:17 14:22 things 52:19 time 8:17 13:8 18:20 31:10 33:10 44:8 45:22 49:8, 13 55:11,14,15 57:2 60:14 72:18,19	timeframe 8:17 10:2 timer 49:13 times 59:17 timing 49:21 50:4 today 12:17 13:4 17:23 18:16, 24 19:1,2,3,16 20:9,10 27:1 tools 10:5 top 63:3 topic 7:20 topics 7:10 track 57:10 transcoding 8:22 transcript 11:16 74:14,17 trivial 50:6,11 turn 13:18 26:10 61:25 63:14 67:5 70:7 72:10, 15 TV 11:11,22 type 7:10 57:14 types 8:22 U U.S.C. 38:16 understand 10:21 18:23 19:9 24:5 28:12 32:6,16 38:14,21	47:12,23 48:4 55:6 62:15 66:10 understanding 22:3 24:21 39:1 42:10, 15,20 43:18 65:4 72:11 73:2 unit 10:15,16,18,22 11:25 12:8 14:14,19 15:7,14 16:5,13,18,22 17:7,18 21:21 31:18 33:10 34:25 36:6 39:12,18 67:24 68:3 69:10 University 8:19 user 51:21 52:9,24 55:10 56:15,17,25 57:5,6 58:7,15 59:2,12,18 62:16 64:16 65:16 66:1, 4,21 68:13,19 69:7 user's 58:16 59:13 user-selected 52:11 V variable 54:2 variables 50:12 variation 28:24 variations 45:6 vary 50:5 57:2 video 7:5,7,8,9,10,16,23,25 8:1,2,5,8,10,11,12,20, 25 9:2,3,5,6,7,8,10,16, 17,18,19,21,24,25 10:1, 3,11,14,22 11:8,10 12:1 26:2 29:5 40:9,19 41:21,22 44:5 45:3 46:1 47:1 63:4 65:3,5 66:13, 23 69:8
--	--	--	--

Index: stand-video

THE SULLIVAN GROUP OF COURT REPORTERS

video-by-video 66:7 69:20 video-related 8:21 videos 22:7 24:13 29:9 63:22 66:6,14 68:20 69:19 view 7:1 60:9 views 62:11	Z Zoom 30:12,14	
W wait 58:7 wanted 50:17 63:22 ways 32:8 33:19 withdraw 14:25 65:10 wondering 23:25 word 22:21 48:18 53:11 wording 45:22 work 8:1,25 9:17 45:16 worked 8:1,2 working 7:23 8:19,20 works 13:13 wrong 18:8		
Y years 7:24		

Index: video-by-video-Zoom