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Transcript of Ravin Balakrishnan, Ph.D.

Date: July 23, 2026

Case: Samsung Electronics Co., Ltd., et al. -v- Maxell, Ltd. (PTAB)

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 SAMSUNG ELECTRONICS CO., LTD. And
6 SAMSUNG ELECTRONICS AMERICA, INC.,
7 Petitioners

8 v.

9 MAXELL, LTD.,
10 Patent Owner

11 Inter Partes Review No.: IPR2025-01314

12 U.S. Patent No. 8,180,198

13
14 Deposition of RAVIN BALAKRISHNAN, Ph.D.

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7 Schweitzer, Registered Professional Reporter,
8 Certified Realtime Reporter, California CSR
9 No. 14612, and Notary Public in and for the
10 Commonwealth of Pennsylvania.
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1 A P P E A R A N C E S

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E X H I B I T S

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

2 RAVIN BALAKRISHNAN, Ph.D.,

3 was called, and having been duly sworn,

4 testified as follows:

5 EXAMINATION

6 BY MR. MIDDLETON:

7 Q Okay. Thank you.

8 Good morning, Dr. Balakrishnan.

9 A Good morning.

10 Q So I'm Matt Middleton, counsel for
11 Samsung. You've been deposed before, correct?

12 A Yes.

13 Q Is there any reason you can't give your
14 best testimony today?

15 A Not that I know of.

16 Q Anyone in the room with you?

17 A No.

18 Q And you're at a computer, correct?

19 A Correct.

20 Q Apart from the videoconference application
21 that this deposition is taking place on, do you
22 have any other applications running on your

1 computer?

2 A I'm sure there's a bunch of applications
3 running. They're just not active. Lots of stuff
4 happening in the background on this computer.

5 Q Okay. But nothing open at this time?

6 A No. I do have a directory open with
7 the -- my report and prior art. If you want me to
8 get rid of that, you can make me download the
9 documents, that's fine. Otherwise, that's --
10 that's what I have access to.

11 Q No, that's fine. And those are clean
12 copies?

13 A As far as I know, submitted by the
14 counsel.

15 Q Okay. And besides your computer, do you
16 have any other devices in front of you?

17 A Not immediately in front of me. I'm in my
18 home office. I'd say over a dozen machines in the
19 closet and on the tables inside, but not -- not
20 immediately accessible, if that's, I guess, the
21 question.

22 Q And do you have any hard-copy documents

1 with you?

2 A Not for the case, no.

3 Q Okay. I'm going to drop in the chat
4 what's been marked as Exhibit 1001 in this
5 proceeding.

6 A Okay.

7 Q Please let me know when you have it open.

8 (Exhibit 1001 was marked for
9 identification and is attached to the transcript.)

10 A I'm going to download it into a local
11 copy, if that's okay.

12 Q Yes.

13 A Okay. I have it open.

14 Q This is the '198 patent, right?

15 A It appears to be, correct.

16 Q Please turn to claim 1 of the '198 patent,
17 please.

18 A Okay.

19 Q And claim 1 recites, An output module
20 which displays a plurality of digital images.

21 Do you see that?

22 A The citation, correct. I can see the

1 quotation.

2 Q The term "a plurality" means more than
3 one, right?

4 A You said more than one or one?

5 Q More than one.

6 A Yes, I think that's fair.

7 Q So you'd agree that the output module
8 displays more than one digital image?

9 A I think in a plain reading, that would be
10 fair, but I just want to be careful because of
11 legal connotation, the way this is written, one or
12 more, I stand corrected if there is a legal aspect
13 of this that I'm not aware of.

14 Q And a plurality of digital images can also
15 encompass all digital images that the apparatus
16 has access to, right?

17 A Are you talking about this claim
18 limitation? It says an output module displays a
19 plurality of digital images, and it has to mean a
20 whole bunch of things, other notations. If you're
21 saying everything on it has access to, that's
22 probably broader than this claim is anticipating.

1 Q Well, you would agree that the term "a
2 plurality" can encompass all, right?

3 A All of what? All that's displayed on the
4 screen? I think I would -- on the open module, I
5 would agree with that. If you're saying all as an
6 entire universe of images, I don't think I'd
7 agree.

8 Q Well, you would agree that the term "a
9 plurality," a plain reading of the term "a
10 plurality" can mean all, right?

11 A I'm not sure that it necessarily
12 encompasses the notion of all. I think it
13 definitely means more than one. It could, in a
14 legal situation, as I just mentioned, perhaps mean
15 one only. I'm not sure necessarily this says all.

16 Q And the '198 patent does not put a limit
17 on the number of images that can be displayed,
18 right? By the output module?

19 A So the claim does not. Obviously project
20 limits might be displayed (inaudible).

21 (A clarification was made by the court
22 reporter.)

1 Obviously there could be -- there will be
2 practical limits on what can be displayed on any
3 given output module.

4 Q If you look at the next limitation, this
5 recite, control module which selects a digital
6 image to add in a playlist.

7 Do you see that?

8 A I do.

9 Q And claim 1 doesn't recite how the control
10 module selects a digital image to add in a
11 playlist, correct?

12 A I disagree.

13 Q Well, the '198 patent doesn't limit the
14 method that the control module selects a digital
15 image to add in a playlist, correct?

16 A In claim 1?

17 Q Yes.

18 A I disagree.

19 Q The full limitation recites, A control
20 module which -- which selects a digital image to
21 add in a playlist, based on one of the plurality
22 of information concerning the digital image

1 recorded in said recording medium, right?

2 A That's what the limitation recites.

3 Q So you'd agree that the control module
4 selects a digital image to add in a playlist based
5 on one of the plurality of information concerning
6 the digital image?

7 A Concerning the digital image recorded in
8 said recording medium.

9 Q So other than this "based on" portion of
10 the limitation, the control -- the -- claim 1 does
11 not limit how exactly the control module selects a
12 digital image to add in a playlist, right?

13 A I disagree.

14 Q And can you explain why you disagree?

15 A Well, there -- in the next limitation, it
16 states, Wherein second control -- wherein for a
17 selected digital image, et cetera, said control
18 module does a series of steps. The control module
19 has to do a bunch of different things.

20 Q Well, I'm not asking about those steps,
21 Doctor. I'm asking about the control module
22 limitation above that.

1 So the -- this limitation, again, it
2 reads, The control module which selects a digital
3 image, and there's no limitations besides this
4 "based on one of a plurality of information
5 concerning the digital image recorded in the said
6 recording medium" that -- that limits the method
7 which the control module selects a digital image
8 to add in a playlist, right?

9 A I disagree.

10 Q And so it's your opinion that
11 this "wherein for a selected digital image
12 selected by the user," that impacts how the
13 control module selects the digital image to add in
14 a playlist?

15 A Yes.

16 Q And can you explain how these claim
17 limitations interact?

18 A Well, I see further down, it states, "Said
19 control module retrieves other digital images
20 whose related information is the same as the
21 selected digital image."

22 So there's additional processing that

1 occurs by a particular module.

2 Q Well, I understand that, Doctor, but my
3 question was about the -- the control module that
4 selects a digital image to add in a playlist.

5 So in that limitation alone, how does the
6 series of steps impact what the control module
7 selects a digital image to add in a playlist?

8 A You mean just that one selected digital
9 image in the second limitation? Then I would
10 agree that it's based on that when a plurality
11 image information concerning the digital recorded
12 in said recording medium. I guess my point is the
13 control module does additional things as part of
14 the claim.

15 Q I'm sorry if I cut you off, Doctor. Were
16 you finished?

17 A Yes, I was.

18 Q So, right. I'm asking about this
19 limitation that recites, "A control module which
20 selects a digital image to add in a playlist."

21 So just to clarify, you would agree that
22 for this limitation for this selection, that the

1 selection is performed based on one of the
2 plurality of information concerning the digital
3 image recorded in said recording medium?

4 A I think that's fair. I think the only
5 caveat I would put on that is a control module
6 also has to do a bunch of other things.

7 Q Okay. So the control module does a bunch
8 of other things, and -- but for this selection,
9 the control module selects a digital image to add
10 in a playlist, and the only limitation here is
11 that it's based on one of the plurality of
12 information concerning digital image recorded in
13 said recording medium?

14 A For that selection portion, I think that's
15 fair.

16 Q Okay. And there are no other limitations
17 on the method of how the control module selects
18 that digital image to add in a playlist?

19 A Well, there are, because under the wherein
20 clause, there is a retrieve limitation that says
21 retrieves other digital images whose related
22 information is the same as the selected digital

1 image. You have a digital image information as
2 candidates for being added in said playlist. So
3 that retrieved clause under the wherein limitation
4 also talks about adding images to the playlist
5 based on this retrieval.

6 Q So you see the next limitation recites,
7 Wherein for a selected digital image selected by
8 the user.

9 You see that?

10 A Yes.

11 Q And here, a selected digital image means
12 an image selected by the control module?

13 A The wherein clause, that selected digital
14 image is selected by a user, and then the control
15 module has to do the subsequent steps in the
16 wherein clause.

17 Q So in this wherein clause, is that a -- is
18 that a different selected digital image?

19 A Different from what?

20 Q Different -- so for the wherein clause,
21 where it says, "wherein for a selected digital
22 image selected by the user," is that selected

1 digital image different than the -- than the
2 selected digital image selected by the control
3 module?

4 A It could be the same. It could also be
5 different. This has to be selected by the user in
6 the wherein clause.

7 Q Okay. So --

8 A Both images being the same.

9 Q Okay. So you would agree that the
10 image -- digital image selected by the control
11 module can be the same as the selected digital
12 image selected by the user?

13 A If it meets all the criteria that the
14 claim limitation requires for the control module
15 limitation. It doesn't have to be the same -- the
16 same image. In any case with the wherein clause,
17 the user has to select the digital image.

18 Q And claim 1 recites that for selected
19 digital image selected by the user, said control
20 module retrieves other digital images whose
21 related information is the same as the selected
22 digital image, the other digital images being

1 candidates for adding in said playlist.

2 Do you see that?

3 A I do.

4 Q And other digital images here means
5 digital images other than the selected digital
6 image selected by the user?

7 A It would be other digital images selected
8 by the digital image user, but it has to meet the
9 criteria, that the related information is the same
10 as the selected digital image that's selected by
11 the user, and it is entirely possible,
12 hypothetically, that there could be multiple
13 copies of the same image, and the other digital
14 images may include those copies.

15 So in that sense, that selected image, the
16 copies of the image -- the other digital images
17 may include a copy of the selected digital image
18 as well, but it wouldn't be the same -- the exact
19 same selected image in the playlist.

20 Q And you'd agree that claim 1 doesn't
21 specify where the other digital images are
22 retrieved from, right?

1 A I'm not sure I completely agree with that
2 because the other way around it talks about
3 digital images recorded in a recording medium. So
4 it would be stored somewhere. So maybe I'm not
5 understanding your question.

6 Q The question is that claim 1 doesn't
7 specify where the other digital images are
8 retrieved from, right?

9 A It doesn't give a specific source beyond
10 said recording medium. So you have to store it
11 somewhere.

12 Q Well, claim 1 doesn't say that the other
13 digital images are stored in recording medium,
14 right?

15 A I don't think it specifically says that.

16 Q Is it your testimony that the other
17 digital images are stored in the recording medium
18 in claim 1?

19 A It could be.

20 Q It -- by "it could be," you mean it could
21 be stored in the recorded medium, but it could be
22 stored somewhere else?

1 A Correct.

2 Q So then you agree that claim 1, it doesn't
3 specify where the other digital images are stored,
4 right?

5 A It doesn't explicitly specify. Correct.

6 Q Does it implicitly specify?

7 A Well, I think implicitly suggests that
8 this is all talking about images recorded in a
9 recording medium, but I don't think it's limiting
10 that, per se. Hence, my -- my point that it
11 doesn't explicitly say that.

12 Q So you agree that claim 1 isn't limited to
13 where the other digital images are stored in the
14 recording medium?

15 A I think that's fair.

16 Q So by that logic, claim 1 doesn't specify
17 where the other digital images are retrieved from,
18 right?

19 MR. JAVED: Objection; form.

20 A That's correct.

21 Q Then claim 1 doesn't use the
22 word "storage," correct?

1 A I'd have to look at the -- give me a
2 second.

3 The word "storage" is not in claim 1.

4 Q Claim 1, following this same "retrieves
5 other digital images" limitation, claim 1 doesn't
6 specify the number of other digital images that
7 are retrieved, right?

8 A It doesn't specify a number. Correct.

9 Q So in this limitation, if only two other
10 digital images have the same related information
11 as the selected digital image, then the control
12 module would retrieve those two digital images,
13 right?

14 A If those images have the same related
15 information as the selected digital images,
16 they're not.

17 Q And if -- can other digital images have
18 the same related information as the selected
19 digital image, then the control module could
20 retrieve all ten of those images?

21 A It could retrieve all ten, but I don't
22 think it necessarily has to, but it could retrieve

1 all ten.

2 Q And if every single digital image that the
3 control module has access to has the same related
4 information as the selected digital image, then
5 the control module could retrieve all those
6 digital images, right?

7 A It could. I don't think it has to
8 retrieve all of them, but it could. It just says
9 retrieves others. It doesn't say retrieved all
10 others.

11 Q If you turn to column 3, line 35.

12 A Yes. I'm there.

13 Q This says, Figure 5 shows a flowchart for
14 a playlist configuration process, right?

15 A That's what it says.

16 Q Can you please turn to Figure 5?

17 A Sure. Just give me a second.

18 All right.

19 Q So the first step in the playlist creation
20 process is shown by S51, right?

21 A S51, yes.

22 Q And the first step is to display the

1 playlist creating screen and wait for the user to
2 select a program, right?

3 A Yes.

4 Q And then once the user selects the desired
5 program, the next step, step S52, is to register
6 the program, right?

7 A Correct.

8 Q And then steps S53 to S56, these steps are
9 the retrieval operation steps, right?

10 A Can you repeat that last -- the last part
11 of that question, or maybe the whole question?

12 Q Sure. Steps S53 to S56, these are the
13 retrieval operation steps, right?

14 A Well, that's the whole categorization of
15 this. The steps here do different things. I'm
16 not sure where you got that characterization from,
17 is what I'm (inaudible).

18 Q And then steps S57 to S59, these steps
19 recite creating and displaying a telop --

20 A Correct.

21 Q -- and then waiting for a user selection
22 on the telop, right?

1 A Creating a telop, laying the telop on the
2 playlist, and then waiting for the user to select
3 a telop.

4 Q Can you please take a look at Figure 1?

5 A Okay.

6 Okay.

7 Q And in the bottom left, there's a bar -- a
8 box marked with reference number 003 that is
9 labeled as a user-selected program.

10 Do you see that?

11 A Yes.

12 Q And this user-selected program is located
13 on the playlist creating screen, right?

14 A It appears to be, yes.

15 Q And then the top half of Figure 1 is
16 labeled as the program list?

17 A That is correct.

18 Q And this program list in Figure 1 includes
19 ten recorded programs?

20 A There are ten displayed, correct. The
21 list may be longer, but what's displayed on that
22 playlist.

1 Q And then there's a bubble on the right
2 side pointing to the program list that says
3 programs already recorded.

4 Do you see that?

5 A I do.

6 Q So the playlist is displaying programs
7 that were previously recorded? And each of the
8 programs in the program list is given a number,
9 such as Program 1, Program 2, et cetera; is that
10 right?

11 A It appears to be.

12 Q And there are three programs on the
13 program list that we can't see because they're
14 blocked, but you would agree that the three in the
15 center that are -- that are blocked by the telop,
16 those are labeled Program 7, Program 8, and
17 Program 9 in order from right to left?

18 A I can't see that for sure unless you can
19 point me to something that actually confirmed
20 that.

21 Q And then you see the box in the center
22 labeled with reference number 004? That's a

1 telop, correct?

2 A It could be a telop, yes.

3 Q And in this box labeled 004, these are the
4 retrieved programs that are candidates to add to
5 the playlist?

6 A These are candidate programs that have
7 been retrieved that could be added.

8 Q And the programs have been retrieved based
9 on retrieval condition, same channel at the same
10 time?

11 A Correct.

12 Q And the retrieval condition is based on
13 the user-selected program?

14 A Correct.

15 Q And, again, the user-selected program is
16 labeled as Program 1?

17 A In the bottom left corner of the figure,
18 yes.

19 Q And so the retrieved programs are the
20 programs that have the same channel at the same
21 time as Program 1?

22 A At least that's what the system seems to

1 think that was the condition.

2 Q And Program 1 is also listed in the
3 program list, right?

4 A Yep.

5 Q So you agree that Program 1 is displayed
6 both in the program list and in the playlist
7 creating screen?

8 A Yes.

9 Q Sir, I was hoping you could help me
10 understand the underlying step-by-step operation
11 here in Figure 1. So, I mean, as we discussed
12 earlier, Figure 5 discusses the steps here. So
13 the first step to get to Figure 1 would be to
14 display a playlist creating screen and wait for
15 the user to select a program, right?

16 A In Figure 5, that's correct.

17 Q So -- so to get to the point where we're
18 at Figure 1, the first thing that would happen is
19 that the -- the program list, the top half would
20 be displayed, and then the playlist creating
21 screen would be displayed under it, and the
22 playlist creating screen would be blank until the

1 user creates a selection, right?

2 A I don't think it -- it explicitly says it
3 has to be blank, but certainly the user can make a
4 selection if the user makes a selection shown in
5 the playlist creating screen.

6 Q So the program list is displayed, and then
7 the user selects a program from the program list
8 to add to the playlist, right?

9 A If the user does do that in the playlist
10 creating screen.

11 Q And then what happens next is that the
12 user selects a desired program, right?

13 A The user's already selected the desired
14 program.

15 Q Well, I'm trying to speak hypothetically
16 about, you know, how the process in -- how the
17 picture in Figure 1 would be created.

18 So of course as we're in Figure 1, the
19 user's already selected Program 1, but to get
20 there in the first place, the playlist creating
21 screen would need to be displayed, and then the
22 user would have selected Program 1, correct?

1 A Sure.

2 Q And then -- so the next step in that steps
3 is that Program 1 would be registered with the
4 playlist, correct?

5 A Correct.

6 Q And then, presumably, the user would set a
7 retrieval condition next, right?

8 A Yes.

9 Q And then the system would retrieve
10 candidate programs with the same retrieval
11 condition?

12 A Yes.

13 Q And Figure 1 --

14 A Well, I -- let me clarify that.

15 It just has to meet the retrieval
16 condition. It may not have to be identical. So
17 the process says meet the retrieval condition that
18 the user has set. So I'd go with the phrasing in
19 Figure 5.

20 (A clarification was made by the court
21 reporter.)

22 THE WITNESS: I'd go with the phrasing in

1 Figure 5.

2 Q You're saying the retrieved programs meet
3 the retrieval conditions?

4 A Yes.

5 Q And in Figure 1, the retrieved programs
6 are Program 5 and Program 8?

7 A Programs that have been retrieved, yes.

8 Q And Program 5 is also displayed in the
9 program list, right?

10 A It is.

11 Q And Program 8 is blocked, but you would
12 agree that Program 8 is also displayed in the
13 program list, right?

14 A I can't say one way or the other. It may
15 or may not display, but certainly was retrieved.

16 Q So you would agree that the system in
17 Figure 1 retrieved Program 5 even though Program 5
18 is also displayed in the program list, right?

19 A Yes.

20 Q Please go to column 3, lines 12
21 through 15.

22 A Okay. I'm there.

1 Q This says that when the user selects a
2 program to be registered with a playlist from the
3 plurality of programs, the input unit 41 sends the
4 selection information to the control unit.

5 Right?

6 A Yes.

7 Q So after the input unit sends the
8 selection information to the control unit, the
9 control unit then registers that user's selected
10 image with the playlist, right?

11 A Sorry. Where are you reading that?

12 Q I'm asking you a question about the -- the
13 passage we just read, and my question is so after
14 the input unit sends the selection of information
15 to the control unit, the control unit then
16 registers that user's selected image with the
17 playlist, correct?

18 A It doesn't say here the control unit is
19 doing the registration. You said the control
20 unit? I'm not reading that here. It says when
21 the user selects a program to be registered with a
22 playlist from the plurality of programs, the input

1 unit sends this information to the control unit.
2 That's all it says. The input is sending that
3 information to the control unit.

4 Q And you would agree that the control unit
5 selects the user's selected program to add to a
6 playlist?

7 A I would agree with you that once the user
8 selects the program, it's registered with -- with
9 the playlist. I'm just saying I don't see an
10 explicit -- explicit statement here in this -- in
11 this section that states the control unit's doing
12 that registration, per se. It doesn't say it does
13 that.

14 Q Well, the first sentence says -- the first
15 part of the sentence says the user selects a
16 program to be registered with the playlist, right?

17 A Yes.

18 Q Not that the user actually registers the
19 program with the playlist, right?

20 A It says to be registered. Correct.

21 Q And then that -- that selection
22 information is then sent to the control unit,

1 correct?

2 A Yes.

3 Q And then it's the control unit that does
4 the registration with the playlist, right?

5 A It doesn't -- where are you reading that?
6 I don't see that explicitly written. The next
7 sentence states, The control unit retrieves
8 information associated with the other programs
9 stored. It doesn't -- it doesn't explicitly say
10 the control unit does the registration.

11 If you're seeing that somewhere, I'm happy
12 to look. I'm not seeing it in that -- in that
13 paragraph.

14 Q Can you go to column 3, lines 36 to 39?

15 A Okay. Just give me a moment to read that.

16 Yep, I've read that.

17 Q This says, if on the playlist creating
18 screen the user selects a program to be added to
19 the playlist, the selected program is first
20 registered with the playlist.

21 Right?

22 A Correct.

1 Q So if the user selects a program to be
2 added to a playlist, you would agree that it's the
3 control unit that actually does the registration
4 with the playlist, right?

5 A I don't see the explicit disclosure that
6 it's the control unit that's doing that
7 registration. I agree that it is being registered
8 in the section of column 3 that you just read.

9 What it says in column 3, line -- line 38.
10 Here it says select the program is in the creation
11 playlist. It doesn't say what it's doing, whether
12 what is doing the registration is a control unit
13 or something else.

14 Q It doesn't say explicitly that the control
15 unit is doing the registration, but viewing this
16 as a person of ordinary skill in the art, you
17 would agree that the control unit is what does the
18 registration, right?

19 A I cannot agree with that as a necessary
20 statement. It could be doing the registration,
21 but at the time it doesn't say that it is limited
22 to only the control unit doing the registration.

1 At least so far what you pointed me to. If
2 there's something else that says the control unit
3 is doing the registration, I'm happy to look at
4 that.

5 Q So you'd agree that the control unit could
6 be doing the registration?

7 A I would agree it could be, but I don't
8 think it -- that anything I reviewed so far
9 necessarily limits it to the control unit doing
10 that registration. Again, if you have another
11 section of the patent that you believe is more
12 explicit on that point, I'm happy to look and
13 refine my answer accordingly if necessary.

14 Q So you would agree that a user can make a
15 selection of the -- of a digital image to be added
16 to a playlist, and then that the control module
17 could then select that image for registration with
18 the playlist?

19 A The control module could do the
20 registration to the playlist. I don't think the
21 patent limits it to the control module having to
22 do it necessarily.

1 Q And this says a user can select programs
2 to add to a playlist, correct?

3 A Sorry. What is "this says"? I'm sorry.
4 What --

5 Q This same sen- -- well, this says that the
6 user selects programs to be added to a playlist,
7 correct?

8 A Are you talking about column 3, line 37?

9 Q Yes.

10 A Of course. It says the user selects a
11 program to be added to a playlist.

12 Q So you would agree that in the '198
13 patent, a playlist is a collection of
14 user-selected programs or images?

15 A A playlist can contain the selected
16 programs or stored images.

17 Q So a playlist in the '198 patent can be a
18 collection of user-selected programs or images?

19 A Correct, but it can also include
20 additional programs and images.

21 Q So you would agree that a playlist in the
22 '198 patent is a collection of programs or images?

1 A Exactly what I'm seeing in the patent
2 talks about the playlist being a collection of
3 programs or images and all images, but I'm not
4 sure that the patent necessarily limits the
5 playlist to only having programs and images.

6 Q Please turn to column 2, lines 45
7 through 47.

8 A Sorry. Just give me one second. The PDF
9 just crashed.

10 You said column 2?

11 Q Column 2, lines 45 through 47.

12 A Okay. Give me a moment to read it,
13 please. Figure 1.

14 Okay.

15 Q This says that reference numeral 004
16 denotes a telop displayed on a display screen
17 (i.e., a small frame displayed on a display screen
18 in piles).

19 Do you see that?

20 A In piles, correct. Yes.

21 Q So the '198 patent defines a telop as a
22 small frame displayed on a display screen in

1 piles?

2 A I don't think that's a definition. It's
3 just saying it's an example. It could be a small
4 frame displayed on a display screen in piles.
5 Absolutely. I don't think it limits it, though.

6 Q So you would agree that a telop could be,
7 then, a small frame displayed on a display screen
8 in piles?

9 A Yes.

10 Q And "in piles" means layered or stacked on
11 top of the other screen elements?

12 A I think that's one reasonable
13 characterization. I haven't thought of an
14 all-exhaustive description of piles, but certainly
15 what you just described is reasonable. I think
16 maybe another definition is reasonable.

17 Q All right. Can you please turn to
18 claim 6?

19 A Okay. Yep, I'm there.

20 Q Do you see where it says, A method for
21 creating a playlist designating and reproduction
22 for image data?

1 A Yep.

2 Q The term "image data" for an image could
3 be an image itself, correct?

4 A I want to make sure I'm understanding the
5 question. You say the image data is the image
6 itself. Based on that, do you mean the contents
7 of the images, the pixels of the image? Or if you
8 mean something else, then I'll need a
9 clarification.

10 Q You would agree that the term "image data"
11 could include a digital image?

12 A I would say image data is the data for
13 that image. So to the extent the digital image
14 encompasses the data for that digital image, then
15 sure.

16 Q And when a digital image is displayed,
17 it's also displaying its image data?

18 A It doesn't have to display all of it.

19 Q When a digital image is displayed, it
20 displays its pixels?

21 A Well, the image doesn't display itself.
22 There's some rendering mechanism to display the

1 image. So I'm not sure the question makes a lot
2 of sense to answer it in a direct manner.

3 Q When a digital image is displayed, the
4 pixels are also displayed as part of that digital
5 image?

6 A Could be. They don't have to all -- if
7 you mean the pixels are all representing the
8 content of the image, the renderer then displays.
9 That particular image may not display all the
10 pixels and may not display the pixels in the exact
11 same way. It's -- a variety of things could
12 happen in rendering an image when the display
13 occurs.

14 Q The specification of the '198 patent does
15 not use the term "image data," right?

16 A I'd have to check that.

17 I disagree. I find the abstract.

18 (A clarification was made by the court
19 reporter.)

20 A I see the term "image data" in the
21 abstract, for example, which I believe is part of
22 the specification. And, of course, it appears

1 multiple times in multiple claims -- in many of
2 the claims.

3 Q Aside from the abstract, the term "image
4 data" doesn't appear anywhere else in the
5 specification, correct?

6 A That is correct. If you exclude the
7 claims from the specification, correct. They do
8 appear in the claims. So I want to make sure that
9 that's clear on the record.

10 And, Counsel, we've been going for about
11 an hour, and I normally like to ask for a break
12 every hour or so. So whenever it's a convenient
13 time to stop for a quick break, I'd appreciate it.

14 Q Sure. We can take a break now.

15 A Okay. Thank you.

16 (A recess was taken.)

17 BY MR. MIDDLETON:

18 Q Doctor, do you still have the '198 patent
19 open?

20 A I do.

21 Q And are you at claim 6?

22 A I'm not, but I will get there in a moment.

1 I am. I'm there now.

2 Q Do you see where claim 6 says, listing the
3 associated information concerning an image data
4 recorded on said recording medium as a program
5 list?

6 A I do. You are talking about Limitation
7 Number 1, right?

8 Q Yes.

9 A Okay.

10 Q Listing the associated information means
11 displaying the associated information as a list,
12 right?

13 A Well, listing doesn't necessarily mean
14 it's displaying as a list, but it says -- a
15 subsequent part of that limitation says as a
16 program list. So it's qualifying it as it to be a
17 program list.

18 Q So this limitation doesn't require
19 displaying the program list?

20 A The limitation just says listing the
21 associated information concerning image data
22 recorded on said recording medium as a program

1 list. It doesn't actually say displayed later on
2 in the display limitation.

3 Q And associated information in claim 6 is
4 the same as related information in claim 1, right?

5 A I'd have to skim through the patent to
6 make sure I'm not missing something.

7 I'm not sure I necessarily make that
8 equivalent because even in claim 6, I'm seeing the
9 term "associated information," and then I see
10 later on in the other limitation, it says "related
11 information." So it's using these two terms as
12 separate terms, as far as I can see.

13 And if you -- if you are -- if you say
14 that they're equivalent, maybe you can point me to
15 where it's making that equivalent.

16 Q The specification of the '198 patent
17 doesn't use the words "related information,"
18 right?

19 A You mean outside of the claim?

20 Q Yes.

21 A Let me double-check that. I think that's
22 correct.

1 Q Do you agree the specification doesn't use
2 the words "related information," right?

3 A Yes. I just answered that. Anywhere
4 outside of the claims.

5 Q Right. My apologies. I thought you were
6 still checking.

7 A Sorry. I -- I believe I answered it.

8 Q Yeah.

9 So the specification doesn't use the
10 words "related information," but it does refer
11 to "associated information," right.

12 A In the specification outside the claims,
13 the term "associated information" is discussed in
14 several places, and "related information," those
15 two words do not appear in the specification
16 outside of it.

17 Q Do you agree that when the specification
18 is referring to associated information, it's also
19 referring to related information?

20 A It might be, but it doesn't say that, per
21 se, as we just -- you just asked the question and
22 answered on related information. That term is not

1 in the specification outside the claims.

2 So to the extent that the patent intended
3 to equate these two, it's possible. They're very
4 similar terms, but I just don't see an exact --
5 the word "related information" doesn't appear in
6 the spec, so I can't say one way or the other. I
7 guess a reasonable interpretation is, yes, it
8 means the same thing. But I don't think the
9 patent is specific on that point.

10 Q But you'd -- you'd agree that "associated
11 information" and "related information" are very
12 similar terms?

13 A I think in the context of this patent, I'd
14 agree.

15 Q And you'd agree that a reasonable
16 interpretation is that associated information and
17 related information refer to the same thing?

18 A I think it could, except I am pausing
19 because in claim 6, it's using the two terms
20 separately. So I believe in patent -- the patent
21 world, if a patent teachings uses different terms
22 in the same claim, then it should have a different

1 meaning. I'm just not seeing the related
2 information in the specification. So as such,
3 there is a tension.

4 Q And you'd agree that associated
5 information and related information could refer to
6 the same thing?

7 A I think it could, but claim 6 is using
8 them separate -- the two terms separately. So
9 maybe it is different terms in this claim because
10 it's using related information and associated
11 information in two different limitations.

12 Q Can you please turn to column 2, lines 38
13 through 39?

14 A Where it reads, The region where the
15 permission on the recorded program? Is that the
16 one?

17 Q Yes.

18 A Yeah. I'm there.

19 Q This reads, The region where the
20 permission on the recorded programs is also
21 displayed as represented in the program list.

22 A Yes. That's what it states.

1 Q And this passage is referring to Figure 1,
2 right?

3 A Yes. It is in Figure 1, correct.

4 Q And you'd agree, as we discussed earlier,
5 that in Figure 1, there's a section of Figure 1
6 labeled "program list," right?

7 A Correct, on the top.

8 Q And if you go to -- go to column 2,
9 line 33.

10 A Okay.

11 Q This says, While letters only are
12 represented in Figure 1, thumbnail images for
13 still images and motion images and their related
14 program titles, and date and time of recording,
15 and channel information represented in letters are
16 included.

17 You see that?

18 A I do.

19 Q So the programs in the program list can
20 include thumbnail images here, right?

21 A Among other things, yes.

22 Q And thumbnail images are digital images?

1 A Sure.

2 Q So the program list in the '198 patent can
3 be a list of digital images?

4 A It does not limit to that. It could
5 entail other information as well.

6 Q It's not limited to that, but you'd agree
7 that a program list could be represented by a list
8 of digital images in the '198 patent, correct?

9 A I don't think it says that only the
10 digital image alone would qualify as that program
11 list. It says it includes digital image, images
12 as part of this program, but...

13 Q But your testimony is that a program list
14 in the '198 patent requires something more than
15 digital images?

16 A Not necessarily. I'm just saying it
17 doesn't say that it has to -- the only image -- or
18 can be only the image. You can have a scenario
19 where the only image could be image plus. It
20 could be no image at all depending on the claim.
21 But specific to Figure 1, it's only context.

22 Q So in one example, a program list could be

1 a list of digital images?

2 A If it meets all the criteria depending on
3 the claim. If you're talking about just the
4 specification in the figure.

5 Q Could you please turn to claim 13?

6 A Yep, I'm there. Hang on a second.

7 Found it.

8 Q And claim 13 recites a dubbing list
9 creating method, right?

10 A Correct.

11 Q So you'd agree that claim 13 requires
12 creating a dubbing list, right?

13 A With all these steps on that, yes.

14 Q And claim 13 doesn't require the actual
15 process of dubbing, right?

16 A Just let me read that entire claim to make
17 sure that's correct.

18 I think that's fair. This is what
19 creating the list for dubbing would be, could be
20 executed to actually do the dubbing.

21 Q And creating a dubbing list in claim 13 is
22 no different than creating a playlist in claim 6

1 except that the dubbing list in the claim 13 and
2 the playlist in claim 6 are used for different
3 purposes, correct?

4 A Well, I'm not sure if I agree with that,
5 just taking a look at the two claims side by side,
6 and some of the elements are different. So I
7 wouldn't equate the two claims with the only
8 difference being this, creating a dubbing list
9 versus playlist. There are nuances. Certainly
10 the limitations have different language.

11 Q I'm dropping in the chat what's been
12 marked as Exhibit 1004.

13 (Exhibit 1004 was marked for
14 identification and is attached to the transcript.)

15 Q Can you please let me know when you have
16 that up?

17 A Okay.

18 Q It is the Nagaoka reference, right?

19 A That appears to be correct.

20 Q Can you please turn to column 3, lines 45
21 through 48?

22 A Okay.

1 Q This says, As shown in Figure 2, the media
2 organizing and processing unit 30 according to
3 this embodiment includes: an image memory 32,
4 which stores digital image data.

5 A Do you see that?

6 A I do.

7 Q So Nagaoka disclosed an image memory that
8 stores digital image data?

9 A Sure.

10 Q And can you please turn to Figure 2?

11 A Yep.

12 Q Figure 2 discloses an image memory with
13 reference to number 32, right?

14 A Correct.

15 Q And in Figure 2, digital images stored in
16 image memory are sent to the media organizing
17 control unit 38, right?

18 A That is a bidirectional arrow, so it could
19 go either way.

20 Q So the media organizing control unit can
21 store digital images and image memory?

22 A It appears that it's able to communicate

1 with the image memory. It doesn't say that it can
2 store it.

3 It can certainly communicate with the
4 image memory. It doesn't necessarily store the
5 image memory.

6 Q You'd agree that the media organizing
7 control unit sends digital images to the image
8 memory?

9 A Where do you see that? I --

10 Q In Figure 2.

11 A I see the arrow. I don't see it sending
12 images. If you have disclosure you could point me
13 to.

14 Q Well, in Figure 2, you see input device
15 20, right?

16 A Correct.

17 Q And the image input device 20 can send --
18 can send input images to the media organized
19 control unit 38, right?

20 A Correct.

21 Q And then the media -- and then as we saw
22 before, the image memory stores digital images,

1 right?

2 A Correct.

3 Q So in order for the image memory to store
4 those digital images, the media organizing control
5 unit needs to send those digital images to image
6 memory, right?

7 A Maybe. It doesn't say that this image
8 memory could not have been prepopulated, for
9 example. So if there is a portion of the spec
10 that you want to take me to that actually says
11 that, I'm happy to look at and agree or disagree
12 with your statement.

13 But just looking at this figure, I don't
14 think it's necessary -- necessarily says that the
15 media organizing control unit is saving images or
16 image memory. It could, but it doesn't say -- it
17 doesn't explicitly say.

18 Q So you would agree that the media
19 organizing control unit could send images to image
20 memory?

21 A It's possible. Yes.

22 Q And the media organizing control unit 38

1 also sends digital images to a display 60,
2 correct?

3 A I don't -- you'd have to point me to where
4 it states that. I just see an arrow. It doesn't
5 say what it's sending to display. If you could
6 take me to the right part of the spec, I'd be
7 happy --

8 Q Well, looking at Figure 2, there's an
9 arrow from the media organizing control unit to
10 the display, right?

11 A Correct.

12 Q And there are no other arrows pointing to
13 the display, right?

14 A Correct.

15 Q So in order for images to get to the
16 display, the media organizing control unit needs
17 to send the images to the display, right?

18 A If an image were to be displayed on the
19 display in this setup, that is correct. It
20 doesn't necessarily say an image has to be sent.

21 Q And, again, you agree that the image
22 memory 32 stores digital images, right?

1 A That's correct.

2 Q So if a digital image is stored in memory
3 32, in order for that image to reach the display,
4 the media organizing control unit needs to obtain
5 the digital image from image memory and then send
6 that to -- that digital image to display 60,
7 right?

8 A If the image were to be displayed, that's
9 what those figures -- that's the only arrow
10 showing this particular flow. If there is some
11 other figure that shows other ways of getting to
12 the display, that may also be possible.

13 Q You'd agree that the media organizing
14 control unit obtains digital images from image
15 memory and sends them to the display, right?

16 A It could, yeah. It doesn't say -- it
17 doesn't explicitly say.

18 Q Can you please turn to column 3, lines
19 58 --

20 A Now, if I may -- I'm sorry. I just want
21 to complete that answer. It also doesn't talk
22 about retrieval either, so I just want to be

1 careful. You know, I don't see that disclosed. I
2 just see the arrows. Yeah, so that's my complete
3 answer. I'm sorry if I cut you off.

4 Q Can you please turn to column 3, lines 58
5 through 60?

6 A All right.

7 Q This says, Figure 3, as an exemplary GUI
8 display screen 100 output by the media organizing
9 control unit 38 to the display 60 in accordance
10 with one implementation of the present invention.

11 Do you see that?

12 A I do.

13 Q So this says the media organizing control
14 unit outputs the GUI to a display?

15 A Correct.

16 Q If we --

17 A In this particular claim limitation.

18 Q Can you please turn to Figure 3?

19 A Yep, I'm there.

20 Q And you would agree that the GUI in
21 Figure 3 disclosed digital images, right?

22 A Among other things on the right-hand side,

1 sure.

2 Q You'd agree that the media organizing
3 control unit outputs digital images to the GUI,
4 right?

5 A I didn't say that. I'm saying the GUI is
6 the graphic interface around the icons and menus
7 and whatnot. Whether the control unit is the one
8 that's actually putting the images on the
9 right-hand side, that -- I don't see that
10 disclosure. Again, if you want to point me to the
11 disclosure for that, that's fine.

12 Q Well, let's go back to --

13 A The GUI is the -- is the window the -- all
14 the user clickable graphical interface. The
15 actual content is displayed of images.

16 Q Let's go back to column 3, lines 58
17 through 60 again.

18 A Sure.

19 Okay.

20 Q Again, this says Figure 3 is an exemplary
21 GUI display screen 100 output by the media
22 organizing control unit 38 to the display.

1 A Correct.

2 Q So you would agree that the media
3 organizing control unit outputs the GUI display?

4 A To the display screen 100, correct.

5 Q And the GUI display screen includes
6 digital images?

7 A Display screen in the content on the
8 window on the right has digital images, correct.

9 Q And so you would agree that the media
10 organizing control unit 38 outputs digital images
11 to the display?

12 A Not necessarily, because it's putting out
13 GUI. Whether the control unit is outputting the
14 display of the images within that GUI, that, I
15 think, is not explicit.

16 Q So your testimony is that the media
17 organized control unit outputs the GUI but not the
18 digital images in the GUI?

19 A I'm saying it's not explicit that it is
20 outputting the digital images within a graphical
21 interface. It might be, but I don't see an
22 explicit disclosure.

1 Q So you would agree that the media
2 organizing control unit 38 could output the
3 digital images on the GUI, right?

4 A Correct. It could. It doesn't
5 necessarily have to be that control unit.

6 Q And, again, you would agree that --
7 scratch that question.

8 So you would agree that the media
9 organizing control unit can obtain digital images
10 from image memory and then output the digital
11 images to the GUI, right?

12 A It's possible, but I don't see an explicit
13 disclosure it's doing that.

14 Q And you would agree that's one reasonable
15 interpretation of Nagaoka, correct?

16 A It's possible. I don't think that's what
17 is actually disclosed in that retrieval reference.

18 Q Again, you would agree that digital images
19 are stored in image memory?

20 A They could be.

21 Q And you would agree that digital images
22 end up on the display 60?

1 A Sure.

2 Q So you would agree that following the
3 patent in Figure 2, that the media organizing
4 control unit must first obtain digital images from
5 image memory 32 to send the images to the display,
6 right?

7 A No, I disagree with it must. It could,
8 but I don't see an explicit disclosure as to it.

9 Q So you would agree that the media
10 organizing control unit could obtain digital
11 images from image memory 32 and then send those
12 digital images to the display 60?

13 A At some point it's possible, but I don't
14 see the explicit right now.

15 Q Well, Nagaoka explicitly discloses that
16 images are stored in image memory, right?

17 A Yes.

18 Q And Nagaoka explicitly discloses that --
19 explicit -- sorry. Scratch that.

20 Nagaoka explicitly discloses a display
21 that includes digital images, right?

22 A Sure.

1 Q And in Figure 2, Nagaoka explicitly
2 discloses a path from image memory to display,
3 right?

4 A There is a pathway, yes.

5 Q And that path leads from image memory to
6 the media organized control unit and to the
7 display, right?

8 A That is a path, correct. There are other
9 paths also leading to that display from various
10 other places.

11 Q Right. In Figure 2, the only path to
12 display is from the media organizing control unit,
13 right?

14 A Correct. In Figure 2.

15 Q So the only way in Figure 2 to get to the
16 display is through the media organizing control
17 unit, right?

18 A In Figure 2, correct.

19 Q And the only arrow in Figure 2 from image
20 memory is to the media organizing control unit,
21 right?

22 So you would agree that the media

1 organizing control unit obtains images from image
2 memory and sends them to display, right?

3 A I think I've already answered this several
4 times. I don't see an explicit disclosure of
5 that. It could be. I don't see an explicit
6 disclosure of that, and I don't think you've
7 pointed me to an explicit disclosure either.

8 Just because I've got some arrows going
9 from one to another doesn't mean I'm taking
10 something, sending something. It may be doing
11 that. It may not.

12 THE WITNESS: One second. I'm seeing a
13 session is expired window coming up on my Zoom.
14 That's a problem.

15 MR. MIDDLETON: Okay. Can we go off the
16 record for a second?

17 (A recess was taken.)

18 BY MR. MIDDLETON:

19 Q Can you please turn to column 4, lines 46
20 through 49?

21 A Just give me a moment to -- okay.

22 Q This says that the face detection in

1 cropping unit 34 detects faces in the imported
2 digital photos and crops out the faces from the
3 digital photos to obtain a view of the individual
4 faces in the imported digital photos.

5 Right?

6 A Correct.

7 Q So can you please turn back to Figure 2?

8 A Okay.

9 Q So you would agree that the image input
10 device 20 sends imported digital photos to the
11 media organizing control unit, right?

12 A Where does it say that?

13 Q From the arrow -- from the image input
14 device to the media organizing control unit?

15 A I don't see imported -- some language used
16 about imported photos, I don't see that in
17 Figure 2.

18 Q Well, the input -- the image input device
19 imports digital photos to the media organizing
20 control unit, right?

21 A Where -- where do you see that language?

22 I already answered. So I'm not sure if

1 you're waiting for my answer.

2 Q Can you please go to column 4?

3 A Okay.

4 Q Lines 40 through 43.

5 A Okay.

6 Q It says, These digital images may be
7 imported from existing folders (e.g., stored in
8 image memory 32) or input via external media, such
9 as the image input device 20.

10 Right?

11 A Yes, I see that.

12 Q So you agree that the image input device
13 20 can import digital images to the media
14 organizing control unit, right?

15 A Okay, sure.

16 Q And then the media organizing control unit
17 image sends the imported digital images to the
18 face detection and cropping unit, correct?

19 A I'm sorry. Where are you looking at now?

20 Q Can you look at Figure 2?

21 A There's an arrow from the digital
22 organizing -- sorry, media organizing control unit

1 to the face detection/cropping unit, but you had
2 some additional text in your question. I'm just
3 wondering where you got that.

4 Q So you agree that the face detection and
5 cropping unit detects faces in imported digital
6 photos and crops out the faces from the digital
7 photos to obtain a view of the digital faces in
8 the imported digital photos?

9 A Yes, I agree with that. That's from
10 column 4, lines 46, which you already asked me
11 about.

12 Q And for the face detection and cropping
13 unit to do that, the media organizing control unit
14 first needs to send the digital images to the face
15 detection/cropping unit, right?

16 A I see the language. I think that's
17 reasonable, unless there's some other way for the
18 cropping unit to get those images.

19 Q And then once the face detection and
20 cropping unit has these photos, it detects faces
21 and crops the faces from the imported digital
22 photos?

1 A That's -- sure. Yeah.

2 Q And then the resulting face images are
3 stored in image memory, right?

4 A So where do you see that? I don't see
5 that disclosure.

6 Q We discussed earlier that image memory 32
7 in Nagaoka stores digital images, right?

8 A 32? Let's look.

9 Sure.

10 Q So you would agree that face images
11 created by the face detection and cropping unit
12 are stored in image memory, right?

13 A Well, I'm not sure it creates face -- the
14 face detection cropping. It creates face images.
15 It's just cropping from the original image.

16 Q So the detected and cropped face images
17 are stored in image memory, right?

18 A It doesn't say that. It doesn't -- I
19 don't see that disclosure. I see the detection on
20 column 4. I see that it -- face
21 detection/cropping, it detects faces and imports
22 playlist photos, crops out the faces to obtain a

1 view. It doesn't say it gets stored again. If
2 you have another point where it states that,
3 another part that states that, I'm happy to look
4 at it.

5 Q So is it your testimony that the face
6 detection and cropping unit stores the images?

7 A It doesn't say where it is stored. It
8 could just remain in the cropping unit. If you're
9 saying it has to be stored in the image memory,
10 then I don't see that disclosure. If you have the
11 disclosure, if you have some text to point me to,
12 I'm happy to look at it.

13 Q So you would agree that one possibility,
14 one possible interpretation is that the face
15 detection and cropping unit stores the digital
16 face images?

17 A It's possible, but it doesn't -- it's
18 possible (inaudible). It's possible.

19 Q And you would agree that one possible
20 interpretation is that the face images are stored
21 in image memory?

22 A It is possible, but I also say that maybe

1 it's not clear that once it's cropped that it's a
2 new image or a different image. It may just be
3 the information saying that the portion is
4 cropped. It doesn't necessarily have a new face
5 image that has to be saved separately from the
6 original image.

7 Q Can you please turn to column 5, lines 18
8 through 20?

9 A Give me a moment to get there.

10 Okay.

11 Q This says that the user may select a
12 folder 402 under the "people" category in GUI
13 display 400 (in category list 102) or create a new
14 person folder (S216). To serve as a basis for
15 face recognition, the selected folder or new
16 folder must contain at least one face image.

17 A I read that, yes. I see that.

18 Q So this says that in Nagaoka, a user can
19 create a new person folder, right?

20 A Yes.

21 Q And one possibility is that the new person
22 folder is initially empty, correct?

1 A It -- it is possible, but in order for
2 face recognition to happen, the selected folder or
3 new folder must contain at least one face image.
4 So if there's no face image in there, then it
5 wouldn't be able to do any recognition on it.

6 Q Can you please turn to column 6, lines 6
7 through 11?

8 A Give me one moment to read that.

9 Q I'm sorry. Can you actually turn to
10 column 5, lines 22 through 23?

11 A Did you say 22 to 23?

12 Q Yes.

13 A Okay. Just give me a moment to read it.

14 A Okay. Yes.

15 Q This says, The user may drag and drop any
16 of the faces from an unknown display window
17 portion 406.

18 A Do you see that?

19 A Yes.

20 Q And you'd agree that the dragging and
21 dropping is a user input, correct?

22 A Sure. Yes.

1 Q And can you please turn to column 5, lines
2 25 through 29?

3 A I'm there. Just give me a moment to read
4 it.

5 Okay.

6 Q This says, Once the user has selected the
7 person folder for matching with unknown faces
8 (which serves as a comparison model), the face
9 recognition unit 36 applies face recognition to
10 determine similarity of unknown faces to the
11 selected model.

12 Right?

13 A Correct.

14 Q So once the user drags and drops an
15 unknown face into the folder, the face recognition
16 unit applies face recognition to determine
17 similarity of unknown faces to the selected model,
18 right?

19 A Similarity of the unknown faces in the
20 already unknown faces folder, and it does a
21 similarity comparison and sorts it accordingly.

22 Q Can you please turn back to Figure 2?

1 A Yes.

2 Q You see face recognition unit 36, right?

3 A Yes.

4 Q And the face recognition unit applies face
5 recognition to the unknown facial images, yes?

6 A The ones in the folder, correct.

7 Q And to do so, the media organizing control
8 unit needs to send the face images to the face
9 recognition unit 36, right?

10 A It could do that, yes, or it could be
11 sending a portion of it. I don't think this is
12 explicit.

13 Q So the media organizing control unit can
14 obtain images from image memory and then send
15 those images to the face recognition unit,
16 correct?

17 A I don't think it necessarily occurs in
18 that order, if it occurs that way at all. The
19 image is already in the unknown folder, and then
20 the face recognition unit is working on that image
21 going forward and sorting. So there's no
22 retrieving based on face recognition from the

1 image memory, if that's what you're asking or
2 trying to imply.

3 Q Unknown folder 406 is on the display,
4 right?

5 A Part of it is shown on display.

6 Q And in Figure 2, there's no arrow going
7 from the display to anywhere else on Figure 2,
8 right?

9 A In Figure 2, that's correct.

10 Q The display is not connected to the face
11 recognition unit, right?

12 A In Figure 2, I -- I don't see a direct
13 entry, if that's what you're asking.

14 Q So in Figure 2, the display is not
15 directly connected to the face recognition unit,
16 correct?

17 A In Figure 2, that's correct. It doesn't
18 preclude it happens somewhere else. I'm saying in
19 Figure 2, it's not.

20 Q So in Figure 2, the display does not send
21 the unknown display window portion for 6 to the
22 facial recognition unit, correct?

1 A Sure. The displays don't normally send
2 things back to other output devices.

3 Q Okay. So you agree that displays don't
4 send things back to processors?

5 A They may send some control signals to that
6 saying that's it's not connected to the status,
7 but that's not normally common.

8 THE WITNESS: I just want to make sure
9 Mr. Javed's still on.

10 MR. MIDDLETON: Can we go off the record
11 for a second?

12 (A recess was taken.)

13 BY MR. MIDDLETON:

14 Q So you would agree that the media
15 organizing control unit could obtain the face
16 images from image memory and then send the
17 faces -- face images to the face recognition unit
18 36, right?

19 A It's possible. I don't see an explicit
20 disclosure of that.

21 Q But you would agree that the face images
22 don't go from the display to the face recognition

1 unit, right?

2 A I think that's correct.

3 Q So the face images -- sorry. Scratch
4 that.

5 You'd also agree that it's possible that
6 the media organizing control unit obtains the face
7 images from the face detection and cropping unit
8 and then sends those face images to the face
9 recognition unit, right?

10 A I don't see that disclosure of ways in
11 the...

12 Q Well, the face detection and cropping unit
13 detects faces, and then crops the image to a face
14 image, right?

15 A Correct.

16 Q And then the face recognition unit applies
17 face recognition to the face images?

18 A If necessary. If -- if the user triggers
19 that, yes.

20 Q But if the user triggers that, the media
21 organizing control unit obtains the face images
22 from the face detection and cropping unit and then

1 sends them to the face recognition unit, correct?

2 A I don't see that disclosure. It's
3 plausible that that's what's happening, but I
4 don't see the disclosure of that, obtain and then
5 send explicitly.

6 Q So you'd agree that it's a reasonable
7 interpretation of Nagaoka's Figure 2 that the
8 media organizing control unit obtains face images
9 from the face detection cropping unit and then
10 sends them to the face recognition unit 36 to
11 apply face recognition, right?

12 A No, I don't think that's necessarily
13 reasonable. It may be that the face recognition
14 is cropping and not sending images at all. It's
15 possible that it's just sending the information
16 that either the image needs to be cropped by
17 certain number of pixels in particular directions.

18 So that -- I don't think this one
19 Figure 2, which is just a bunch of arrows, is
20 giving me all of the disclosures that you were
21 just -- that you are telling me. There are
22 different ways to read this that are reasonable.

1 Q You would agree that the face recognition
2 unit applies -- applies face recognition to face
3 images, right?

4 A That's fair.

5 Q And the face detection and cropping unit
6 detects and crops those face images, right?

7 A It detects and crops faces in the images.
8 Whether the result is actually another image or
9 not, I'm not seeing it explicitly.

10 Q The display window portion 406 shows face
11 images, right?

12 A Where are we? Which figure are you? In
13 Figure 4?

14 Sorry. Where are you?

15 Q You can turn to Figure 6.

16 A Okay.

17 Yeah. They appear to show some faces.

18 Q So you agree that the display window
19 portion 406 shows face images?

20 A They appear to.

21 Q And the face detection and cropping unit
22 detects and crops digital images, and the result

1 is these face images, right?

2 A Could be.

3 Q And then the face recognition unit applies
4 face recognition to the face images, right?

5 A Are you asking for an answer, or...

6 Q Yes. My question was: Then the face
7 recognition unit applies face recognition to the
8 face images, right?

9 A Correct. I said correct.

10 Q Okay. My apologies. It didn't pick up on
11 the transcript, and I didn't hear you.

12 A Okay. No worries. Just wanted to make
13 sure.

14 Q So, then, you would agree that the media
15 organizing control unit obtains the face
16 detection -- obtains the face detection images
17 from the face detection and cropping unit and then
18 sends those images to the face recognition unit to
19 apply face recognition, right?

20 A I think we already went through this
21 several times. It's possible that's happening,
22 but I don't see the explicit disclosure of that

1 obtaining of the images and sending it over. It's
2 possible. I don't see the explicit disclosure for
3 that.

4 Q On Figure 2, the only arrow connecting the
5 face detection and cropping unit is the media
6 organizing control unit, right?

7 A Correct.

8 Q And in Figure 2, the only arrow connecting
9 the face recognition unit is the media organizing
10 control unit, right?

11 A Correct.

12 Q And for a face image to travel from the
13 face detection and cropping unit to the face
14 recognition unit, the face image would need to go
15 through the media organizing control unit, right?

16 A If, indeed, a face image is traveling,
17 yes.

18 Q So, then, you would agree that the media
19 organizing control unit obtains face detection
20 in -- face images from the face detection cropping
21 unit and then sends them to the face recognition
22 unit, right?

1 A No. A -- I don't necessarily agree with
2 that. I think I already answered that question
3 multiple times now.

4 Q Sorry. Is it your opinion that the face
5 recognition unit does not at any point receive
6 face images?

7 MR. JAVED: Object to the form.

8 A I did not say that.

9 Q So you would agree that the face
10 recognition unit does receive images, right?

11 A It's possible that it receives images. I
12 didn't see -- I don't see an explicit disclosure
13 about the has to.

14 Q Well, the face recognition unit applies
15 face recognition to the faces, right?

16 A Sure. Or to other data representing face
17 images. So, yeah.

18 Q So then you would agree that the face
19 recognition unit could receive face images,
20 correct?

21 A It could. It doesn't have to.

22 Q And then you would agree, then, the media

1 organizing control unit could obtain face images
2 from the face detection and cropping unit, and
3 then it could send those face images to the face
4 recognition unit to apply face recognition, right?

5 A It is possible. But I don't see the
6 explicit disclosure of that.

7 Q Can you please turn to column 5, lines 43
8 through 49?

9 A Okay.

10 Q And this says, After the face recognition
11 36 obtains a similarity measure for each unknown
12 face, the media organizing control unit 38 sorts
13 the unknown faces by similarity measure (most
14 similar to least similar) and outputs an
15 updated "unknown" display window portion 406
16 (Figure 6) showing the unknown faces in sorted
17 order.

18 Do you see that?

19 A I do.

20 Q So after the face recognition unit applies
21 the correct face recognition for each unknown
22 face, the media organizing control unit 38 sorts

1 the unknown faces by similarity measure and
2 outputs an updated display, right?

3 A Outputs the updated unknown display
4 window. Correct.

5 Q So once the face recognition unit finishes
6 applying face recognition, the media organizing
7 control unit obtains the face images from the face
8 recognition unit and sorts them by similarity
9 measure, right?

10 A It doesn't say that. It says the media
11 organizing control unit sorts the unknown faces.
12 It doesn't say outputs the imaging.

13 Q But --

14 A The paragraph down further. You inserted
15 images. It doesn't appear.

16 Q But earlier you agreed with me that the
17 face recognition unit could receive digital
18 images, right?

19 A It says it's possible.

20 Q And you agreed with me, I believe,
21 multiple times, that the face recognition unit
22 does apply face recognition to the face images,

1 right?

2 A Yes.

3 Q So once the face recognition unit applies
4 the face recognition to the face images, the media
5 organizing control unit then needs to obtain those
6 images and sort them by similarity, right?

7 A I disagree with that "obtain those images"
8 portion. I agree with the phrase here in the --
9 in the specification states, which is the media
10 organizing control unit sorts the unknown faces by
11 similarity measure, but that similarity measure is
12 received from the face recognition unit.

13 Q So you agree the media organizing control
14 unit sorts face images by similarity to obtain a
15 similarity -- sorry.

16 You would agree that the media organizing
17 control unit sorts the face images by similarity,
18 right?

19 A I agree that the media organizing control
20 unit sorts the unknown faces by similarity.

21 Q And then the media organizing control unit
22 outputs the sorted face images to the display,

1 right?

2 A It outputs an updated unknown display
3 window showing the unknown faces in sorted order.

4 Q And then the updated unknown faces are
5 displayed in unknown faces window 406, right?

6 A Unknown -- an updated unknown display
7 window shows the sorted faces.

8 Q If you please turn to Figure 6.

9 A Okay.

10 Q You see the unknown display window 406,
11 right?

12 A I do.

13 Q And unknown display window 406 in Figure 6
14 shows unknown faces that are similar to Momoko,
15 right?

16 A This example, it's not clear to me whether
17 it's already -- the user's already clicked on show
18 other people similar to Momoko, but if that is the
19 selection, then show it in sorted order, yeah.

20 Q So you see where it says the show other
21 people button?

22 A Yes.

1 Q Then to the right of that, it says similar
2 to Momoko, right?

3 A Right.

4 Q So you agree that the display is showing
5 faces similar to Momoko, right?

6 A It is possible, but I also see below that
7 it's show all photos, and it says showing all
8 photos. So this is also indicating that it's
9 showing all photos as well as those potentially
10 similar to Momoko.

11 Q Okay. So it's your opinion that the show
12 all photos button refers to showing all photos
13 including people other than Momoko?

14 A That's what it appears to mean, yes.

15 Q And if the user deselects show all photos,
16 then it only shows photos similar to Momoko?

17 A I don't know whether that -- I don't see
18 that disclosure. If you have something you can
19 point me to, I'm happy to look at them.

20 Q If the user selects a show other people
21 button, it shows people other than Momoko?

22 A Where do you see that?

1 Q I'm looking at Figure 6.

2 A Figure 6 is show other people, and then
3 the next is similar to Momoko. That's all I'm
4 seeing. So if you say show other people, if I put
5 that, what exactly happens, you'd have to take me
6 to the relevant disclosure.

7 Q So it's not clear to you sitting here
8 today what happens when a user selects the show
9 other people button?

10 A Well, my -- my understanding of it is when
11 you select -- the user selects that, it shows
12 other people similar to Momoko. But if you have
13 another meaning that you mean to show other people
14 other than Momoko, then I don't have that in mind
15 if there is a disclosure to that. You'd have to
16 take me to that.

17 Q So it's your opinion that selecting the
18 show other people button shows other people that
19 are similar to Momoko?

20 A I believe that's the current state of the
21 screen, that it's showing similar to Momoko and
22 showing all photos.

1 Q And if the users select the show all
2 photos button, it show all persons including
3 people other than Momoko?

4 A That's what it appears -- appears to
5 indicate.

6 Q So selecting show all photos would select
7 photos that are not similar to Momoko?

8 A Maybe, maybe not. It's showing all
9 photos. Maybe they also show Momoko. Who knows.

10 Q So you'd agree that all photos would be
11 similar to Momoko?

12 A It's possible that if that's the only
13 photos of Momoko, it is unknown photos. It's
14 possible. It's more likely that there are other
15 photos that are not Momoko that it shows those are
16 Momoko and those are not Momoko.

17 Q So if there are other photos of people who
18 are not Momoko clicked, selecting show all photos
19 would then show those people?

20 A It should.

21 Q And --

22 A Is my understanding of the disclosure.

1 Q And then the flip side of that would be
2 deselecting the show all photos would remove
3 photos that are not similar to Momoko, right?

4 A Perhaps. I -- I don't see an explicit
5 disclosure and deselection. Again, I don't have
6 this memorized. So if you want to take me to the
7 spot that talks about deselecting something, I'm
8 happy to look.

9 Q Is it your opinion that you -- is it your
10 opinion sitting here today that you don't know
11 what would happen if a user deselected the show
12 all photos button?

13 A I don't have that disclosure in my memory
14 right now. So you'd have to take me to the
15 relevant portion.

16 Q Well, sitting here today as a person of
17 ordinary skill in the art viewing Figure 6,
18 deselecting -- and you testified earlier that
19 selecting show all photos shows other people other
20 than Momoko. The flip side of that is deselecting
21 show all photos would not show people other than
22 Momoko, right?

1 MR. JAVED: Objection; form.

2 A I -- that's the flip side part of it. I'm
3 not -- I don't have a basis to say one way or the
4 other because it's not clear that you can deselect
5 these -- these buttons. Maybe you can; maybe you
6 can't. I don't have the -- so many references in
7 this case, I don't have all them memorized.
8 You'll have to point me to the relevant portion
9 that states these.

10 Q We discussed earlier that in Nagaoka, a
11 user can drag and drop a face page from the
12 unknown display window portion 406 to the model
13 display window portion 408, right?

14 A I believe so, yes.

15 Q And just to ask that a different way, you
16 agree that Nagaoka provides that a user can drag
17 and drop a face image from the unknown display
18 window portion 406 to the unknown display portion
19 408, correct?

20 A I would say that users can drag and drop
21 one or more sorted unknown faces from the unknown
22 display window portion 406 into the model display

1 window portion 408.

2 Q And you put the word "sorted" in your
3 answer there, but you'd agree that if the person
4 folder is empty, then the sorting process has not
5 taken place yet, right?

6 A Correct.

7 Q So you would agree that Nagaoka provides
8 that a user can drag and drop the face image from
9 the unknown display window portion 406 to the
10 model display window portion 408, right?

11 A I agree that the users drag and drop one
12 or more faces from the unknown display window
13 portion 406. There would be model window
14 portion 408.

15 Q So in Figure 6, there are two face images
16 in model display window portion 408, correct?

17 A Give me one second, Figure 6.

18 I see two faces in 408.

19 Q So you'd agree that the user dragged and
20 dropped these two face images from 406 to 408?

21 A I believe so, yes.

22 Q So the user selected these two images to

1 add to the Momoko person folder, right?

2 A Selected these two faces, correct.

3 Q So these two face images in 408 are a
4 collection of the user-selected images, right?

5 A Collection of user-selected faces.

6 Q I'm sorry. Let me ask that again.

7 So you would agree that the two face
8 images in 408 are a collection of user-selected
9 face images, right?

10 A I would agree that these are -- what's in
11 408 are user-selected faces.

12 By the way, Counsel, I think we've been
13 going over an hour again since the last break. If
14 we could take another break when convenient, I
15 think we should.

16 Q Just give me a few more minutes.

17 A Sure.

18 Q Can you please turn to Figure 2?

19 A Okay.

20 I'm sorry. Yeah, I'm there.

21 Q And you see the media organizing control
22 unit 38, right?

1 A Right.

2 Q And do you see right above that where it
3 says user input?

4 A Yes.

5 Q So user input goes directly to the media
6 organizing control unit, right?

7 A Correct.

8 Q And then the media organizing control unit
9 responds to the user input?

10 A Where do you find that disclosure?

11 Q From Figure 2, right?

12 A It doesn't say anything about responding
13 to the user input. It says reviewing input from
14 the user. What it does with it, if there is
15 disclosure, you'd have to show me.

16 Q When a user selects a face image to add to
17 a person folder, the media organizing control unit
18 receives that input, right?

19 A Presumably.

20 Q And then the media organizing control unit
21 38 sends that user selection to the face
22 recognition unit so the face recognition unit can

1 apply face recognition, right?

2 A At what stage? Once the user drags into
3 the -- let's say the Momoko folder? It's only
4 after that the recognition would happen.

5 Q So after the dragging and dropping, the
6 media organizing control unit 38 sends the drag
7 and dropped image -- or it sends the drag and drop
8 selection input to the face recognition unit so
9 the face recognition unit can apply facial
10 recognition, right?

11 A It would send some information, sure, so
12 the face recognition unit can do its job.

13 MR. MIDDLETON: All right. We can take a
14 break. Can we go off the record?

15 (A recess was taken.)

16 BY MR. MIDDLETON:

17 Q Doctor, I'm dropping what's been marked as
18 Exhibit 1008 in the chat. Let me know when you
19 have it open.

20 (E Exhibit 1008 was marked for
21 identification and is attached to the transcript.)

22 A Okay. I have it open.

1 Q Can you please turn to Paragraph 48?

2 A Okay.

3 Q And this says, The contents --

4 A Actually, give me a moment, please, to
5 read it, please.

6 Q Of course.

7 A Thank you.

8 Okay.

9 Q So here this says, The contents assisted
10 management system one is able to process various
11 digital contents such as music data and image
12 data.

13 Right?

14 A Yes.

15 Q So you would agree that Watanbe disclosed
16 music data, right?

17 A Music data, correct.

18 Q And you would agree that Watanabe, by its
19 own words, is not limited to music data, correct?

20 A I think that's correct, although all of
21 the examples are placed on music data.

22 Q And you would agree that Watanabe

1 discloses that systems is able to process image
2 data, correct?

3 A In this paragraph, correct.

4 Q Can you please turn to Paragraph 167?

5 A 167?

6 Q Yes.

7 A Okay.

8 Q And I'll give you a moment to read it.

9 A Yes. I read it.

10 Q This says that, Note that, in the above
11 embodiment, audio data is recorded and reproduced;
12 however, image data of movies or the like (moving
13 images) can be recorded and reproduced.

14 Do you see that?

15 A I do.

16 Q So in the above embodiment, you would
17 agree that the examples used are audio data,
18 right?

19 A In the embodiment, correct.

20 Q However, you'd agree that by its own
21 words, Watanabe is not limited to audio data,
22 right?

1 A That's what it says, but it doesn't give
2 any examples of any of the embodiments without --
3 with anything but audio.

4 Q And you would agree that Watanabe
5 disclosed recording and reproducing image data,
6 right?

7 A It says that image data and the like can
8 be recorded and reproduced. I'm not sure that's a
9 disclosure. It's kind of qualified in the later
10 paragraphs.

11 Q So you would agree that Watanabe
12 contemplates that its embodiments can be used with
13 image data, movies or the like, moving images,
14 that can be recorded and reproduced.

15 A I can't agree with the way you phrased
16 that.

17 Q I'm sorry. You said you disagree with the
18 way I phrased that?

19 A That's correct.

20 Q And you agree that Watanabe says that the
21 above embodiment -- that in the above
22 embodiment -- let me restart that.

1 You would agree that Watanabe says that in
2 the above embodiment, image data can be used,
3 correct?

4 A I disagree. It doesn't.

5 Q You would agree that Watanabe says, In the
6 above embodiment, image data of movies and the
7 like can be recorded and reproduced, correct?

8 A I disagree. It does not say that.

9 Q It does not say that in Paragraph 167?

10 A No, it does not.

11 Q It's your opinion that in -- it's your
12 opinion that Watanabe does not disclose using
13 image data of movies or the like?

14 A That is not correct.

15 Q So you would agree that Watanabe discloses
16 image data of movies or the like, correct?

17 A I would say that Watanabe, in this -- in
18 this Paragraph 167, contemplates or authorizes the
19 image data of movies or the like can be recorded
20 or reproduced. It does not say that that can be
21 done within that embodiment, which is focused on
22 data.

1 Q I just uploaded to the chat what's been
2 premarked as Exhibit 2017.

3 (Exhibit 2017 was marked for
4 identification and is attached to the transcript.)

5 Q Can you let me know when you have that up?

6 A Yes. I'm downloading it.

7 Okay. I have it up.

8 Q Can you please let me know -- sorry.
9 Scratch that.

10 This is a declaration you submitted in
11 this IPR proceeding, right.

12 A It appears to be correct.

13 Q You wrote this declaration?

14 A In part, yes.

15 Q Do you consider this declaration to
16 accurately describe your opinions in your words?

17 A Not all of my words. Some of the legal
18 sections -- some legal concepts were explained to
19 me, but in terms of the substantive analysis, yes.

20 Q And everything in the declaration is true
21 and accurate to the best of your knowledge?

22 A Correct.

1 Q Can you turn to Paragraph 59 of your
2 report?

3 A And here you offer --

4 A Sorry, sorry. I've not finished --

5 Q I'm sorry, I'm sorry.

6 A Still scrolling.

7 A Okay. Yeah. I've found 59. Thank you.

8 Q And would you like a moment to read it?

9 A Sure. Thank you. Give me a second.

10 A Yes. Okay.

11 Q So here you offer construction for the
12 retrieve and retrieval terms, right?

13 A Not offering construction. Just saying
14 this is what the plain and ordinary meaning is.

15 Q Okay. So in this paragraph, you give your
16 opinion of what the plain and ordinary meaning of
17 retrieve and retrieval is, right?

18 A Yes.

19 Q And in this paragraph, you say that the
20 plain and ordinary meaning of retrieve and
21 retrieval is to extract a subset of items (i.e.,
22 candidate programs meeting a specific condition)

1 from a set of stored items (i.e., all programs
2 stored in the recording medium).

3 Right?

4 A Yes.

5 Q So for the first part of your plain and
6 ordinary meaning where it says to extract a subset
7 of items (i.e., candidate programs meeting a
8 specific condition), for that parenthetical, the
9 i.e. candidate programs meeting a specific
10 condition, is that -- is that an example of
11 extracting a subset of items, or is that part of
12 the plain and ordinary meaning?

13 A Well, I think that would be application of
14 what extracting a subset of items means in the
15 context of this patent, in the specification.

16 Q Okay. So candidate programs meeting a
17 specific condition is one exemplary application of
18 extracting a subset of items?

19 A Well, I think it is candidate programs
20 meeting a specific condition. So extracting a
21 subset, that subset would be determined based on
22 meeting the specific condition. So it -- I don't

1 see another way in the context of that how an
2 extraction would happen otherwise without meeting
3 a specific condition.

4 Q Okay. So your plain and ordinary meaning
5 of retrieve and/or retrieval includes that a
6 candidate program must meet a specific condition?

7 A In order to do the extraction, yes.

8 Q Okay. And for the second part of your
9 plain and ordinary meaning, you say, A set of
10 stored items (IE, all programs stored in the
11 recording medium).

12 A Yes.

13 Q And same question: That IE, all programs
14 stored in the recording medium, is that all -- is
15 that part of your plain and ordinary meaning, or
16 is that just an example?

17 A With a set of stored items, I mean, it's
18 possible -- everything in that set, that's what I
19 mean by IE. So it wouldn't be from a subset of
20 stored items. If I have a set of stored items,
21 all the items in that set would have to be --
22 would have to be considered.

1 So I think maybe to clarify this, there
2 could be other things that are not -- that are on
3 the recording medium but may not be part of that
4 set of stored items that is being searched, and
5 those other things obviously would be part of the
6 set of stored items. But for this set of stored
7 items where retrieval is happening from, then it
8 must be all items in that set of stored items that
9 need to be taken into consideration.

10 Hopefully that clarifies things, not make
11 it more muddy.

12 Q Your -- your definition -- sorry.

13 Your plain and ordinary meaning of
14 retrieve/retrieval includes extracting a subset of
15 items from all items in a specific set of stored
16 items?

17 A Yes. Or maybe -- I'm not sure specific is
18 necessary there. All items from a set of stored
19 items.

20 Q Your plain and ordinary meaning of
21 retrieve/retrieval includes extracting a subset of
22 items from all items except stored items?

1 A Yes. I'm not sure of your question.
2 Maybe you should rephrase that. I think you put
3 in the word "includes." I'm not sure why you did
4 that. I would just say my plain and ordinary
5 meaning -- my understanding of the plain and
6 ordinary meaning based on the specification of
7 retrieval/retrieval is to extract a subset of
8 items from a set of stored items, and that -- you
9 have to consider all of the items stored in that
10 set of stored items.

11 Q And your plain and ordinary meaning is
12 that the set of stored items is all programs
13 stored in the recording medium?

14 A For that set. I could -- there could be
15 other things stored in the recording medium, but
16 it's not part of that set. That wouldn't -- that
17 wouldn't -- and those other things would not be
18 relevant.

19 Q So a set of stored items is all programs
20 stored in the recording medium in that set?

21 A Or for that set, correct.

22 Q So your plain and ordinary meaning of

1 retrieving and retrieval is that you must extract
2 a subset of items from items stored in a recording
3 medium?

4 A From a set of items stored in the
5 recording medium, yes.

6 Q And by use of the words "a subset," do you
7 mean that fewer than all items are extracted from
8 a set of stored items?

9 A Not necessarily. A subset could be
10 equal -- so if all of the items meet the specifics
11 of the condition, then the subset would be equal
12 to the set, the full set, but it could be less
13 than the full set.

14 Q Okay. So your plain and ordinary -- plain
15 and ordinary meaning is that a subset can include
16 all items if the condition is met?

17 A Sure.

18 MR. MIDDLETON: No further questions.

19 MR. JAVED: Could we go off the record?

20 (A recess was taken.)

21 MR. JAVED: No further questions from me.

22 Thank you.

1 (Off the record at 1:17 p.m.)

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1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

2 I, Brooklyn E. Schweitzer, Registered
3 Professional Reporter and Notary Public in and for
4 the Commonwealth of Pennsylvania, do hereby
5 certify:

6 That RAVIN BALAKRISHNAN, Ph.D., the witness
7 whose deposition is hereinbefore set forth, was
8 duly sworn by me before the commencement of such
9 deposition and that such deposition was taken
10 before me and is a true record of the testimony
11 given by such witness.

12 I further certify that the adverse party,
13 PATENT OWNER, was represented by counsel at the
14 deposition. I further certify that the deposition
15 of RAVIN BALAKRISHNAN, Ph.D., occurred virtually on
16 July 23, 2026, commencing at 10:03 a.m. to 1:17 p.m.

17 I further certify that I am not related to
18 any of the parties to this action by blood or
19 marriage, I am not employed by or an attorney to
20 any of the parties to this action, and that I am
21 in no way interested, financially or otherwise, in
22 the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my
hand this 26th day of July, 2026. My commission
expires: May 20, 2030.



NOTARY PUBLIC IN AND FOR THE
COMMONWEALTH OF PENNSYLVANIA

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