

MAXELL, LTD.,) ()
 PLAINTIFF,) (CIVIL ACTION NO.
) (5:23-CV-92-RWS
 VS.) (TEXARKANA, TEXAS
) ()
 SAMSUNG ELECTRONICS CO., LTD.,) ()
 and SAMSUNG ELECTRONICS) (MAY 21, 2025
 AMERICA, INC.,) (8:52 A.M.
 DEFENDANTS.) ()

VOLUME 3

FOR PLAINTIFF:

Mr. Jamie B. Beaber
Mr. Kfir B. Levy
Mr. James A. (Tripp) Fussell, III
Mr. Saqib J. Siddiqui
Mr. Bryan C. Nese
Mr. Michael L. Lindinger
Ms. Tiffany A. Miller
Mr. Tariq Javed
Mr. Seth W. Bruneel
Mr. Séké G. Godo
Mayer Brown LLP
1999 K Street NW
Washington, DC 20006

Mr. Geoffrey P. Culbertson
Mr. Kelly Tidwell
Patton Tidwell & Culbertson, LLP
2800 Texas Boulevard
Texarkana, TX 75503

1 FOR DEFENDANTS:

Ms. Melissa R. Smith
Gillam & Smith LLP
102 N. College
Suite 800
Tyler, TX 75702

Mr. Mark D. Fowler
DLA Piper LLP (US)
3203 Hanover Street
Suite 100
Palo Alto, CA 94304

Mr. Sean C. Cunningham
Ms. Erin P. Gibson
DLA Piper LLP (US)
401 B Street
Suite 1700
San Diego, CA 92101

Ms. Paulina Starostka
DLA Piper LLP (US)
444 West Lake Street
Suite 900
Chicago, IL 60606

14 COURT REPORTER:

Ms. Shelly Holmes, CSR, TCRR
Official Court Reporter
Honorable Robert W. Schroeder III
United States District Judge
Eastern District of Texas
Texarkana Division
500 North State Line Avenue
Texarkana, TX 75501
(903) 794-1018
shelly_holmes@txed.uscourts.gov

(Proceedings recorded by mechanical stenography, transcript
produced on a CAT system.)

P R O C E E D I N G S

(Jury out.)

COURT SECURITY OFFICER: All rise.

THE COURT: Good morning, everyone. I've neglected to give the parties an opportunity to move exhibits into evidence. And I don't know -- I know that all of our jurors are here, so we're ready to go. But if you all want to do that now, we can do that now.

Ms. Miller?

MS. MILLER: Your Honor, we're prepared to do so.

THE COURT: I assumed that you were responsible for that, Ms. Miller, and I was confident you were on top of things.

MS. MILLER: So may we proceed with that?

THE COURT: Please.

MS. MILLER: Thank you, Your Honor.

The parties -- we have met and conferred and agreed about the exhibits that have been admitted into evidence through Mr. Yamamoto and so far, through Dr. Wobbrock.

Those exhibits are PX-3, 5, 6, 15, 17, 18, 19, 20, 22, 24, 29, 30, 31, 32, 33, 350, 419, 420, 422, 451, 41, 47, 48C, 50, 51, 52, 53, 56, 61, 68, 315, 316, and DTX-5, 6, 8, 132.36, 242, 243, 244, and 245.

THE COURT: All right. And all of those exhibits

08:54:21 1 were admitted either without objection or over objection;
08:54:26 2 is that correct?

08:54:26 3 MS. MILLER: That is correct.

08:54:27 4 THE COURT: All right.

08:54:28 5 And who for the Defendant is speaking on exhibits?

08:54:31 6 MS. GIBSON: Your Honor, we agree.

08:54:32 7 THE COURT: All right. Very good. Those are
08:54:34 8 admitted and accepted then.

08:54:35 9 Anything else we need to discuss before we have
08:54:37 10 the jury brought down?

08:54:39 11 MR. BEABER: Not from Plaintiffs, Your Honor.

08:54:40 12 THE COURT: Anything from Defendant?

08:54:42 13 MR. FOWLER: No, Your Honor.

08:54:44 14 THE COURT: Okay. Mr. Savage, if you would have
08:54:47 15 the jury brought down.

08:54:48 16 If we could get the witness back.

08:54:51 17 (Jury in.)

08:55:14 18 THE COURT: Please be seated.

08:56:50 19 Good morning, ladies and gentlemen of the jury.

08:56:56 20 Welcome back. I hope you all had a pleasant evening.

08:56:59 21 I appreciate your being here promptly so that we
08:57:02 22 can start on time.

08:57:05 23 I do want to make a brief comment about the
08:57:09 24 temperature in the courtroom. It did get unseasonably warm
08:57:16 25 here yesterday afternoon. This is a beautiful courtroom,

08:57:21 1 but we struggle with the difficulty of some of a 1933
08:57:28 2 courthouse's limitations.

08:57:30 3 So getting the balance is -- right is sometimes
08:57:36 4 difficult. It's either too cold in here in the morning and
08:57:38 5 nice in the afternoon or right in the morning and too hot
08:57:43 6 in the afternoon. So we're going to lower the temperature
08:57:47 7 a little bit so hopefully it will be better this afternoon.

08:57:50 8 All right. At this time, Mr. Nese, you may
08:57:53 9 continue your direct examination.

08:57:56 10 MR. NESE: Thank you, Your Honor. Once again, I
08:57:58 11 respect we're going to fairly quickly get to Samsung
08:58:01 12 confidential information. Would it make sense to seal the
08:58:04 13 courtroom at this time?

08:58:05 14 THE COURT: Yes, I do think we unsealed it at the
08:58:08 15 end of the day yesterday.

08:58:09 16 So we will seal the courtroom at this time.
08:58:11 17 Anyone not subject to the protective order will need to
08:58:13 18 excuse themselves at this time.

08:58:15 19 (Courtroom sealed.)

08:58:20 20 (This portion of the transcript is sealed.

08:58:20 21 and filed under separate cover as

10:04:22 22 Sealed Portion No. 6.)

10:04:22 23 (Courtroom unsealed.)

10:05:05 24 MR. CUNNINGHAM: And, Your Honor, I neglected
10:05:06 25 beforehand -- I want to mark this drawing as DDX-8.

10:05:11 1 THE COURT: All right. Very well. It'll be
10:05:13 2 received.

10:05:15 3 Q. (By Mr. Cunningham) All right. So we have a set of
10:05:17 4 definitions on the screen, and this comes from that
10:05:20 5 fingerprint specification. And, by the way, this is a
10:05:22 6 Samsung-authored document, right?

10:05:23 7 A. That's right. And if I might ask, since this is marked
10:05:24 8 with a Defense exhibit number, can I get my Plaintiff's
10:05:28 9 exhibit equivalent --

10:05:28 10 Q. Absolutely.

10:05:29 11 A. -- in front of me?

10:05:31 12 Q. Absolutely.

10:05:31 13 A. That would be helpful. And those were moved actually,
10:05:33 14 I think, to the corner because I don't have enough room.

10:05:34 15 Q. This document is in the ones you -- the new ones you
10:05:36 16 have from us.

10:05:38 17 A. Okay. I appreciate that. My brain is mapped to the
10:05:42 18 numbers that we have.

10:05:42 19 Q. Absolutely. Absolutely. I want --

10:05:43 20 A. Thank you.

10:05:44 21 Q. -- I want to get through this, so that's great.

10:05:46 22 A. And what number is that?

10:05:50 23 MR. NESE: I believe it's PX-45.

10:05:52 24 THE WITNESS: 45. Thank you. I just want to make
10:05:54 25 sure I'm looking at the right stuff here.

10:05:58 1 MR. CUNNINGHAM: Absolutely.

10:05:59 2 THE WITNESS: Thank you. One second. Right.

10:06:08 3 Okay. All right. Thank you.

10:06:09 4 MR. CUNNINGHAM: Yeah, of course.

10:06:11 5 Q. (By Mr. Cunningham) So Section 1.2.2 has a number of
10:06:14 6 definitions. The one right in the middle is a definition
10:06:17 7 of template. You see that?

10:06:19 8 A. I do.

10:06:20 9 Q. And it says that it's a data format of an extracted
10:06:27 10 biometric features from a captured fingerprint image.

10:06:29 11 You see that?

10:06:30 12 A. I do.

10:06:31 13 Q. And before we get into what all of that means, I just
10:06:35 14 want to confirm that when the phone captures a fingerprint
10:06:39 15 image in that registration process, it is stored as a
10:06:44 16 template, right? The fingerprint image is stored as a
10:06:47 17 template?

10:06:47 18 A. That -- the image is captured, and then features are
10:06:51 19 extracted, and those are stored as a template.

10:06:53 20 Q. Okay. And those features that are extracted from your
10:06:56 21 fingerprint are stored as data, like all things are stored
10:06:59 22 as data?

10:06:59 23 A. Right. I mean, the image itself is data. But the
10:07:02 24 template is kind of an abstracted form of that data, and so
10:07:09 25 it would be composed of, you know, symbols and things that

10:07:11 1 are stored inside the computer.

10:07:13 2 Q. All right. And -- and so according to this definition,
10:07:17 3 a stored template -- a template that is stored in your
10:07:22 4 phone is for a single fingerprint, right?

10:07:25 5 A. An entire template is -- is built that represents a
10:07:32 6 fingerprint.

10:07:33 7 Q. All right. So let me ask again, because I want to make
10:07:36 8 sure we have this right.

10:07:37 9 One template for one fingerprint, yes?

10:07:41 10 A. One template should represent one fingerprint, not one
10:07:46 11 image, right? Not one single capture.

10:07:49 12 Q. I understand.

10:07:50 13 A. I just want to make sure we're clear on that.

10:07:52 14 Q. The total fingerprint image of my index finger, right?
10:07:56 15 When I'm done registering, I've done all the lifts and
10:08:00 16 presses that I'm going to do, it's at a hundred percent,
10:08:03 17 right, the phone is happy, it's registered my fingerprint,
10:08:05 18 that is a template? One template, one fingerprint?

10:08:06 19 A. That becomes a template, that's right.

10:08:09 20 Q. Now, I want to turn to the diagram that you reviewed
10:08:18 21 with your counsel on Page 13.

10:08:20 22 MR. CUNNINGHAM: And if you could just blow up
10:08:23 23 from Figure 9 and roll diagram up to the orange boxes at
10:08:29 24 the top.

10:08:31 25 Q. (By Mr. Cunningham) Okay. So you called this a flow

10:08:33 1 diagram during your testimony, right?

10:08:35 2 A. Yes, software -- software process flow, essentially.

10:08:38 3 Q. Right. And so -- as what you just said would suggest,
10:08:43 4 this is a diagram showing how the underlying software is
10:08:46 5 actually working, right?

10:08:47 6 A. A portion of the software, certainly not the whole
10:08:49 7 thing.

10:08:50 8 Q. Understood. Understood.

10:08:51 9 A. Yeah.

10:08:51 10 Q. But this does show how, at a -- at a higher level of
10:08:55 11 the abstraction, how the fingerprint registration process
10:08:59 12 works on the S23?

10:09:00 13 A. A portion of it, yes.

10:09:05 14 Q. Okay. And this is what software engineers call an
10:09:08 15 algorithm, true?

10:09:08 16 A. That's right.

10:09:09 17 Q. Okay. So it's literally a series of steps, and -- and
10:09:11 18 you can see -- or at least I can see the series of steps
10:09:16 19 along the left edge from 1 to 14, right? And there's --
10:09:19 20 there's others inside, but I'm going to focus on those ones
10:09:22 21 on the left for the moment.

10:09:24 22 You see those?

10:09:25 23 A. Yes, I do.

10:09:27 24 Q. Okay. And Nos. 1 and 2 there are open device and
10:09:32 25 device power on. There's been some confusion, I think, at

10:09:36 1 least with me, but the device power on, that's the -- the
10:09:40 2 fingerprint sensor device powering on, right, it's not the
10:09:44 3 phone?
10:09:44 4 A. That's correct.
10:09:45 5 Q. Okay. All right. So -- so at some point, you press
10:09:49 6 the thing, the fingerprint sensor comes alive, you're at
10:09:52 7 Step 2, right?
10:09:54 8 A. I'm sorry. I missed that last part.
10:09:56 9 Q. You -- you -- you indicate a desire to register a
10:10:00 10 fingerprint. The fingerprint sensor powers itself on, that
10:10:04 11 little sensor underneath the screen?
10:10:06 12 A. Yes. You might recall in my other slides, I showed
10:10:11 13 that in an enroll stub that's on here, that's when things
10:10:17 14 are starting to get warmed up and ready to capture.
10:10:20 15 Q. Okay. I'm just -- I'm literally asking you if "device
10:10:23 16 power on" means fingerprint sensor comes on?
10:10:26 17 A. Yes.
10:10:26 18 Q. All right. Now, Step 3 through 13 are the finger --
10:10:35 19 showing the fingerprint being captured, is that right, or
10:10:38 20 at least a portion of the fingerprint?
10:10:39 21 A. The capture portion is not all the way to 13, no.
10:10:51 22 Q. Okay. That's fair. That's fair. Where does it end,
10:10:55 23 ENROLL_SUCCESS, 10?
10:10:59 24 A. Actually, 8 would be the end of the capturing aspect.
10:11:03 25 And the ENROLLMENT_SUCCESS is when we're done with the

10:11:08 1 whole process.

10:11:09 2 Q. Okay. So -- so let's go back up to Step 5 and make
10:11:12 3 sure we've got this right.

10:11:15 4 Step 5 says: Finger down interrupt triggered.
10:11:19 5 That's when someone puts their finger on -- in the circle,
10:11:21 6 right?

10:11:21 7 A. That's when their finger goes down on the sensor.

10:11:25 8 Q. Okay. And Steps 11 and 12 are waiting finger up
10:11:31 9 interrupt and finger up event triggered. That's when
10:11:36 10 somebody lifts their finger back up, right?

10:11:39 11 A. Yes, that's correct.

10:11:46 12 Q. Okay. And then there's a big orange line that goes
10:11:52 13 around -- you know, above Step 3 to below Step 13, and
10:11:57 14 there's a reference in the upper left there to loop.

10:12:02 15 See that?

10:12:02 16 A. Yes, that's correct.

10:12:03 17 Q. Okay. And so that means -- that loop is intended to
10:12:09 18 mean that these steps repeat over and over until the
10:12:14 19 fingerprint registration process is complete. That's what
10:12:17 20 "loop" means, right?

10:12:18 21 A. Yeah, that loop refers similarly to moving through that
10:12:22 22 registering process that I drew up on the --

10:12:25 23 Q. So the answer to my question is yes?

10:12:29 24 A. I started by saying "yes."

10:12:30 25 Q. All right. And so each time a user puts their finger

10:12:33 1 down on the display, on the fingerprint sensor, the S23 is
10:12:36 2 running through this set of steps, fair?

10:12:49 3 A. Yes, I think that is fair.

10:12:52 4 Q. All right. And so the process, as we saw, you pick --
10:12:58 5 you put your finger down, you pick it up, put your finger
10:13:03 6 down, pick it up, put your finger down, pick it up, the
10:13:05 7 process repeats or loops until the phone has a complete
10:13:08 8 template of somebody's fingerprint?

10:13:12 9 A. Just give me one moment, if you would.

10:13:58 10 Okay. If you could repeat your question, please?

10:14:01 11 Q. Boy, I don't know. Let me see.

10:14:04 12 Okay. The process that we're showing here repeats
10:14:06 13 or loops until the phone has a complete template of
10:14:09 14 somebody's fingerprint?

10:14:10 15 A. Yes, that's correct.

10:14:12 16 Q. All right. And we established before that it creates
10:14:17 17 one template for one fingerprint, right?

10:14:19 18 A. Yes.

10:14:22 19 Q. Okay. And -- and you've said before, sir, and I
10:14:25 20 thought I heard you suggest something a little different
10:14:28 21 during your direct examination, that this figure that we're
10:14:31 22 looking at, Figure 9, doesn't indicate particular parts of
10:14:35 23 the finger that are being captured.

10:14:37 24 Do I have that right?

10:14:38 25 A. It doesn't say the -- the anatomical parts of the

10:14:46 1 finger, like the pad or the tip.

10:14:47 2 Q. Or the left end or the right end or the back end,

10:14:50 3 right?

10:14:50 4 A. Or the edges.

10:14:52 5 Q. Okay. And so, to be clear, the figure that we're

10:14:54 6 looking at that describes the registration process does not

10:14:58 7 specify finger ends, fingertips, finger pads, finger edges,

10:15:06 8 right?

10:15:06 9 A. It does not say those words, no.

10:15:09 10 Q. All right. And so what we have here, sir, is a single

10:15:13 11 algorithm, 14 steps, to make one template for one

10:15:19 12 fingerprint, true?

10:15:22 13 A. Not quite 14 steps because of the looping aspects, but,

10:15:27 14 yeah, this makes a -- this makes a template for a

10:15:29 15 fingerprint.

10:15:30 16 Q. All right. I have nothing further. Thank you, sir.

10:15:34 17 THE COURT: Redirect?

10:15:52 18 Mr. Nese, you might pull the microphone.

10:15:54 19 MR. NESE: Thank you for the reminder, Your Honor.

10:15:56 20 I surely would have forgotten.

10:16:04 21 REDIRECT EXAMINATION

10:16:05 22 BY MR. NESE:

10:16:05 23 Q. Professor Wobbrock, do you remember Mr. Cunningham

10:16:08 24 asking you questions about Ms. Etters' videos of the

10:16:13 25 testing that you conducted on the device?

10:16:15 1 A. I remember.

10:16:16 2 Q. And I remember that Mr. Cunningham counted 10 or 13 or
10:16:19 3 so misfires, let's call them, of trying to touch the sensor
10:16:23 4 with the tip of the finger. Do you recall those questions?

10:16:25 5 A. I recall those questions, yes.

10:16:26 6 Q. Did the testing videos that you saw and you showed the
10:16:30 7 jury and did your own testing of the device eventually
10:16:33 8 accept input from the tip of the finger?

10:16:36 9 A. Yes, it did.

10:16:37 10 Q. Does the claim say you have to get it right on the
10:16:40 11 first try?

10:16:41 12 A. No, it doesn't.

10:16:43 13 Q. You mentioned earlier during that line of questioning
10:16:47 14 that there were a few reasons why the device may not accept
10:16:52 15 a finger input. Do you recall that?

10:16:54 16 A. Yes.

10:16:55 17 Q. And I don't believe you were given the opportunity to
10:16:57 18 explain that. Would you like to explain what those reasons
10:17:00 19 are to the folks on the jury, please?

10:17:02 20 A. Sure. I mean, there's a few reasons why any given
10:17:06 21 touch might not be accepted besides the mode question of,
10:17:10 22 has it seen that part before or not?

10:17:14 23 For example, it needs a sufficient minimum area of
10:17:18 24 the finger. And Ms. Etters' fingertip might be a little
10:17:25 25 smaller than mine, for example, and so it also could be

1 that she didn't apply sufficient pressure on some of those
2 touches.

3 If you press down more, there's more of your
4 finger that kind of squishes out. If you touch it a little
5 too lightly, it might not kind of squish out enough.

6 So there's a number of checks in the software to
7 make sure it's getting a kind of set of minimums that it
8 wants.

9 But none of those are saying, oh, it's a
10 fingertip, I can't -- I can't take this, you know.

11 Q. Was the testing video that you showed the jury and
12 Mr. Cunningham was walking through with you, was that the
13 only evidence that you saw of the first and second
14 registering modes?

15 A. No. No.

16 Q. What other evidence did you see, just briefly,
17 categorically?

18 A. Of the first and second registering mode?

19 Q. Yes, sir.

20 A. Yeah. Well, my own testing, which was more thorough
21 than the videos, and -- and the source code I mentioned.
22 We saw where it may successfully enroll or -- or not
23 enroll. Doing this from memory now.

24 But the -- the fact that the user interface --
25 excuse me -- the user interface itself wants the finger to

1 have a complete scan, and so for that reason, it moves that
2 little fingerprint target around so that you get, you know,
3 the fuller picture of the finger.

4 I mean, those are just some of the examples of how
5 you see it wanting the first and second registering modes
6 for pads and ends.

7 Q. Now, Mr. Cunningham was also asking you about the
8 software process flow diagram in Plaintiff's Exhibit 45,
9 Page 13. Is that -- do you remember those questions, sir?

10 A. Yes.

11 MR. NESE: And, Mr. Ebersole, could we bring up
12 Page 13 of Plaintiff's 45, please? Thank you, sir.

13 Q. (By Mr. Nese) Mr. Cunningham was asking you questions
14 about the loop here shown on this diagram. Do you recall
15 that?

16 A. Yes.

17 Q. Once again, how many times approximately would this
18 loop repeat itself here on Page 13 of Plaintiff's 45?

19 A. It depends on how many times the user presents a new
20 part of their finger to progress through those -- those
21 modes of the registering process or the repeated part of
22 their finger that it's already seen. But it could be 8,
23 12, something like that, times through.

24 Q. And would one of the times that this process repeats
25 allow for the input of information with the pad of a

10:19:57 1 finger?

10:19:57 2 A. Yeah, sure.

10:19:59 3 Q. And would one of those times that this process repeats
10:20:04 4 allow for the input of the tip or an end of the finger?

10:20:08 5 A. Yes. As I showed in my videos, absolutely.

10:20:10 6 Q. Does this document show that the S23 device provides
10:20:13 7 for both of those modes, even though it's one loop
10:20:15 8 repeating multiple times?

10:20:17 9 A. Yes, it provides for both of those.

10:20:20 10 Q. Mr. Cunningham also asked you questions about whether
10:20:22 11 the words "finger pad" or "finger end" or any part of the
10:20:27 12 anatomy of a finger are found on this page of Plaintiff's
10:20:31 13 Exhibit 45. Do you remember those questions?

10:20:33 14 A. I remember those questions, yes.

10:20:35 15 Q. Does the device need to indicate anywhere on this page
10:20:45 16 what part of the finger to input in order to show you that
10:20:48 17 the device will accept both the pad and an end of a finger?

10:20:52 18 A. No, it doesn't. It doesn't say finger end or tip. It
10:20:57 19 also doesn't say finger pad. That's not what this diagram
10:21:01 20 is trying to show. It's not talking about the human
10:21:03 21 anatomy here.

10:21:05 22 Q. Does the fact that the engineer who wrote this document
10:21:07 23 decided not to describe any of the human anatomy on this
10:21:10 24 page at all change your opinions about infringement of
10:21:13 25 Claim 1 of the '086 patent by this S23 device?

10:21:16 1 A. No, it doesn't.

10:21:17 2 Q. Why not?

10:21:18 3 A. Because that's not the purpose of this document. This
10:21:21 4 document is not talking about, you know, human anatomy,
10:21:25 5 like I said, which part of the finger and so on. But it
10:21:28 6 does show that some touches of the finger will be accepted
10:21:32 7 and some will be rejected.

10:21:36 8 And so we can see a basis for progressing through
10:21:39 9 the modes versus just looping and staying in the same mode
10:21:42 10 that we have been in before.

10:21:44 11 Q. Thank you.

10:21:45 12 MR. NESE: I pass the witness, Your Honor.

10:21:47 13 THE COURT: Recross?

10:21:48 14 MR. CUNNINGHAM: No, Your Honor.

10:21:48 15 THE COURT: You may step down.

10:21:52 16 Okay. At this time, ladies and gentlemen of the
10:21:54 17 jury, we'll take our morning recess.

10:21:56 18 Don't discuss the case among yourselves. Don't
10:21:58 19 allow it to be discussed in your presence. Don't do any
10:22:02 20 independent research or investigation into the case. And
10:22:05 21 don't post anything about your involvement as a juror on
10:22:08 22 any social media website or app.

10:22:11 23 We'll be back in about 15 minutes.

10:22:14 24 COURT SECURITY OFFICER: All rise.

10:22:16 25 (Jury out.)

10:23:45 1 (Recess.)

10:31:11 2 (Jury out.)

10:35:55 3 COURT SECURITY OFFICER: All rise.

10:39:41 4 THE COURT: Mr. Savage, if you would have the jury
10:39:45 5 brought down, please.

10:40:30 6 (Jury in.)

10:40:35 7 THE COURT: Please be seated.

10:40:38 8 The Plaintiff may call its next witness.

10:40:40 9 MR. LINDINGER: Good morning, Your Honor. Michael
10:40:49 10 Lindinger on behalf of Plaintiff, Maxell.

10:40:50 11 We're going to play a couple of deposition
10:40:53 12 designations left.

10:40:54 13 The first one -- I spoke with Samsung's counsel --
10:40:58 14 we want to seal the courtroom. And then for the next one,
10:41:01 15 we'll unseal it and bring the appropriate people back in.

10:41:04 16 THE COURT: All right. The courtroom will be
10:41:06 17 sealed at this time.

10:41:07 18 How long is the first video?

10:41:09 19 MR. LINDINGER: The first witness about 15
10:41:12 20 minutes, the second video about 9 minutes.

10:41:15 21 THE COURT: And how is the first video allocated?

10:41:18 22 MR. LINDINGER: The first video, Your Honor -- the
10:41:19 23 first witness we're going to call is Mr. Youngil Shin.
10:41:23 24 Mr. Shin is a staff engineer for Samsung Electronics, and
10:41:26 25 the witness will be presented by videotaped deposition.

10:41:30 1 The time allocation for Mr. Shin is -- for Maxell,
10:41:32 2 for 14 minutes and 41 seconds. For Samsung, it is 0
10:41:37 3 minutes and 0 seconds.

10:41:44 4 THE COURT: All right. Very well.

10:41:44 5 (Courtroom sealed.)

10:41:44 6 (This portion of the transcript is sealed.

10:41:44 7 and filed under separate cover as

10:56:44 8 Sealed Portion No. 7.)

10:56:44 9 (Courtroom unsealed.)

10:56:44 10 THE COURT: Call your next witness.

10:56:46 11 MR. LINDINGER: Your Honor, Defendants call

10:56:48 12 Ms. JungHee Lee. Ms. Lee is a principal engineer for

10:56:53 13 Samsung Electronics, and the witness will be presented by

10:56:55 14 videotaped deposition.

10:56:57 15 The time allocation, Your Honor, for Maxell is 8
10:57:00 16 minutes and 46 seconds. For Samsung, it is 0 minutes and 0
10:57:04 17 seconds.

10:57:05 18 THE COURT: All right.

10:57:05 19 JUNGHEE LEE, PLAINTIFF'S WITNESS, SWORN

10:57:05 20 TESTIMONY BY VIDEOTAPE DEPOSITION

10:57:05 21 (Videoclip played.)

10:57:06 22 Q. Can you please state and spell your name for the
10:57:11 23 record?

10:57:11 24 A. My name is Lee JungHee, L-e-e, J-u-n-g-H-e-e.

10:57:22 25 Q. Where do you live, Ms. Lee?

10:57:27 1 A. I live in Seoul.

10:57:30 2 Q. Ms. Lee, are you currently employed?

10:57:33 3 A. Yes.

10:57:34 4 Q. Who is your current employer?

10:57:38 5 A. It is Samsung Electronics.

10:57:41 6 Q. So what is your job title or rank first? And then I'll

10:57:48 7 ask you what you do with that job. Does that sound good?

10:57:51 8 A. Yes. My job title is CL4, and in English, we write it

10:58:10 9 as principal engineer. And my work responsibility is I am

10:58:16 10 a software engineer.

10:58:17 11 Q. In your current role as a CL4, Ms. Lee, what group or

10:58:25 12 job responsibilities do you have?

10:58:30 13 A. I develop software.

10:58:32 14 Q. For what applications or features or functionalities do

10:58:42 15 you develop software for, Ms. Lee?

10:58:44 16 A. I develop Gallery application that go into mobile

10:58:55 17 devices.

10:58:56 18 Q. What is an auto-updating album in the Gallery

10:59:01 19 application?

10:59:01 20 A. So when you create an auto-update album, if you wish to

10:59:16 21 create an auto-update album, you may add certain

10:59:25 22 conditions, and whenever a photo that meets those

10:59:27 23 conditions are generated -- is generated inside the device,

10:59:33 24 that photo will be automatically added into the auto-update

10:59:38 25 album.

10:59:38 1 Q. What certain conditions may a user add when they create
10:59:44 2 an auto-updating album?
10:59:48 3 A. They can add the recognized faces.
10:59:56 4 Q. Do you know where the face analysis engine is
11:00:00 5 developed?
11:00:04 6 A. It is developed by the CMH team.
11:00:08 7 Q. What work did you do with the CMH team in the context
11:00:13 8 of the albums feature in the Gallery application?
11:00:16 9 A. To develop the auto-updating album, we have -- I have
11:00:27 10 worked with the CMH team on the interface.
11:00:32 11 Q. Ms. Lee, you stated that you have worked with the CMH
11:00:37 12 team on the interface in regards to developing the
11:00:43 13 auto-updating album.
11:00:43 14 My question is, what do you mean by the interface?
11:00:47 15 A. Well, by interface, it is a development terminology.
11:01:28 16 So in order to create the auto-updating album, in order to
11:01:33 17 show the screens with the conditions, we need to use the
11:01:37 18 data from the CMH database.
11:01:40 19 So the -- the act of bringing the data from CMH
11:01:48 20 database is called interface. So I don't know if this
11:01:51 21 answer your question.
11:01:53 22 Q. In your work on the Gallery application, have you heard
11:01:59 23 of the term "favorites"?
11:02:01 24 A. Yes, I have.
11:02:02 25 Q. In the context of your work on the Gallery application,

11:02:11 1 what is your understanding of favorites?

11:02:15 2 A. There is a favorite album in the Gallery tab -- the

11:02:26 3 Gallery album tab.

11:02:27 4 Q. Can a user mark a picture as a favorite in the Gallery

11:02:32 5 application?

11:02:35 6 A. Yes, the user can mark it.

11:02:38 7 Q. Can a user mark a video as a favorite in the Gallery

11:02:42 8 application?

11:02:44 9 A. Yes, the user can mark it.

11:02:46 10 Q. Please describe the process that a user marks a picture

11:02:53 11 as a favorite in the Gallery application?

11:03:07 12 A. So the user can select photos from the Gallery list --

11:03:29 13 the -- in the Gallery list, the user can select photos from

11:03:36 14 the option and click on the favorites menu.

11:03:40 15 Or in the see photo -- see each photo, or in

11:03:47 16 Korean it's (Korean language), so it's see each photo, from

11:03:57 17 that menu, the user can select the heart at the bottom, and

11:04:02 18 through that, the user can also mark the photos.

11:04:06 19 THE CHECK INTERPRETER: User can select the photo

11:04:07 20 from list of the Gallery, and then by clicking on the

11:04:13 21 option, user can see favorite menu, so click on that. Or

11:04:18 22 user can look at the photo one-by-one, and then by clicking

11:04:26 23 at the bottom of the one picture, user can use the heart

11:04:33 24 mark to tag a photo.

11:04:35 25 Q. Can a user mark a picture as a favorite by tapping on

11:04:39 1 the heart symbol? Yeah.

11:04:46 2 A. Yes, that's correct.

11:04:46 3 Q. And then if a -- if a user wanted to remove that

11:04:54 4 picture from being a favorite, does the user click on the

11:05:01 5 heart again to deselect that picture as a favorite?

11:05:05 6 A. Yes, that's correct.

11:05:07 7 Q. If a user removed a picture from the favorites folder

11:05:19 8 by clicking the heart symbol again, is that picture still

11:05:28 9 in the main Gallery list of pictures?

11:05:31 10 A. Yes, it still remains.

11:05:33 11 Q. You would agree that the Gallery application uses face

11:05:41 12 data, correct?

11:05:43 13 A. Yes, I agree.

11:05:44 14 Q. You would also agree that the auto-updating Gallery

11:05:52 15 feature in the Gallery application uses face data, correct?

11:05:56 16 A. It uses face data provided by CMH.

11:06:03 17 (Videoclip ends.)

11:06:09 18 MR. LINDINGER: Your Honor, Plaintiffs call as

11:06:11 19 their next witness Ravin Balakrishnan.

11:06:28 20 (Witness sworn.)

11:06:38 21 THE COURT: Have a seat.

11:07:00 22 RAVIN BALAKRISHNAN, PLAINTIFF WITNESS, SWORN

11:07:00 23 DIRECT EXAMINATION

11:07:02 24 BY MR. LINDINGER:

11:07:02 25 Q. Can you please introduce yourself to the jury?

11:07:05 1 A. Sure. My name is Ravin Balakrishnan.

11:07:08 2 Q. What is your profession?

11:07:09 3 A. I'm a professor of computer science at the University
11:07:13 4 of Toronto.

11:07:13 5 Q. Did you prepare a presentation to help you with your
11:07:17 6 testimony today?

11:07:17 7 A. I did.

11:07:19 8 MR. LINDINGER: May we publish the presentation,
11:07:22 9 Your Honor?

11:07:22 10 THE COURT: Yes.

11:07:22 11 MR. LINDINGER: Thank you, Mr. Ebersole.

11:07:25 12 Q. (By Mr. Lindinger) Professor Balakrishnan, is
11:07:29 13 PDX-006-1 through 92 the presentation that you prepared for
11:07:32 14 your testimony?

11:07:32 15 A. It is. It's the presentation I prepared to assist the
11:07:35 16 jury to understand what I'm about to say today about the --
11:07:39 17 the '848 patent.

11:07:41 18 Q. Please tell the jury a little bit about yourself, sir.

11:07:46 19 A. Sure. I hold a Ph.D. in computer science along with a
11:07:50 20 Bachelor's degree and a Master's degree also in computer
11:07:52 21 science.

11:07:53 22 After completing my Ph.D., I joined the University
11:07:56 23 of Toronto on faculty, and I'm currently a tenured full
11:08:00 24 professor and -- with over 20-some years of experience
11:08:04 25 there.

1 I've also been the past chair of the Department of
2 Computer Science at the University of Toronto.

3 My research at the University of Toronto involves
4 human-computer interaction, and I think you've heard that
5 term a little bit earlier, as well as interactive computer
6 graphics and computer systems.

7 And within this -- these areas, I work on the
8 development of different user interface technologies,
9 including for mobile devices, video editing, image
10 recognition, detection, manipulation types of systems.

11 Q. Apart from teaching, what other experiences do you
12 have?

13 A. Well, I've consulted with multiple different technology
14 companies over the years, including Microsoft, Mitsubishi
15 Labs, and I've cofounded three software companies that
16 commercialized research developed in my research lab.

17 Q. Have you had any academic papers published?

18 A. Yes, I've published over 140 papers in peer-reviewed
19 conferences and journals in my field.

20 Q. Have you ever served as an expert witness like this
21 before?

22 A. I have in multiple cases.

23 Q. What kinds of technologies have you served as an expert
24 witness for?

25 A. The cases have involved different kinds of user

11:09:12 1 interface technologies, image processing, image
11:09:15 2 reproduction technologies, and smartphone technologies of
11:09:19 3 various sorts.

11:09:19 4 Q. Are you listed as an inventor on any patents?

11:09:23 5 A. I am on -- I'm listed as a co-inventor on 20 patents in
11:09:28 6 the area of user interfaces broadly defined.

11:09:31 7 Q. Have you won any awards for your work?

11:09:34 8 A. I have several awards over the years, and I'm just
11:09:37 9 going to quickly mention four that I'm particularly proud
11:09:40 10 of.

11:09:40 11 Some years ago I received the Sloan Research
11:09:44 12 Fellowship. That is a fairly selective award given to top
11:09:47 13 scientists in different fields of science in North America.
11:09:50 14 I held a endowed research chair for 10-year period.

11:09:53 15 I was elected to the ACM CHI Academy which honors
11:09:53 16 the principal leaders in my field.

11:10:00 17 And more recently I received my professional
11:10:03 18 organization's Lifetime Achievement Award.

11:10:06 19 Q. Apart from your work experiences, do you have any
11:10:09 20 hobbies?

11:10:10 21 A. I do. I've always liked working with my hands, and I
11:10:14 22 do a lot of woodworking. I recently completed with my wife
11:10:18 23 a restoration of a historic house on a farm that we live on
11:10:22 24 and did a lot of the work ourselves.

11:10:24 25 Q. Professor Balakrishnan, what was your role in this

11:10:26 1 case?

11:10:26 2 A. Twofold.

11:10:27 3 I was asked to examine Maxell's patent, U.S.

11:10:33 4 Patent No. 10,176,848. We'll refer to it as the '848

11:10:37 5 patent.

11:10:39 6 I was also asked to provide analysis as to whether

11:10:41 7 Samsung's accused products, which are phones and tablets,

11:10:46 8 infringe Claims 11 and Claims 12 of the '848 patent.

11:10:50 9 Q. And did you form any opinions on infringement as to

11:10:53 10 Samsung's products?

11:10:54 11 A. I did.

11:10:55 12 Q. Just please provide a summary of your infringement

11:10:58 13 opinions?

11:10:58 14 A. At a very high level, my analysis showed that the

11:11:02 15 Samsung's accused products infringe Claims 11 and 12 of the

11:11:10 16 '848 patent.

11:11:10 17 Q. Professor Balakrishnan, I gave you a binder. I think

11:11:13 18 it's the top one of a handful of exhibits. Can you turn to

11:11:17 19 PX-5 in your binder?

11:11:20 20 What is PX-5?

11:11:22 21 A. PX-5 is the '848 patent.

11:11:23 22 Q. At a high level, what sort of subject matter does the

11:11:28 23 '848 patent disclose?

11:11:29 24 A. The '848 patent at a very high level, it discusses

11:11:33 25 recording and reproducing apparatuses for images and videos

1 and method in which to be able to access and find the
2 content that you want quickly and efficiently using face
3 recognition.

4 Q. Do you consider yourself to be an expert in the
5 technology at issue for the '848 patent?

6 A. I do. For all the reasons I've already given regarding
7 my education, my work experience, and my research, I
8 consider myself an expert in the fields of human machine
9 interaction, interactive computer graphics, which include
10 the kind of image reproduction and recording functionality
11 that's in the '848 patent.

12 MR. LINDINGER: At this time, Your Honor, I'd like
13 to proffer Professor Balakrishnan as an expert in human
14 computer interaction and interactive computer graphics.

15 THE COURT: Any objection?

16 MR. FOWLER: No objection, Your Honor.

17 THE COURT: Very well.

18 Q. (By Mr. Lindinger) Professor Balakrishnan, let's first
19 discuss what you did to form your infringement opinions.

20 When did you first begin working on this case?

21 A. About two years ago.

22 Q. Over the course of the last couple of years, did you
23 review any materials to form your opinions?

24 A. Quite a bit of materials, and I prepared a slide
25 listing some of those materials.

11:12:40 1 Q. What sort of materials did you list on this slide, sir?

11:12:43 2 A. First of all, I looked at the '848 patent and its file
11:12:49 3 history -- and the file history really is the back and
11:12:52 4 forth between the inventor and the Patent Office in the
11:12:55 5 process of getting a patent approved. And this includes
11:12:58 6 its re-examination.

11:13:00 7 Q. Now, I apologize for killing some trees, but there's
11:13:03 8 three large binders to your left labeled PX-11, Parts 1 to
11:13:10 9 3.

11:13:11 10 What is PX-11?

11:13:17 11 A. PX-11 appears to be the entire file history of the '848
11:13:22 12 patent, including the re-exam.

11:13:24 13 Q. What do you mean by the re-examination of the '848
11:13:26 14 patent?

11:13:26 15 A. Well, my understanding is Apple filed a request to the
11:13:32 16 Patent Office for the Patent Office to take a second look
11:13:34 17 at some of the claims of the '848 patent, and the Patent
11:13:39 18 Office agreed to do that and did a thorough re-examination
11:13:43 19 or re-look at the -- at the '848 patent's claims.

11:13:48 20 Q. What do you understand to be the result of the '848
11:13:51 21 patent re-examination filed by Apple?

11:13:53 22 A. Well, after that re-examination, after that second
11:13:56 23 look, the Patent Office affirmed that the claims -- the
11:14:00 24 asserted claims of this -- of this patent, Claims 11 and
11:14:03 25 12, are novel and valid.

1 Q. Apart from the '848 patent and its file history,
2 including the re-examination that you just mentioned in
3 those three big binders over there, what else did you
4 review as part of your infringement analysis?

5 A. Well, I looked at official Samsung product
6 documentation. I also looked at the programming code, the
7 source code used in the accused products.

8 I considered the testimony of Samsung's engineers,
9 Ms. Lee and Mr. Shin, about the operation of its products.
10 And we just heard some of that testimony being replayed
11 just a few minutes ago.

12 I also considered what's known as the discovery
13 responses which are the detailed answers provided by
14 Samsung during this litigation describing the functionality
15 of the accused products as it relates to the '848 patent
16 functions.

17 Q. We heard Professor Wobbrock earlier mention source
18 code. Do you have an analogy of what source code is?

19 A. Yes. Source code is simply instructions for the
20 computer, and some of you may know what it is. But an
21 analogy would be like a recipe for, you know, cooking a
22 dish, and you'd follow the steps, one after the other, to
23 get -- to make that dish.

24 And source code for a computer or a smartphone is
25 very similar. It's a set of instructions that instead of

11:15:22 1 you as a human following it, the computer processor, or
11:15:26 2 CPU, executes those instructions to achieve some
11:15:29 3 functionality, whether it's capturing a picture or
11:15:32 4 reproducing it or whatever functions you would use on a
11:15:35 5 phone.

11:15:36 6 Q. Anything else that you relied on for your infringement
11:15:38 7 opinion, sir?

11:15:39 8 A. Yes. I relied on testing conducted on the -- Samsung's
11:15:43 9 accused products, namely the Galaxy S23 and the S23 Ultra
11:15:48 10 for the '848 patent.

11:15:49 11 Q. And apart from the material on the slide, is there
11:15:52 12 anything else that you considered?

11:15:53 13 A. Well, to my analysis, I brought to bear my education
11:15:56 14 and my almost three decades of experience in the field and
11:16:00 15 my research to understanding all this material and
11:16:04 16 conducting that analysis.

11:16:06 17 Q. Approximately how much time did you spend reviewing all
11:16:10 18 of this material to form all of your opinions in this case?

11:16:12 19 A. Up to the time of submission of my infringement
11:16:16 20 report -- my reports, I spent about a hundred hours.

11:16:20 21 Q. Before we talk about your infringement analysis of the
11:16:23 22 '848 patent in detail, I want to briefly just discuss claim
11:16:27 23 construction with you.

11:16:27 24 What's your understanding as to whether the Court
11:16:30 25 construed any terms in the '848 patent?

11:16:32 1 A. My understanding is the Court did not construe any
11:16:36 2 terms for the '848 patent.

11:16:37 3 Q. And since no terms of the '848 patent were construed,
11:16:41 4 how did you interpret the claims of the '848 patent?

11:16:43 5 A. I interpreted the claims as having their plain and
11:16:45 6 ordinary meaning.

11:16:45 7 Q. And from what perspective did you apply plain and
11:16:50 8 ordinary meaning?

11:16:50 9 A. From the perspective of a person of ordinary skill in
11:16:53 10 the art for the '848 patent.

11:16:54 11 Q. Based on your experience, who is a person of ordinary
11:16:59 12 skill in the art for the '848 patent?

11:17:00 13 A. For the '848 patent, a person of skill in the art would
11:17:04 14 have a bachelor's degree in computer science or electrical
11:17:08 15 engineering or the equivalent. And also work -- work
11:17:11 16 experience or job experience of at least one year in the
11:17:15 17 area of image reproduction and recording.

11:17:19 18 Q. How does your experience relate to your definition of a
11:17:22 19 person of ordinary skill in the art?

11:17:24 20 A. Well, my experience more than meets this definition,
11:17:28 21 and at that time of the inventions, which is no later than
11:17:32 22 May 19, 2008.

11:17:35 23 Q. Let's discuss the '848 patent a little bit. What
11:17:38 24 problems, if any, did the '848 patent identify?

11:17:40 25 A. Well, at a very high level -- and I have a slide for

1 this so maybe we can bring that up -- the '848 patent
2 deals -- recognized the problem that at that time, in that
3 2008 time frame, recording devices like cameras and phones
4 and laptops had increasing amounts of storage. And as a
5 result, people were capturing many, many more pictures than
6 they used to.

7 And the problem became you have all these
8 pictures, how do you access them? And at that time, the --
9 one common way was to provide little thumbnail images so
10 that you could scroll through all the -- all the images to
11 find the ones that you're interested in.

12 At the bottom of this slide, I provide just an
13 image of hundreds of these thumbnails. And you can imagine
14 when you have so many thumbnails, trying to find, let's
15 say, the picture of your kid or, you know, yourself or
16 some -- some picture of interest, it's -- it's a bit of a
17 daunting problem. You're going to scroll through a lot of
18 these thumbnails.

19 Q. Professor Balakrishnan, Professor Wobbrock was a little
20 taller. Would you mind lowering that microphone a little
21 bit closer to you?

22 A. Sure.

23 Q. There we go.

24 A. Thank you.

25 He's quite a bit taller than me.

1 Q. How, if at all, did the inventor solve the problems
2 identified by the '848 patent?

3 A. Sure. I have a slide for this on the next slide.

4 So the inventor for the '848 patent, the solution
5 they came up with was to use face recognition on the
6 recorded images and videos to determine if, A, there was a
7 face found in the pictures, and if there was, to recognize
8 that face and then categorize all the pictures or videos --
9 and videos that had those faces into particular categories.

10 And this -- once they've categorized pictures with
11 particular people's faces, it enables users to quickly
12 access pictures of interest. So if I want to find, for
13 example, if I want to find pictures of somebody I'm
14 interested in, I can quickly do that because it's already
15 been recognized as that person.

16 Q. Do you have an opinion on whether these solutions are
17 set forth in the asserted claims of the '848 patent?

18 A. They are indeed.

19 Q. What is that opinion?

20 A. Well, they're -- the '848 patent -- the claims
21 certainly have these solutions embedded in the claims. The
22 claims cover these solutions.

23 And I would also say this, you know, with regards
24 to the accused products that I'm going to talk about in
25 detail, they -- these claim elements are essential to the

11:20:08 1 operation of those accused functionalities of the accused
11:20:12 2 products and appears that Samsung sees this as being
11:20:14 3 valuable because it has this functionality in its products.

11:20:18 4 And we'll talk about the details of those in a few
11:20:20 5 minutes.

11:20:21 6 Q. When did the inventor come up with these ideas?

11:20:23 7 A. No later than May 19, 2008, and you can see that date
11:20:27 8 highlighted in the callout in the bottom of the slide.

11:20:30 9 Q. Do you think the May 19, 2008 date is important?

11:20:33 10 A. I think it is.

11:20:34 11 Q. Why is that?

11:20:35 12 A. Well, in the 2008 time frame, smartphones were in their
11:20:40 13 infancy. I mean, Apple had just come out with its iPhone.
11:20:45 14 And the problems of dealing with a lot of images was just
11:20:52 15 starting to, you know, become significant.

11:20:53 16 And it wasn't until another eight years roughly, I
11:20:56 17 think it was 2016 approximately when Samsung came out with
11:21:03 18 its Galaxy smartphone that had face recognition within its
11:21:05 19 Gallery application. So it's almost -- almost a decade
11:21:08 20 later.

11:21:09 21 So I would say the '848 patent's time -- time
11:21:13 22 frame of 2008, they were really ahead of its -- ahead of
11:21:17 23 their time, so to speak.

11:21:18 24 Q. Let's talk about your infringement analysis, Professor
11:21:21 25 Balakrishnan.

11:21:21 1 A. Sure.

11:21:22 2 Q. Which Samsung products are being accused of infringing
11:21:26 3 Claims 11 and 12 of the '848 patent?

11:21:29 4 A. Well, there's a large number of products, approximately
11:21:32 5 120 smartphones and about 30 tablets. So there's 150
11:21:37 6 products in total. I have a slide that breaks it down, if
11:21:42 7 we can go to that.

11:21:45 8 Q. Okay.

11:21:45 9 A. And I'll -- I think I'll also note that all of these
11:21:48 10 products, they -- they essentially work the same way for
11:21:53 11 the infringing functionality that I'm going to get into a
11:21:56 12 bit of detail.

11:21:57 13 So it's 150 of them roughly, but for the purposes
11:22:00 14 of the functionality at issue here, they really work
11:22:04 15 essentially the same way.

11:22:05 16 Q. Will you be discussing all of these Samsung products
11:22:08 17 today?

11:22:08 18 A. No, I will not.

11:22:11 19 Q. Why not?

11:22:12 20 A. Well, Samsung and Maxell have come to an agreement that
11:22:17 21 the Galaxy S23 running One UI 6.0 and the S23 Ultra running
11:22:24 22 One UI 5.1 are representative smartphones for all the
11:22:28 23 Samsung accused products as it pertains to Claims 11 and 12
11:22:33 24 of the '848 patent.

11:22:35 25 So, therefore, if I -- well, maybe we can go to

11:22:38 1 the next slide.

11:22:38 2 Q. Well, before we go to that next slide, there's a couple
11:22:40 3 of terms on here I want you to explain to the jury a little
11:22:43 4 bit.

11:22:44 5 What are you referring to when you say "One UI" at
11:22:47 6 the top of this slide.

11:22:47 7 A. One UI is the user interface that Samsung provides for
11:22:52 8 its smartphones.

11:22:52 9 Q. And, generally, what is a user interface?

11:22:55 10 A. Well, generally, a user interface is just a mechanism
11:22:58 11 that allows a user to interact with some piece of
11:23:01 12 technology. And in this case, the screen, the display --
11:23:04 13 what's displayed on the screen and how the user can select
11:23:06 14 things using the touch input on the screen to do different
11:23:11 15 functions.

11:23:12 16 Q. Now, what did you mean a moment ago that the S23 phone
11:23:14 17 is a representative product for other Samsung products?

11:23:17 18 A. Right. What I mean by that is -- let's get to the next
11:23:22 19 slide. I think I have -- this is the one I was talking
11:23:23 20 about.

11:23:23 21 So if you look on the left-hand side, I've listed
11:23:28 22 all the large number of phones and tablets that are
11:23:30 23 represented by the S23 phone, the representative phone.

11:23:32 24 And what I mean by that is if I show that the
11:23:36 25 representative S23 phone infringes Claims 11 and 12 of the

11:23:43 1 '848 patent, then I've also shown that all these phones on
11:23:46 2 the left-hand side infringe Claims 11 and 12 of the '848
11:23:53 3 patent.

11:23:53 4 Q. And, similarly, what did you mean here that the S23
11:23:57 5 Ultra phone is representative for other Samsung products?

11:24:00 6 A. What I mean by that is very similarly, the Galaxy S23
11:24:04 7 Ultra phone, if I showed that it represents -- it performs
11:24:08 8 or meets Claims 11 and 12 of the '848 patent and infringes,
11:24:14 9 then all the products I list on the right-hand side of this
11:24:18 10 slide would also similarly infringe Claims 11 and 12 of the
11:24:23 11 '848 patent.

11:24:23 12 Q. What did you mean a moment ago when you said that all
11:24:25 13 the Samsung accused products operate essentially the same
11:24:29 14 way for the purposes of your infringement analysis?

11:24:32 15 A. Yes, I have a slide for that, if you can go to the next
11:24:35 16 slide.

11:24:35 17 So what I meant by that is the relevant components
11:24:38 18 and functionality are essentially the same. So both of
11:24:42 19 these devices include camera modules and sensors for taking
11:24:47 20 photographs, they have a display screen for showing the
11:24:50 21 photo to you, they have memory and storage for storing
11:24:54 22 source code instruction, for storing the photographs, and
11:24:57 23 they have a CPU and application processor for running that
11:24:59 24 source code to make all this happen.

11:25:02 25 Both the devices also include the Gallery

11:25:06 1 application -- we'll talk about that in some detail -- the
11:25:09 2 camera application for taking photos, facial recognition
11:25:13 3 software within the device that assists in registering
11:25:17 4 particular people that are recognized in photographs, in
11:25:20 5 videos that you take, and the ability to create albums from
11:25:24 6 stored pictures and videos so you can organize things for
11:25:28 7 yourself on the phone.

11:25:29 8 Q. Professor Balakrishnan, can you please turn to PX-246C,
11:25:37 9 as in cat, in your exhibit binder?

11:25:42 10 What is this document, sir?

11:25:46 11 A. These are printouts of the support pages on Samsung's
11:25:57 12 websites for the Gallery application.

11:26:02 13 Q. You included some language from that Samsung support
11:26:05 14 page on this slide regarding auto-updating album. What is
11:26:10 15 an auto-updating album?

11:26:11 16 A. Well, an auto-updating album on the Galaxy phones is an
11:26:17 17 album that will automatically update to include photographs
11:26:21 18 and images that have been recognized of people that you
11:26:25 19 select.

11:26:26 20 So let me give you an analogy or an example.

11:26:29 21 Let's say I take 40, 50 pictures of myself and my daughter
11:26:34 22 and I create an album and I name it with my daughter's name
11:26:37 23 and I put these images in there, and the system recognizes
11:26:41 24 my daughter's face in those pictures.

11:26:43 25 If subsequently I go and take more pictures of my

11:26:46 1 daughter, maybe alone or with my wife or with other family
11:26:49 2 members or wherever, the system would automatically -- the
11:26:54 3 Galaxy phones would automatically -- because they recognize
11:26:57 4 her face in those additional pictures, will automatically
11:27:01 5 put those additional pictures in the auto-updating album.
11:27:03 6 So that's just a high-level example.

11:27:06 7 Q. Let's talk a little bit more about your analysis of the
11:27:09 8 S23 and S23 Ultra representative products.

11:27:12 9 Professor Balakrishnan, did you personally test
11:27:15 10 any Samsung products?

11:27:17 11 A. I did.

11:27:18 12 Q. What Samsung products did you test?

11:27:20 13 A. I tested the S23 and the S23 Ultra smartphones.

11:27:24 14 Q. Did you create a slide summarizing your testing?

11:27:27 15 A. I did.

11:27:29 16 Q. So I've put a couple of phones in front of you there,
11:27:32 17 sir, PX-242 and PX-243. I think the phones are right under
11:27:39 18 the binder there.

11:27:40 19 A. Yes.

11:27:41 20 Q. What are -- what is PX-242 and PX-243?

11:27:45 21 A. Well, one is the Galaxy S23, and the other is the
11:27:50 22 Galaxy S23 Ultra. The phones -- I can feel the phones are
11:27:53 23 in there. I'm not going to open them for now. These are
11:27:56 24 the ones that I tested.

11:27:57 25 Q. I put rubber bands on there just so they didn't fall

11:28:01 1 out there.

11:28:01 2 A. Sure.

11:28:01 3 Q. For the S23 and S23 Ultra phones that you tested, what
11:28:06 4 One UI versions did they run?

11:28:08 5 A. Well, the S23 Ultra ran One UI Version 5.01, and the
11:28:12 6 S23 ran One UI Version 6.1.

11:28:16 7 Q. So for the purposes of your infringement analysis that
11:28:18 8 we're going to talk about today, what, if any, differences
11:28:22 9 are there between One UI 5.1 on the Galaxy S23 Ultra and
11:28:30 10 One UI 6.1 on the Galaxy S23?

11:28:35 11 A. Well, for the purposes of the infringement analysis for
11:28:37 12 the two claims at issue here, these two phones, the
11:28:40 13 functionality is essentially the same. But there's one
11:28:43 14 difference in that the Galaxy S23 Ultra with One UI 5.1 has
11:28:49 15 an additional feature for being able to replay those
11:28:52 16 images. It's called a highlight reel, and that's not
11:28:54 17 present in the S23 running One UI 6.1.

11:29:00 18 Q. Professor Balakrishnan, what did you do to test the S23
11:29:05 19 and S23 Ultra phones?

11:29:06 20 A. Well, I did quite a bit of testing on my own, and then
11:29:09 21 I created a testing protocol for testing to be done on
11:29:13 22 these phones for purposes of my infringement analysis.

11:29:18 23 And the first thing we -- I did in this testing
11:29:22 24 protocol was to require that the phones be identified, to
11:29:25 25 look at the phone, take it out of the box, look at the

1 phone, and make sure it was the model, the UI number. We
2 looked at the system information in the phone to identify
3 the operating system in the One UI version.

4 And the next thing in the protocol was to shut off
5 all means of external communications, so the WiFi was shut
6 off, the SIM card was taken out of both of these phones,
7 and the phone was put in airplane mode.

8 Why did I do this? I did this so that all
9 processing, all computation on the phone would happen on
10 the phone and not potentially outside on the cloud or a
11 network somewhere because it cannot talk to the network.

12 So we wanted to make sure that all processing was
13 happening on the phones so that we could show infringement
14 happening on the phone itself.

15 Q. So after double-checking the identity and the setup of
16 the two phones, what did you do next?

17 A. The next part of the protocol was to have dozens of
18 pictures taken of three different people -- three different
19 people's faces of -- that's of interest in different
20 settings.

21 And what I mean by different settings is some were
22 just taken in office settings, some were in conference
23 rooms, some outside in regular daylight, with different
24 details.

25 So wearing glasses, not wearing glasses, putting a

1 jacket on, that sort of stuff. Different lighting, being
2 outside versus inside, conference room versus office.

3 And also using both the front and rear cameras.
4 These devices have cameras in the front and the back of the
5 devices.

6 Once those photos were taken, the protocol
7 required the creation of an auto-update album on each of
8 these phones for one of those people that we took pictures
9 of. And then additional new pictures were taken of that
10 one person. And after a little bit of time, observed that
11 those new pictures were automatically added to that
12 auto-update album on both phones.

13 Once this auto-update album had all these images
14 in it, I created -- the protocol required creation of a
15 movie and a slideshow.

16 There's two different ways of playing back some of
17 these images, and this happened on both phones. And just
18 for the S23 Ultra, a third way for reproducing the images,
19 which was the highlight reel that was also done and tested.

20 Q. Did you review the testing pictures and videos of the
21 S23 and S23 Ultra phones after they were initially taken or
22 recorded?

23 A. I did.

24 Q. What, if anything, did you review of the testing
25 pictures and videos of the S23 and S20 (sic) Ultra phones

11:32:00 1 confirm?

11:32:00 2 A. My review of the testing pictures and videos confirmed
11:32:04 3 that it had been taken in accordance with my protocols. It
11:32:08 4 was as I expected it to be.

11:32:10 5 Q. And were those testing and videos consistent with your
11:32:13 6 personal testing?

11:32:14 7 A. It was completely consistent with my personal testing.

11:32:16 8 Q. Professor Balakrishnan, can you please turn to PX-245
11:32:21 9 in your binder?

11:32:27 10 What is this document, sir?

11:32:30 11 A. Give me one second. I need to organize this. These
11:32:33 12 phones are falling off.

11:32:39 13 Okay. I'm there.

11:32:40 14 Q. So we turned to PX-245. What is this document, sir?

11:32:44 15 A. This is just a one-pager representing the testing
11:32:48 16 screenshots and videos that are available on a thumb drive
11:32:51 17 in native format that was produced in this case.

11:32:53 18 Q. So the jury, they're going to have all your testing
11:32:56 19 pictures and videos to look at when they go back, right?

11:32:58 20 A. I hope so. I'm assuming you'll give them the thumb
11:33:01 21 drive.

11:33:01 22 Q. How, if at all, did the product testing inform your
11:33:05 23 infringement opinions?

11:33:08 24 A. Well, the product testing was one part of my
11:33:11 25 infringement opinions. I -- my opinions are based on my

11:33:15 1 analysis of all those documents, deposition transcripts,
11:33:18 2 the source code, and all those other things I already
11:33:20 3 mentioned. So the testing further confirmed my
11:33:23 4 understanding of how the devices worked and how they
11:33:26 5 infringed the claims.

11:33:28 6 Q. Did you review any Samsung source code for your
11:33:31 7 infringement analysis?

11:33:32 8 A. I did review source code for the infringement analysis.
11:33:34 9 And I have a slide, I think, summarizing that.

11:33:37 10 Q. What was your process of reviewing Samsung's source
11:33:42 11 code for your infringement opinions for the '848 patent?

11:33:44 12 A. Well, the process was I went down to Samsung's
11:33:48 13 counsel's office on multiple occasions where the source
11:33:53 14 code computer was, where they produced the code for
11:33:55 15 inspection.

11:33:56 16 And I spent time there studying the code. And I
11:33:59 17 also had printouts taken of particular portions of code
11:34:03 18 that I wanted to review further, and I reviewed those
11:34:08 19 printouts subsequently in my own office at a later date.

11:34:12 20 Q. Approximately how many hours did you spend reviewing
11:34:16 21 Samsung's source code?

11:34:18 22 A. Roughly 20 to 30 hours looking at the code.

11:34:20 23 Q. And subject matter-wise, sir, what type of source code
11:34:23 24 did you review?

11:34:24 25 A. Well, as I show on the slide, the code -- I put them in

11:34:28 1 different buckets, so to speak.

11:34:30 2 There was code for the camera capture
11:34:33 3 functionality.

11:34:33 4 There was code - source code for the auto-update
11:34:35 5 album functionality.

11:34:36 6 There was source code for the -- what's known as
11:34:37 7 the FaceServices functionality, which does the face
11:34:41 8 recognition that's required.

11:34:42 9 And then there's source code for the three types
11:34:44 10 of reproduction of -- the replaying modes, which is movie,
11:34:47 11 slideshow, and that was for both the devices, and for
11:34:50 12 the -- the S23 Ultra, the additional one, which is the
11:34:55 13 highlight reel source code.

11:34:56 14 Q. One more time, Professor Balakrishnan, can you turn to
11:34:59 15 PX-49 in your binder?

11:35:04 16 Is this -- are these the hard copy printouts of
11:35:08 17 the source code that you relied on for your infringement
11:35:09 18 opinions that you'll discuss today?

11:35:11 19 A. Yes, this is the hard copy printout, yes.

11:35:14 20 Q. And you mentioned reviewing Samsung engineer deposition
11:35:18 21 testimony a moment ago. How, if at all, did that Samsung
11:35:21 22 engineer deposition testimony compare to your review of the
11:35:24 23 code?

11:35:24 24 A. Well, the Samsung deposition testimony confirmed my
11:35:27 25 understanding of the code, so, yeah, that was good.

11:35:31 1 Q. Professor Balakrishnan, in light of all the evidence
11:35:35 2 that you reviewed, what are your opinions on infringement
11:35:39 3 for the '848 patent?

11:35:39 4 A. Well, at a very high level, my opinions are that all
11:35:44 5 the Samsung accused products meet each element of Claim 8
11:35:47 6 of the '848 patent on which Claim 11 depends upon.

11:35:53 7 Samsung's accused products, all of them literally
11:35:56 8 infringe Claim 11 of the '848 patent.

11:35:59 9 And, finally, Samsung's products, represented by
11:36:02 10 the S23 Ultra, literally infringe Claim 12 of the '848
11:36:06 11 patent.

11:36:06 12 Q. You mentioned earlier that Claims 11 and 12 are
11:36:12 13 asserted against Samsung. So why did you include Claim 8
11:36:16 14 here?

11:36:16 15 A. Well, Claim 8 is -- Claim 11 is dependent upon Claim 8,
11:36:23 16 in other words, Claim -- in order to infringe Claim 11, you
11:36:26 17 have to do all the steps of Claim 8 in addition to the
11:36:29 18 steps of Claim 11. That's why I include Claim 8 in my
11:36:33 19 analysis and on this slide.

11:36:35 20 Q. Okay. Let's move to your -- your element-by-element
11:36:39 21 analysis, Professor Balakrishnan.

11:36:41 22 What claim do you want to start with?

11:36:45 23 A. Let's start with Claim 8.

11:36:46 24 Q. Professor Balakrishnan, what is your understanding as
11:36:52 25 to the elements of Claim 8, if any, that are disputed by

11:36:57 1 Samsung's expert for the '848 patent, Dr. Kia?

11:37:00 2 A. My understanding is that Samsung's expert, Dr. Kia,
11:37:03 3 only disputes my analysis for Claims 8[g] and 8[h].

11:37:09 4 Q. Okay. So just so I understand, so even though you
11:37:12 5 understand that Dr. Kia does not -- even though you
11:37:15 6 understand he doesn't contest or dispute all these claim
11:37:21 7 elements in green on this slide, do you still intend to
11:37:24 8 discuss those claim elements of Claim 8 this morning?

11:37:26 9 A. I do.

11:37:27 10 Q. Why is that?

11:37:27 11 A. Well, maybe I can give you an analogy. If I was going
11:37:31 12 to make a cake and the cake had multiple parts, and let's
11:37:35 13 say the cake -- Claim 8 was the cake itself and I'm going
11:37:40 14 to have Claim 11 as the icing, I'm not going to just show
11:37:44 15 you the icing or the cake, I've got to do the steps for
11:37:48 16 everything.

11:37:48 17 So I'm going to have to -- unfortunately, walk
11:37:50 18 through each step here to show you how to make that cake,
11:37:53 19 so to speak, and the icing. So bear with me, and for
11:37:56 20 evidentiary reasons, I've got to get through all these
11:38:00 21 steps.

11:38:01 22 Q. What claim elements of the '848 patent would you like
11:38:03 23 to address first?

11:38:04 24 A. Let's start with the Claim Elements 8 preamble and 8[a]
11:38:11 25 on the top. And I'll just also note I've labeled these as

11:38:16 1 8 -- different elements as having different labels so it
11:38:19 2 makes it easier for us to understand each limitation.

11:38:22 3 So let's start with 8[pre] and 8[a], please.

11:38:25 4 Q. Do you have an opinion on whether the representative
11:38:28 5 Samsung S23 and S23 Ultra phones meet the preamble of
11:38:33 6 Claim 8 and Element 8[a]?

11:38:37 7 A. I do.

11:38:37 8 Q. What is your opinion?

11:38:37 9 A. My opinion is that the S23 and S23 Ultra representative
11:38:39 10 phones both meet Claim Elements 8 preamble and 8[a].

11:38:44 11 Q. What, if any, evidence did you base your opinion on
11:38:48 12 that the S23 and S23 Ultra phones meet the preamble of
11:38:52 13 Claim 8?

11:38:52 14 A. I based it on the -- Samsung's User Manuals, technical
11:38:57 15 documents from Samsung, and product testing.

11:38:59 16 Q. Why did you include portions of the S23 series user
11:39:05 17 manual on this slide that relates to your opinion for the
11:39:08 18 preamble of Claim 8?

11:39:09 19 A. Well, the user manual covers how to use the -- the
11:39:13 20 Galaxy S23 series of phones, so both phones.

11:39:15 21 So on this -- on this slide, I'm including on the
11:39:17 22 left-hand side a portion of the manual regarding the camera
11:39:21 23 functionality. And the manual shows how to take pictures
11:39:24 24 and record videos, and this applies to Claim 8 preamble,
11:39:28 25 which talks about a recording apparatus for recording image

1 information.

2 On the right-hand side, I include the portion with
3 regards to the Gallery application that's found on these
4 phones, and this application allows for accessing images
5 and videos that are stored in the device. And this would
6 provide evidence for the reproducing apparatus or
7 reproducing image information aspect of Claim Element 8
8 preamble.

9 Q. Professor Balakrishnan, can you please turn to PX-89?
10 And then I'm going to ask you to jump to PX-251B, as in
11 boy.

12 What are both of these documents showing?

13 A. Just one second.

14 Yes, this -- these two documents, PX-089 and 251B,
15 they are printouts of the Samsung web pages dealing with
16 the comparison between these -- these different devices.

17 Q. Okay. So why did you include portions of the S23
18 series comparison websites and some product testing images
19 from PX-245 on this slide that relate to your opinions for
20 the preamble of Claim 8?

21 A. Right. Here I'm showing from these sets of documents
22 the -- that both the S23 and the S23 Ultra on the left-hand
23 side of the slide, you can see that they have rear and
24 front cameras on both phones. And this would match up to
25 the recording apparatus for recording requirement of 8

11:41:13 1 preamble.

11:41:13 2 And on the right-hand side, I'm showing
11:41:17 3 screenshots of my testing with the Gallery application.

11:41:19 4 And in the middle of the -- of the slides and on
11:41:21 5 the right-hand side, playback using a movie, and this is
11:41:25 6 testing evidence that the devices are reproducing apparatus
11:41:29 7 for reproducing image information.

11:41:34 8 MR. LINDINGER: Your Honor, I'm going to get into
11:41:36 9 some confidential material relating to the Samsung accused
11:41:39 10 products and request that the courtroom be sealed pursuant
11:41:41 11 to the protective order.

11:41:41 12 THE COURT: All right. The courtroom will need to
11:41:44 13 be sealed at this time.

11:41:48 14 (Courtroom sealed.)

11:41:48 15 (This portion of the transcript is sealed.

11:41:48 16 and filed under separate cover as

01:33:53 17 Sealed Portion No. 8.)

01:33:53 18 (Courtroom unsealed.)

01:33:55 19 Q. (By Mr. Lindinger) Let's move to Claim Element 11.

01:33:58 20 Professor Balakrishnan, what claim element for
01:34:00 21 Claim 11 would you like to address next?

01:34:03 22 A. I would like to look at Claim Element 11[a]. So this
01:34:06 23 claim has three elements, and I've labeled them 11[a], [b],
01:34:11 24 and [c].

01:34:11 25 Q. Before you start talking about Claim Element 11[a], is

01:34:16 1 there anything you wanted to go over with the jury?

01:34:18 2 A. Yes. Very briefly, if you look at this claim, there
01:34:24 3 are two terms. It says "first reproducing mode" and
01:34:28 4 "second reproducing mode." And I've bolded and underlined
01:34:28 5 those terms as it appears in each of the three elements.

01:34:31 6 And I very briefly want to give you an overview of
01:34:34 7 the type of evidence I'm going to use to support those two
01:34:37 8 modes -- or three modes.

01:34:39 9 Q. So, Professor Balakrishnan, what are you showing on
01:34:41 10 this slide relating to the different reproducing modes that
01:34:44 11 you're going to discuss with respect to Claim Elements
01:34:48 12 11[a] -- 11 and 12?

01:34:49 13 A. Right.

01:34:50 14 So on this chart, on the left-hand column is the
01:34:53 15 Galaxy S23. On the left-hand column is the S23 Ultra.

01:34:59 16 So for the S23, for the first reproducing mode,
01:35:02 17 I'm going to rely upon the movie method. And for the
01:35:06 18 second reproducing mode, I'm going to rely on the
01:35:08 19 slideshow. So that's for Claim 11.

01:35:10 20 For the S23 Ultra, I'm going to do two different
01:35:13 21 examples.

01:35:14 22 The first example, the first reproducing mode is
01:35:17 23 going to be the movie, the second reproducing mode is going
01:35:19 24 to be the slideshow.

01:35:21 25 And then I'm going to show a second example where

01:35:24 1 the first reproducing mode is now the highlight reel, and
01:35:27 2 the second reproducing mode is the movie.

01:35:31 3 Then when we move on to Claim 12, which I realize
01:35:34 4 I haven't shown you yet, but we'll get to that. Claim 12
01:35:37 5 has a third reproducing mode requirement.

01:35:40 6 So for the S23 Ultra, the example I'm going to
01:35:43 7 show you is -- for Claim 12 is going to be the first
01:35:47 8 reproducing mode being the highlight reel, the second
01:35:50 9 reproducing mode being the movie, and the third reproducing
01:35:53 10 mode being the slideshow.

01:35:57 11 Q. Professor Balakrishnan, you just mentioned two
01:35:59 12 different examples for the S23 Ultra phone for Claim -- for
01:36:05 13 Claim 11. Does the S23 Ultra have to infringe both
01:36:09 14 examples to infringe Claim 11 or just one example?

01:36:11 15 A. The S23 Ultra only have to show one example to infringe
01:36:14 16 Claim 11, but I happen to show two examples.

01:36:18 17 Q. Let's turn back to Claim Element 11[a].

01:36:22 18 Do you have an opinion on whether the
01:36:24 19 representative Samsung S23 and S23 Ultra phones meet Claim
01:36:30 20 Element 11[a]?

01:36:31 21 A. I do.

01:36:32 22 Q. What is your opinion?

01:36:33 23 A. My opinion is that both the S23 and S23 Ultra meet
01:36:36 24 Claim Element 11[a].

01:36:37 25 Q. What evidence, if any, supports your opinions of both

01:36:42 1 the S23 and S23 Ultra representative products meet Claim
01:36:48 2 11?
01:36:48 3 A. Well, all the documentation, the discovery responses,
01:36:52 4 the technical documentation, user manuals, block diagrams,
01:36:57 5 source code, and product testing, and engineer testimony --
01:37:00 6 Samsung engineer testimony that I've already shown you with
01:37:03 7 regards to Claim 8 would also apply here because Claim 11
01:37:07 8 depends upon Claim 8. So, again, I've got to bring in all
01:37:11 9 of Claim 8.

01:37:12 10 In addition, I'm going to show you some product
01:37:14 11 testing evidence to -- for this Claim Element 11[a].

01:37:20 12 Q. So for Claim Element 11[a], I want to start with the
01:37:24 13 S23 product -- the S23 phone first. That's at the top, the
01:37:28 14 first row of the table here. Then I'll address the two
01:37:32 15 infringement examples for the S23 Ultra phone.

01:37:35 16 So, Professor Balakrishnan, for the product
01:37:37 17 testing for the S23 Ultra, what did you include on this
01:37:42 18 Slide 63 that relate to your opinions for Element 11[a]?

01:37:46 19 A. So, here, I'm showing the creation of a movie, which
01:37:49 20 would correspond to the first reproducing mode from the
01:37:51 21 auto-updating album.

01:37:52 22 And I know the jury's already seen a preview of
01:37:55 23 this, but if I may walk -- walk the jury through this one
01:37:59 24 more time for this claim element.

01:38:01 25 So on the left-hand side, once again, I've got the

01:38:04 1 auto-update album for Hawah. I'm going to select "Create"
01:38:08 2 from the menu option. I'm going to go to the next screen.
01:38:10 3 I'm going to select "Movie" as the option that I want to
01:38:13 4 create. And I'm going to go to the third screen where I'm
01:38:18 5 going to select 30 images to include in that movie.

01:38:21 6 And when I select the little movie icon at the
01:38:23 7 bottom of the screen, it will generate a movie, and that
01:38:27 8 movie happens to have a 1-minute, 30-second long runtime.

01:38:34 9 Q. Moving to the next slide, what product testing images
01:38:40 10 did you include on this slide for the S23 representative
01:38:42 11 product that relate to your opinions for Claim Element
01:38:45 12 11[a]?

01:38:46 13 A. So here for the S23, I'm showing how the -- how to
01:38:50 14 create a slideshow that would correspond to the second
01:38:54 15 reproducing mode requirement of Claim 11[a]. And this is
01:38:59 16 done, again, from the same Gallery application, the
01:39:02 17 auto-update album for Hawah, same menu, but I'm selecting
01:39:06 18 this time "Start slideshow."

01:39:08 19 And when I do that, it starts playing back every
01:39:11 20 single image of the album, one after the other. And it
01:39:15 21 happens to take 6 minutes, 57 seconds. You can see in the
01:39:20 22 callout on the right.

01:39:22 23 So this is the second reproducing mode for -- that
01:39:25 24 meets Claim 11[a] on the S23, which is the creation of a
01:39:28 25 slideshow.

01:39:29 1 Q. Okay. So how, if at all, do the processes that you
01:39:32 2 just described for creating a movie and a slideshow support
01:39:36 3 your opinions that the S23 phone meets Claim Element 11[a]?
01:39:42 4 A. Well, Claim Element 11[a] says I have to control the
01:39:46 5 reproduction of the image information in a reproducing mode
01:39:49 6 set from one of a first reproducing mode, and I showed you
01:39:50 7 the movie as an example for that, and a second reproducing
01:39:54 8 mode, and I've shown a slideshow as that second example of
01:39:58 9 a second mode.

01:39:58 10 So I think that evidence shows meeting Claim 11[a]
01:40:02 11 on the S23 product.

01:40:05 12 Q. Let's move to the S23 Ultra phone.

01:40:08 13 Professor Balakrishnan, for your first
01:40:10 14 infringement example for the S23 Ultra, what product
01:40:15 15 testing images here from PX-245 did you include here on
01:40:19 16 Slide 65 for Element 11[a]?

01:40:21 17 A. Well, here, very similar to what I showed you for the
01:40:25 18 S23, this is for the S23 Ultra, I'm going to start from the
01:40:30 19 Hawah auto-updating album on the left-hand side, select the
01:40:34 20 "Create" menu option from the menu.

01:40:36 21 It takes me to the next screen, which is -- gives
01:40:39 22 me several different options that I can create. I'm going
01:40:42 23 to select the second one, which is "Movie." It takes me to
01:40:46 24 another screen, and I'm going to select -- it gives me the
01:40:49 25 option of selecting up to 60 images from that album to

01:40:53 1 include in the movie.

01:40:54 2 In this example I'm going to select 45 images from
01:40:57 3 that album. And when I then highlight -- sorry, I click
01:41:01 4 the bottom at the bottom which says "Movie," I get the
01:41:04 5 movie. It creates a movie. In this example, the movie
01:41:09 6 is -- has a runtime of 2 minutes and 15 seconds.

01:41:14 7 Q. On this next slide, Professor Balakrishnan, what
01:41:17 8 additional product testing images did you include for the
01:41:21 9 S23 Ultra phone relating to your first infringement example
01:41:24 10 for Element 11[a]?

01:41:26 11 A. So in this example, again, very similar to the -- what
01:41:29 12 I showed you for the S23, in this S23 Ultra, I'm going to
01:41:32 13 create a slideshow from the auto-updating album of Hawah.
01:41:38 14 Similar menu.

01:41:39 15 I'm going to select the "Start slideshow" menu
01:41:44 16 option. And it starts to show all the images of -- in the
01:41:49 17 album, one after the other as you can see on the right.
01:41:52 18 This would correspond to the second reproducing mode in
01:41:54 19 this example for the S23 Ultra.

01:41:59 20 Q. Professor Balakrishnan, how do the processes that you
01:42:02 21 just described for creating a movie and a slideshow support
01:42:05 22 your opinions that the S23 Ultra phone meets Element 11[a]
01:42:10 23 in your first infringement example?

01:42:12 24 A. Well, in my example, the movie that I showed a minute
01:42:17 25 ago would meet the reproducing mode set from a first

01:42:22 1 reproducing mode, and the slideshow which would meet the
01:42:26 2 second reproducing mode requirement of Claim 11[a].

01:42:31 3 Q. Professor Balakrishnan, for your second infringement
01:42:35 4 example for the S23 Ultra, what product testing images did
01:42:39 5 you include here on Slide 67 for the S23 Ultra phone for
01:42:44 6 Element 11[a]?

01:42:45 7 A. What I'm showing here for the second example for the
01:42:50 8 S23 Ultra is the creating of a highlight reel as the first
01:42:55 9 reproducing mode from the album.

01:42:56 10 So I, once again, start from the auto-updating
01:43:00 11 album of Hawah. I select a -- the "Create" menu item from
01:43:08 12 the -- from the menu. It gets to the next screen, and this
01:43:11 13 time I'm going to select Highlight reel, that first option
01:43:14 14 on the -- on the screen.

01:43:15 15 It takes me to a third screen, and there it gives
01:43:18 16 me an option of selecting up to 60 images. This time I
01:43:21 17 select 25 images, which I've selected a few there.

01:43:25 18 And I'm going to click on the highlight reel icon
01:43:29 19 at the bottom of that screen, and it creates that highlight
01:43:31 20 reel that you see on the right-hand side that would go one
01:43:35 21 after the other, and it takes I think a minute 49 to play
01:43:42 22 this highlight reel.

01:43:44 23 Q. Professor Balakrishnan, we saw these images a moment
01:43:47 24 ago with respect to your description of creating a movie
01:43:50 25 for the S23 Ultra. But once again for the jury, how do the

01:43:54 1 product testing images here for creating a movie support
01:43:58 2 your opinions for your second infringement example for
01:44:03 3 Element 11[a] for the S23 Ultra phone?

01:44:06 4 A. Well, for the S23 Ultra phone, I'm going to show you
01:44:09 5 creating a movie that would map to the second reproducing
01:44:13 6 mode from the auto-updating album. So it's the same movie
01:44:16 7 creation process I showed just a few slides ago.

01:44:18 8 So I'm not going to belabor the point, but very
01:44:21 9 quickly, from the auto-updating album, I'm going to create
01:44:23 10 a movie, I'm going to select 45 pictures to include in that
01:44:27 11 movie, and then I'm going to create the movie. And, again,
01:44:29 12 it's the same movie, 2 minutes, 15 seconds, but this time
01:44:34 13 the movie is acting as the second reproducing mode in this
01:44:37 14 second example.

01:44:39 15 Q. How do the processes that you just described for
01:44:42 16 creating a highlight reel and a movie support your opinions
01:44:47 17 that the S23 Ultra phone meets Element 11[a] under your
01:44:52 18 second infringement example?

01:44:53 19 A. Well, in my -- in the second example, I've shown that
01:44:56 20 the creation of the highlight reel would map to the
01:45:01 21 reproducing mode sent from one of a first reproducing mode.

01:45:05 22 So the highlight reel is now the first reproducing
01:45:06 23 mode, and the movie is the second reproducing mode. So
01:45:09 24 that's how it -- it meets up with Claim Element 11[a] in
01:45:13 25 this example, the second example.

01:45:15 1 Q. Professor Balakrishnan, we looked at a lot of still
01:45:18 2 photos and how you created a movie, a slideshow, a
01:45:23 3 highlight reel. Are there videos in the thumb drive at
01:45:26 4 PX-245 that show the creation of all these processes?
01:45:30 5 A. Yes, there are videos that show the whole process --
01:45:34 6 Q. Professor Balakrishnan --
01:45:35 7 A. -- and result of the movie, as well.
01:45:38 8 Q. Professor Balakrishnan, based on your studying of all
01:45:41 9 of this evidence, what did you conclude about whether the
01:45:45 10 S23 and S23 Ultra phones each meet Claim Element 11[a]?
01:45:49 11 A. Well, I concluded that both the S23 and the S23 Ultra
01:45:54 12 meets the -- the Element 11[a].
01:45:58 13 Q. What claim element would you like to address next?
01:46:01 14 A. Let's do 11[b], please.
01:46:03 15 Q. Do you have an opinion on whether the representative
01:46:06 16 Samsung S23 and S23 Ultra phones meet Claim Element 11[b]?
01:46:10 17 A. I do.
01:46:11 18 Q. What is your opinion?
01:46:12 19 A. Well, my opinion is that both the phones, both the S23
01:46:18 20 and S23 Ultra representative phones meet Claim Element
01:46:21 21 11[b].
01:46:24 22 Q. Professor Balakrishnan, what product testing images did
01:46:30 23 you include here on Slide 71 for the S23 phone that relate
01:46:37 24 to your opinions for Element 11[b]?
01:46:40 25 A. What I'm showing here is -- on the left-hand side of

01:46:43 1 this slide is a -- the movie that was created earlier, and
01:46:46 2 I'm showing -- I did a callout to show the runtime of the
01:46:50 3 movie, which is 1 minute, 30 seconds. And that is shorter
01:46:53 4 than the 6 minute, 57 second runtime of the slideshow that
01:46:59 5 I show on the right-hand side. Remember, we created the
01:47:04 6 slideshow in the earlier step.

01:47:05 7 Q. So how do -- how do these images and the times that you
01:47:09 8 identify relate to your opinions for Element 11[b] for the
01:47:12 9 S23 product?

01:47:13 10 A. Well, Element 11[b] requires that the reproducing time
01:47:18 11 required for reproducing the image information under the
01:47:22 12 first reproducing mode, which I've highlighted in blue and
01:47:25 13 which matches up with the movie, is shorter than a
01:47:30 14 reproducing time required for reproducing the image
01:47:33 15 information under the second reproducing mode, which I've
01:47:35 16 highlighted in orange.

01:47:36 17 And this very clearly shows that the movie -- the
01:47:40 18 first reproducing mode takes less time or a shorter time
01:47:43 19 than the slideshow, which is the second reproducing mode.

01:47:46 20 Q. Professor Balakrishnan, for your first infringement
01:47:51 21 example for the S23 Ultra phone on Slide 72 here, what
01:47:57 22 product testing images are you including that relate to
01:48:00 23 your opinions for Element 11[b]?

01:48:02 24 A. Here, I'm showing on the left-hand side the runtime for
01:48:06 25 the movie. Again, you've already seen this. And it's

01:48:08 1 shorter than the run time for the slideshow, which in the
01:48:13 2 S23 Ultra simply continuously loops, so it doesn't stop.
01:48:17 3 So it essentially takes forever. So that is, therefore,
01:48:21 4 the movie time is less than or shorter than the slideshow
01:48:27 5 time.

01:48:27 6 Q. So, again, how do the times here relate to the claim
01:48:30 7 language and your opinions for Element 11[b]?

01:48:32 8 A. Well, the claim language says the first reproducing
01:48:36 9 time has to be less than or shorter than the time for the
01:48:41 10 second reproducing mode, and that's what I've shown here.

01:48:43 11 Q. So is it your opinion that the first reproducing mode,
01:48:45 12 the movie, is shorter than the second reproducing mode,
01:48:48 13 which is the slideshow?

01:48:49 14 A. The reproducing time required for the first reproducing
01:48:53 15 mode, which is the movie, it shorter than the reproducing
01:48:57 16 time required for the second reproducing mode, which is the
01:49:01 17 slideshow.

01:49:03 18 Q. Professor Balakrishnan, for your second and final
01:49:06 19 infringement example for the S23 Ultra phone, on Slide 73
01:49:11 20 here, what product testing images did you include that
01:49:13 21 relate to your opinions for Element 11[b]?

01:49:16 22 A. So, here, on the left-hand side, I'm showing the
01:49:20 23 highlight reel example that we saw the creation of earlier,
01:49:24 24 and it has a runtime of 1 minute, 49 seconds. And this is
01:49:29 25 shorter than the 2 minute, 15 second runtime of the movie

01:49:36 1 on the right-hand side.

01:49:37 2 Q. So, again, how does the images and your description
01:49:39 3 that relate to the claim language of 11[b] for the second
01:49:43 4 infringement example for the S23 Ultra?

01:49:46 5 A. Well, 11[b] requires, again, the reproducing time for
01:49:49 6 the first reproducing mode. In this case the highlight
01:49:53 7 reel is shorter than the reproducing time for the second
01:49:56 8 reproducing mode, which is the movie. I think we can all
01:49:59 9 agree 1:49 is shorter than 2:15.

01:50:03 10 Q. Professor Balakrishnan, based on your studying of all
01:50:07 11 of this evidence, what did you conclude about whether the
01:50:09 12 representative S23 and S23 Ultra phones each meet Claim
01:50:13 13 Element 11[b]?

01:50:13 14 A. Well, I can conclude that both the S23 and the S23
01:50:20 15 Ultra meets Claim Element 11[b].

01:50:22 16 Q. What claim element would you like to address next?

01:50:24 17 A. Look at 11[c], please.

01:50:26 18 Q. Do you have an opinion on whether the representative
01:50:29 19 S23 and S23 Ultra phones meet Claim Element 11[c]?

01:50:31 20 A. I do.

01:50:32 21 Q. What is your opinion?

01:50:33 22 A. My opinion is that both the phones, the S23 and the S23
01:50:38 23 Ultra, meets 11[c].

01:50:39 24 Q. Professor Balakrishnan, on Slide 76 here, what product
01:50:45 25 testing images did you include for the S23 phone that

01:50:49 1 relate to your opinions for Element 11[c]?

01:50:53 2 A. So here, I'm showing on this slide -- on the very
01:50:57 3 left-hand side is the auto-updating album that we -- we
01:51:00 4 have seen already that was created. And then I'm showing
01:51:03 5 the two different modes of -- of reproduction.

01:51:08 6 On the top, the movie that I've gone into some
01:51:10 7 detail. So when I create the movie, I've got on the
01:51:14 8 right-hand -- top right corner, I've selected 30 images
01:51:18 9 from the auto-update album to make that movie. So you can
01:51:23 10 see 30 out of 60 possible images.

01:51:26 11 In the bottom row, I'm showing excerpts of my
01:51:30 12 slideshow creation. When I hit the "Start slideshow"
01:51:32 13 option that we saw earlier, it plays all the images. So
01:51:36 14 all 139 images in the Hawah auto-updating album are
01:51:42 15 replayed in the second mode, which is the -- in this
01:51:45 16 example, a slideshow.

01:51:48 17 Q. So how do the images that you just described, including
01:51:53 18 the selection of certain images to create the movie out of
01:51:57 19 all of the images in the Hawah auto-updating album, relate
01:52:00 20 to your opinions for the S23 phone for Element 11[c]?

01:52:04 21 A. So Element 11[c] requires that the image information
01:52:10 22 reproduced under the second mode, which in this example is
01:52:13 23 the slideshow, includes the image information reproduced
01:52:18 24 under the first mode, which is the movie example.

01:52:19 25 So the slideshow has all 139 images from the

01:52:22 1 album. The movie only has 30 images. But those 30 images
01:52:26 2 I included in the slideshow, as well, right?

01:52:29 3 So what's in the second mode includes information
01:52:31 4 produced in the -- reproduced in the first mode.

01:52:35 5 And then the claim goes on. It says: And other
01:52:38 6 of the image information not reproduced under the first
01:52:43 7 reproducing mode.

01:52:43 8 So the slideshow now has 139 images, which is way
01:52:46 9 more images than the 30 images in the slide -- in the
01:52:49 10 movie. So, therefore, it includes additional images that
01:52:53 11 are not -- not -- additional image information not
01:52:57 12 reproduced in the movie.

01:52:58 13 So that's how these two mode examples meet up with
01:53:03 14 Claim 11[c].

01:53:06 15 Q. Professor Balakrishnan, what are you showing on
01:53:09 16 Slide 77 here related to your product testing for the S23
01:53:14 17 phone as it relates to 11[c]?

01:53:17 18 A. Here, I'm just reinforcing that the images used to
01:53:20 19 create both the movie and the slideshow came from the exact
01:53:24 20 same source, which was the auto-updating album for Hawah.
01:53:29 21 It's the same album. All the images came from there.

01:53:33 22 Q. Professor Balakrishnan, for your first infringement
01:53:36 23 example for the S23 Ultra phone, what product testing
01:53:41 24 images did you include on this slide that relate to your
01:53:45 25 opinions for Element 11[c]?

01:53:46 1 A. So what I'm showing here, very similar to what I showed
01:53:50 2 for the S23, is, again, starting from the auto-update album
01:53:53 3 on the left.

01:53:53 4 And we've seen the process for creating at the top
01:53:56 5 here the movie. And in this example, as you can see on the
01:54:01 6 top right corner, the movie is 45 images selected from the
01:54:06 7 Hawah auto-updating album.

01:54:08 8 On the bottom row is the showing of the slideshow,
01:54:13 9 right? And the slideshow here is taking all 98 images in
01:54:17 10 the album and replaying that.

01:54:20 11 Q. So how does your creation of the movie and the
01:54:24 12 slideshow, including with the movie having a subset of
01:54:30 13 pictures in the slideshow, relate to your opinions that the
01:54:34 14 S23 Ultra phone meets Element 11[c] in your first
01:54:37 15 infringement example?

01:54:38 16 A. Well, once again, as I did for the S23, for the S23
01:54:44 17 Ultra I've shown here that the image information required
01:54:46 18 under the -- reproduced under the second mode, which is the
01:54:50 19 slideshow, includes the image information reproduced under
01:54:53 20 the first mode, which is the movie.

01:54:56 21 In other words, all the images that are in the
01:54:59 22 movie -- the 45 images in the movie, they're also in the 98
01:55:03 23 images of the slideshow. The slideshow is showing all the
01:55:06 24 images in the album.

01:55:07 25 And because of that, it has additional images that

01:55:10 1 are not reproduced in the movie. So I've got everything in
01:55:13 2 the movie, and a bunch of stuff that was not in the movie
01:55:17 3 in the slideshow. Therefore, I meet up with Claim -- I
01:55:20 4 meet Claim Element 11[c] with this example.

01:55:23 5 Q. And the next slide, Professor Balakrishnan, what are
01:55:26 6 you showing here relating to the S23 Ultra phone relating
01:55:31 7 to your first infringement example for 11 -- Element 11[c]?

01:55:35 8 A. Just reiterating that the images used to create both
01:55:39 9 the movie and the slideshow all come from the same source,
01:55:43 10 which is the Hawah album that we've all seen again and
01:55:48 11 again the last bit.

01:55:50 12 Q. Professor Balakrishnan, for your second and final
01:55:52 13 infringement example for the S23 Ultra phone, what product
01:55:55 14 testing images did you include here on Slide 80 that relate
01:55:58 15 to your opinions for Element 11[c]?

01:56:00 16 A. So, here, I'm showing -- for the second example, I'm
01:56:03 17 showing on the top row the creation of the highlight reel
01:56:07 18 to correspond to the first reproducing mode. So the
01:56:12 19 highlight reel in this example has 25 images selected from
01:56:16 20 the same auto-update album for Hawah.

01:56:21 21 On the bottom is the creation of a movie. I won't
01:56:24 22 belabor the point, but it has 45 images selected. And
01:56:27 23 those -- you know, the 45 images in this movie also happen
01:56:32 24 to include the 25 images that were selected for the
01:56:37 25 highlight reel. Therefore -- I'll stop there.

01:56:40 1 Q. So, again, how does your creation of the highlight reel
01:56:43 2 and the movie, as you just explained, where the highlight
01:56:47 3 reel has a subset of the number of pictures in the movie,
01:56:51 4 relate to your opinions that the second infringement
01:56:53 5 example for the S23 Ultra meet Element [c]?

01:57:00 6 A. Well, one last time, the 11[c] requires that the image
01:57:04 7 information reproduced under the second mode, which is the
01:57:07 8 movie, includes the image information reproduced in the
01:57:10 9 first mode, which is the highlight reel, and I already told
01:57:13 10 you the 25 images in the highlight reel, I also included
01:57:16 11 them in the movie.

01:57:17 12 And other information not reproduced under the
01:57:21 13 first reproducing mode, which means I've got an additional
01:57:25 14 20 images in the movie -- image -- the movie has 45 total
01:57:31 15 images, the highlight reel only has 25, so I've got 20 more
01:57:33 16 images in the movie.

01:57:34 17 So there's additional image information not
01:57:38 18 reproduced with the highlight reel, which is the first
01:57:40 19 reproducing mode in this second example.

01:57:42 20 Q. Professor Balakrishnan, for this last example for the
01:57:48 21 S23 Ultra phone, what are you showing on this slide as it
01:57:52 22 relates to your opinions for Element 11[c]?

01:57:55 23 A. Just once more, reiterating and confirming that the
01:57:58 24 images used to create both the highlight reel and the movie
01:58:01 25 come from the same source of images, which is the Hawah

01:58:05 1 auto-updating album.

01:58:07 2 Q. Professor Balakrishnan, based on your studying of all
01:58:10 3 of this evidence, including what you considered for Claim
01:58:14 4 8, what did you conclude about whether the representative
01:58:19 5 S23 and S23 Ultra phones each meet Claim Element 11[c]?

01:58:21 6 A. Well, I concluded that the S23 and S23 Ultra both meet
01:58:27 7 Claim Element 11[c].

01:58:29 8 Q. Professor Balakrishnan, do you have an opinion
01:58:32 9 regarding whether Samsung's S23 and S23 Ultra
01:58:37 10 representative products meet each limitation of Claim 11
01:58:42 11 after the consideration of all of the evidence that you
01:58:44 12 talked about this morning and this afternoon?

01:58:46 13 A. I do.

01:58:47 14 Q. What is that opinion?

01:58:48 15 A. Well, my opinion is both the S23 and the S23 Ultra
01:58:52 16 representative products meet each and every element of
01:58:55 17 Claim 11, and, therefore, infringe Claim 11.

01:59:01 18 Q. So the S23 and S23 Ultra representative products
01:59:06 19 infringe Claim 11?

01:59:07 20 A. Absolutely.

01:59:09 21 Q. That's your opinion?

01:59:10 22 A. Absolutely.

01:59:10 23 Q. What claim would you like to address next?

01:59:13 24 A. Let's look at the last claim, which is Claim 12.

01:59:16 25 Q. What claim element would you like to address first?

01:59:20 1 A. Let's look at 12[a], please.

01:59:23 2 Q. Do you have an opinion on whether the representative
01:59:26 3 Samsung S23 Ultra phone meets Claim element 12[a]?

01:59:26 4 A. I do.

01:59:27 5 Q. What is your opinion?

01:59:28 6 A. My opinion is that the S23 Ultra meets Claim Element
01:59:32 7 12[a].

01:59:33 8 Q. What evidence, if any, supports your opinions that the
01:59:37 9 S23 Ultra phone meets Claim -- Claim 12?

01:59:41 10 A. 12[a], first of all, I incorporate all the evidence
01:59:47 11 I've already gone through and produced for Claim 11 --
01:59:52 12 Claim 8 and Claim 11 because Claim 12 depends upon Claim
01:59:57 13 11. So I'll bring all of that to bear. And, in addition,
02:00:01 14 I'd like to show some product testing evidence.

02:00:03 15 Q. Professor Balakrishnan, what product testing images did
02:00:06 16 you include here on Slide 86 for the S23 Ultra phone that
02:00:10 17 relate to your opinions for Claim Element 12[a]?

02:00:13 18 A. These are screenshots, and we've already seen the
02:00:16 19 individual screenshots in the earlier Claim 11 discussion.

02:00:19 20 But just to recap here, on the left-hand side, I'm
02:00:22 21 starting with the auto-update album, and I'm going to do a
02:00:26 22 creation on the top, first of all, the highlight reel. And
02:00:28 23 you can see I've got a highlight reel which I'm going to
02:00:31 24 call the first reproducing mode highlighted in purple.

02:00:40 25 And the second row has creation of a movie, and

02:00:42 1 that's the second reproducing mode highlighted in blue.

02:00:45 2 And, finally, on the bottom row is where all 98
02:00:49 3 images I included in this slideshow, which is the third
02:00:53 4 reproducing mode.

02:00:56 5 Q. Professor Balakrishnan, what are you showing on this
02:00:59 6 next slide relating to the S23 Ultra product as it relates
02:01:05 7 to your opinions for Element 12[a]?

02:01:06 8 A. I am simply showing that and confirming that all of the
02:01:10 9 images used to create each of the highlight reel, the
02:01:13 10 movie, and the slideshow in this example come from the same
02:01:17 11 image source, which is the Hawah auto-updating album.

02:01:22 12 Q. Based on your studying of all of this evidence, what
02:01:24 13 did you conclude about whether the representative S23 Ultra
02:01:28 14 phone meets Claim Element 12[a]?

02:01:31 15 A. I concluded that the S23 Ultra phone meets Claim
02:01:36 16 Element 12[a].

02:01:37 17 Q. And what claim element would you like to address next?

02:01:40 18 A. Let's look at the very last one, which is 12[b].

02:01:42 19 Q. Do you have an opinion on whether the representative
02:01:45 20 Samsung S23 Ultra phone meets Claim Element 12[b]?

02:01:50 21 A. I do.

02:01:50 22 Q. What is your opinion?

02:01:51 23 A. My opinion is that the S23 Ultra representative phone
02:01:55 24 meets 12[b].

02:01:55 25 Q. Professor Balakrishnan, what product testing images did

02:02:00 1 you include here on Slide 90 for the S23 Ultra phone as it
02:02:05 2 relates to your opinions for Claim Element 12[b]?

02:02:07 3 A. So, here, just to change things up a little bit, I'm
02:02:12 4 going to start on the right-hand side of the slide. And
02:02:14 5 what I have is a continuously looping slideshow. I think
02:02:17 6 we've seen the creation of that already.

02:02:18 7 And that has -- because it's continuously looping,
02:02:22 8 it takes a longer time, a longer reproducing time than the
02:02:27 9 2 minute, 15 second runtime of the movie in the middle of
02:02:33 10 the -- of the slide.

02:02:34 11 Q. So how do the product images in your identification of
02:02:38 12 the timing relate to your opinions that the S23 Ultra phone
02:02:45 13 meets Claim Element 12[b], and the claim limitation is to
02:02:48 14 the left there?

02:02:48 15 A. Well, the claim limitation requires that the
02:02:55 16 reproducing time required for reproducing image information
02:02:55 17 under the third reproducing mode is longer than the
02:02:59 18 reproducing time under the second reproducing mode.

02:03:01 19 And I've clearly showed that, that the slideshow
02:03:04 20 is longer than the movie. And the slideshow is the third
02:03:12 21 mode; the second reproducing mode is the movie.

02:03:13 22 Q. Professor Balakrishnan, based on your studying of all
02:03:15 23 of this evidence, what did you conclude about whether the
02:03:18 24 representative S23 Ultra phone meets Claim Element 12[b]?

02:03:22 25 A. I concluded that the S23 Ultra meets Claim Element

02:03:26 1 12[b].

02:03:26 2 Q. Do you have an opinion whether the -- whether Samsung's
02:03:30 3 S23 Ultra representative product meets each limitation of
02:03:35 4 Claim 12?

02:03:35 5 A. I do.

02:03:36 6 Q. What is that opinion?

02:03:37 7 A. The opinion is that the S23 Ultra representative phone
02:03:42 8 meets each element of Claim 12, and, therefore, infringes
02:03:46 9 Claim 12.

02:03:46 10 Q. So the S23 representative -- the S23 Ultra
02:03:50 11 representative phone infringes Claim 12 --

02:03:53 12 A. Yes.

02:03:54 13 Q. -- correct?

02:03:56 14 A. Yes, it does.

02:03:57 15 Q. Thank you, Professor Balakrishnan.

02:03:58 16 MR. LINDINGER: No further questions at this time,
02:04:00 17 Your Honor.

02:04:00 18 THE COURT: Okay. Could I have counsel approach
02:04:03 19 quickly?

02:04:07 20 (Bench conference.)

02:04:13 21 THE COURT: Okay. So sometimes I do juror
02:04:19 22 questions, jury questioning in trials. I do that when
02:04:23 23 we've discussed it at the pretrial and the parties have had
02:04:26 24 an opportunity to discuss it. We didn't do that in this
02:04:30 25 case. You all haven't discussed it, and we've not used it

02:04:36 1 up to this point.

02:04:36 2 I did get a note handed up from a juror, and I
02:04:43 3 will tell you what it says.

02:04:44 4 It says: Could the Court help define the word
02:04:49 5 "set" -- quote, unquote, "set" in Claim 11[a], either as a
02:04:53 6 verb meaning "to set up" or as a noun meaning "a group of"?

02:04:57 7 So I'm passing that along to you all. I'm not
02:05:02 8 going to ask the question, and I'm going to explain to the
02:05:05 9 jury that -- that we're not doing jury questions in this
02:05:11 10 case, and that we will give them further instructions at
02:05:17 11 the conclusion of all the evidence that will guide them in
02:05:20 12 their deliberations.

02:05:21 13 But I wanted to disclose that to you now and any
02:05:27 14 issue -- concern you have with my approach, please let me
02:05:32 15 know.

02:05:34 16 MR. FOWLER: It's fine with me, Your Honor.

02:05:34 17 THE COURT: Is that okay with you?

02:05:36 18 MR. FOWLER: Yes, Your Honor.

02:05:36 19 MR. LINDINGER: Sounds good, Your Honor.

02:05:37 20 THE COURT: Okay. Thank you. We've been going an
02:05:40 21 hour and five. How much have you got?

02:05:43 22 MR. FOWLER: It's going to be a while.

02:05:43 23 THE COURT: I'm trying to figure out when we
02:05:43 24 should break.

02:05:50 25 MR. FOWLER: Probably go an hour or so, 45 minutes

02:05:51 1 to an hour.

02:05:53 2 (Open court.)

02:05:53 3 THE COURT: Would the jury like a break at this
02:05:55 4 point? Or do you want to go a little further? A break at
02:06:00 5 this point?

02:06:00 6 (Bench conference continues.)

02:06:03 7 THE COURT: We'll take a short break here.

02:06:05 8 (Bench conference concluded.)

02:06:06 9 THE COURT: All right. Ladies and gentlemen of
02:06:07 10 the jury, we're going to take our afternoon recess a little
02:06:10 11 bit early. We may end up taking a second afternoon recess,
02:06:14 12 if necessary.

02:06:14 13 I did get a note handed up to me -- you can step
02:06:18 14 down, sir, if you wish.

02:06:19 15 I did get a note handed up to me during the
02:06:23 16 witness's testimony, asking for some further instruction on
02:06:28 17 some of the terminology that has been used.

02:06:30 18 And I do want to tell you that it is frequently my
02:06:33 19 practice in trials like this where there is, you know,
02:06:38 20 relatively complicated technical information involved
02:06:48 21 that -- to use a juror questioning so that a jury -- the
02:06:54 22 jury gets to pass up questions at the end of a witness's
02:06:59 23 testimony, then I will visit with those -- visit with the
02:07:04 24 attorneys at the bench about the questions. And sometimes
02:07:08 25 questions are appropriate, and sometimes they're not. It

02:07:12 1 can depend on a variety of different factors.

02:07:15 2 We are not doing that in this case for reasons
02:07:18 3 that are not important now. And so I can't really pose
02:07:27 4 your question either to the witness or to substantively
02:07:31 5 respond to it. So -- but I did want to let you know I
02:07:34 6 received the note. I shared it with the attorneys. They
02:07:37 7 agreed with what I am telling you now.

02:07:44 8 But what I can tell you is at the end of the case,
02:07:46 9 after all of the evidence has been presented, I will give
02:07:49 10 you further instructions that will assist you and guide you
02:07:53 11 during your deliberations.

02:07:55 12 So I didn't want to break without telling you
02:07:59 13 that, and we'll take our afternoon recess at this time.

02:08:02 14 COURT SECURITY OFFICER: Please stand for the
02:08:04 15 jury.

02:08:05 16 (Jury out.)

02:08:40 17 MR. FOWLER: Your Honor, just so we can get a
02:08:43 18 flying -- so we can get a flying start, can we go ahead and
02:08:50 19 distribute the binders?

02:08:52 20 THE COURT: Of course.

02:08:53 21 MR. FOWLER: And may I use a microphone?

02:08:56 22 THE COURT: Of course, whatever you need to do.

02:09:01 23 MR. FOWLER: Thank you.

02:09:01 24 (Recess.)

02:20:50 25 (Jury out.)

02:20:50 1 COURT SECURITY OFFICER: All rise.

02:22:36 2 THE COURT: If you would have the jury brought

02:22:41 3 down.

02:22:42 4 MR. LINDINGER: Your Honor?

02:22:42 5 THE COURT: Yes, sir?

02:22:42 6 MR. LINDINGER: I have one quick question before

02:22:44 7 the jury is brought in.

02:22:45 8 THE COURT: Yes, sir.

02:22:46 9 MR. LINDINGER: I just wanted to raise -- so we

02:22:49 10 got -- do you want to do a sidebar, Your Honor?

02:22:51 11 THE COURT: Sidebar or --

02:22:52 12 MR. BEABER: The witness is here.

02:22:54 13 THE COURT: The witness is -- yeah, yeah, you can

02:22:56 14 come over here.

02:22:57 15 MR. LINDINGER: Can we do a sidebar?

02:22:59 16 (Bench conference.)

02:23:06 17 THE COURT: You got to get close to the

02:23:08 18 microphone.

02:23:08 19 MR. LINDINGER: So Mr. Fowler gave us this binder,

02:23:11 20 one of which is the institution decision. Again, if he's

02:23:16 21 asking the basic questions that we've gone over before

02:23:18 22 about awareness and that sort of stuff, I don't have a

02:23:20 23 problem with that.

02:23:20 24 I also see though that he has Dr. Balakrishnan's

02:23:24 25 IPR deposition. I just want to be clear, like, if we're

02:23:28 1 starting to get into his testimony and trying to do claim
02:23:30 2 construction on the fly, no terms were construed in this
02:23:35 3 case in the '848 patent. That's a separate proceeding, and
02:23:38 4 this is exactly what I talked about getting a trial within
02:23:40 5 a trial.

02:23:41 6 MR. FOWLER: There's --

02:23:41 7 MR. LINDINGER: So if he wants to get into,
02:23:41 8 like --

02:23:41 9 MR. FOWLER: No there's --

02:23:41 10 MR. LINDINGER: -- statements --

02:23:42 11 MR. FOWLER: -- no concern, Your Honor.

02:23:43 12 I'm sorry, I didn't mean to interrupt you.

02:23:43 13 THE COURT: You go ahead and finish.

02:23:44 14 MR. LINDINGER: As I said, if he's just getting
02:23:47 15 into the high-level questions, awareness, fine, but if we
02:23:50 16 starts getting into opinions, that's far afield from what
02:23:53 17 we kind of agreed on.

02:23:55 18 MR. FOWLER: Won't be an issue, Your Honor. He
02:23:57 19 was asked some questions about the re-examination, not the
02:24:00 20 IPR. You asked him about that. I'm then going to ask him
02:24:05 21 since he -- they raised the issue of what was valid or not,
02:24:07 22 I'm going to ask him the same kind of questions about --

02:24:07 23 THE COURT: Sure.

02:24:10 24 MR. FOWLER: -- are you aware about it, the
02:24:12 25 petition, the statement. And then the only reason his IPR

02:24:14 1 deposition is in here is in case he says something that's
02:24:17 2 contrary to that. But if I had to impeach him, I wouldn't
02:24:19 3 say it was in the IPR. I would just say it was the date of
02:24:23 4 deposition --

02:24:23 5 THE COURT: The exhibits are in at this point. I
02:24:26 6 overruled your objections. So, I mean, you're welcome to
02:24:29 7 object further, but, I mean, I think the door is opened
02:24:32 8 here. And --

02:24:32 9 MR. LINDINGER: On that exhibit, I agree,
02:24:34 10 Your Honor. I'm just saying the IPR -- the details of the
02:24:37 11 IPR --

02:24:37 12 THE COURT: That's the argument you made yesterday
02:24:38 13 was overruled.

02:24:39 14 MR. LINDINGER: Okay. I understand, Your Honor.
02:24:41 15 Thank you.

02:24:42 16 (Bench conference concluded.)

02:24:42 17 THE COURT: All right. Let's have the jury
02:24:44 18 brought down.

02:25:14 19 COURT SECURITY OFFICER: Please stand for the
02:25:20 20 jury.

02:25:20 21 (Jury in.)

02:25:21 22 THE COURT: Please be seated.

02:25:44 23 Mr. Fowler, cross-examination.

02:25:46 24 MR. FOWLER: Thank you, Your Honor.

02:25:49 25 CROSS-EXAMINATION

02:25:50 1 BY MR. FOWLER:

02:25:50 2 Q. Good afternoon, Dr. Balakrishnan. How are you?

02:25:53 3 A. Very good.

02:25:54 4 Q. So we just heard your side of the infringement story,

02:25:57 5 or Maxell's side of the infringement story. You understand

02:26:00 6 that Samsung has retained Dr. Kia over here, who will be

02:26:03 7 testifying later in this case to tell Samsung's side of the

02:26:07 8 noninfringement story. Correct?

02:26:08 9 A. Yes, I understand.

02:26:09 10 Q. And you agree with me that you and Dr. Kia have a

02:26:15 11 pretty sharp disagreement as to whether or not there's

02:26:18 12 infringement; is that right?

02:26:18 13 A. We have a disagreement.

02:26:20 14 Q. Okay. And the jury hasn't heard Samsung's side of the

02:26:22 15 story yet, only your side, right?

02:26:26 16 A. Beyond the opening, that's correct.

02:26:29 17 Q. Okay. So we'll hear Samsung's side of the story later.

02:26:29 18 I'm going to focus my questions on your side of the story

02:26:32 19 only for the cross-examination; is that fair?

02:26:34 20 A. Sure.

02:26:34 21 Q. Okay. So during the beginning of the examination,

02:26:37 22 counsel for Maxell asked you about re-examination

02:26:41 23 proceeding that was filed by Apple as to the '848 patent.

02:26:46 24 Do you -- do you recall those questions that you

02:26:47 25 were asked about that?

02:26:48 1 A. I do.

02:26:49 2 Q. Okay. Now, as -- to get a full scope for the jury of
02:26:54 3 what happened there, Maxell --

02:27:00 4 THE COURT: Hold up. Just a minute. Mr. Fowler,
02:27:01 5 I need you to get your mic a little -- yeah, your lapel mic
02:27:05 6 closer to you. I think some of the jury is struggling to
02:27:08 7 hear you.

02:27:08 8 MR. FOWLER: Is this better?

02:27:09 9 THE COURT: Better. And I also need you to slow
02:27:12 10 down for me, Mr. Fowler.

02:27:13 11 MR. FOWLER: Okay. Thank you. I'll do my best.

02:27:17 12 Q. (By Mr. Fowler) During the re-examination proceeding
02:27:22 13 that was initiated by Apple, as a result of that, Maxell
02:27:26 14 canceled some of the claims of the '848 patent, correct?

02:27:29 15 A. That is my understanding, yes.

02:27:31 16 Q. Okay. And a canceled claim is basically like saying
02:27:36 17 that claim no longer exists, and Maxell doesn't claim that
02:27:38 18 it invented what's in that claim any longer, right?

02:27:42 19 A. Well, it's no longer a claim in the patent. I'm not
02:27:46 20 sure about "no longer exist" part.

02:27:48 21 Q. Well, they're not in their patent claiming that they
02:27:51 22 have some ownership interest to it, that they were the
02:27:54 23 first to invent it, correct?

02:27:55 24 A. Probably true, yes.

02:27:56 25 Q. Okay. And let's pull up, if we could, from your deck,

02:28:06 1 your slide deck, PDX-6-58.

02:28:19 2 Now, this is your slide showing Claim 8 of the
02:28:27 3 '848 patent, correct?

02:28:28 4 A. That's correct.

02:28:28 5 Q. And in the Apple re-exam, Maxell canceled Claim 8,
02:28:35 6 correct?

02:28:35 7 A. That's correct.

02:28:36 8 Q. Okay. So this claim, as a standalone claim, doesn't
02:28:40 9 exist anymore, right?

02:28:41 10 A. As a standalone claim, yes. But Claim 11 depends upon
02:28:46 11 it, so, therefore, these elements are included in Claim 11,
02:28:50 12 which is why I gave the explanation.

02:28:52 13 Q. I'll ask you some questions, we'll get to that. But
02:28:55 14 this -- this claim here, Maxell doesn't claim to what's in
02:28:58 15 this claim by itself anymore as being its -- right, its
02:29:03 16 property?

02:29:03 17 A. That's right.

02:29:03 18 Q. Okay. And it's only because Claim 11 and 12 that are
02:29:08 19 added to this that it claims some rights against Samsung,
02:29:13 20 right?

02:29:13 21 A. Claims Claim 11 and 12, yes.

02:29:15 22 Q. Now, Claims 11 and 12 are currently subject to review
02:29:22 23 by the Patent Office today, right?

02:29:24 24 A. That is correct.

02:29:24 25 Q. And you know that because you're involved in that

02:29:27 1 proceeding, correct?

02:29:28 2 A. Yes.

02:29:29 3 Q. Okay. And what happened was when Samsung was sued in
02:29:34 4 this case, it filed a petition with the Patent Office and
02:29:37 5 asked it to review Claims 11 and 12 and some of the other
02:29:41 6 claims higher up the food chain because it thought that
02:29:44 7 they were invalid in light of prior art patents. Correct?

02:29:49 8 A. I'll agree with the 11 and 8 part -- sorry, 11 and 12.
02:29:53 9 The "higher up the food chain" phrase I'm not so sure
02:29:57 10 about, but...

02:29:57 11 Q. Okay. But the first two claims it asked the Patent
02:30:00 12 Office to look at were 11 and 12?

02:30:03 13 A. That -- correct, I can agree with that.

02:30:04 14 Q. Okay. And after the Patent Office reviewed the prior
02:30:07 15 art that Samsung showed to it and after it considered
02:30:10 16 Maxell's response, it issued an institution decision
02:30:17 17 granting Samsung's petition for further review, correct?

02:30:21 18 A. For further review, that's correct.

02:30:23 19 Q. And the last word that we've had from the Patent Office
02:30:25 20 on this, and I'm quoting from DTX-244, which the jury saw
02:30:31 21 yesterday, on December 4th, 2004, is the Patent Office said
02:30:34 22 that Samsung, quote, has shown a reasonable likelihood that
02:30:37 23 it would prevail in showing the unpatentability of at least
02:30:41 24 one of the challenged claims, correct?

02:30:44 25 A. Can you point me to where in DTX- -- I have it here in

02:30:48 1 front of me.

02:30:55 2 Q. It's Page 2.

02:30:57 3 A. Okay. And where on Page 2?

02:30:57 4 Q. Sure.

02:30:58 5 MR. FOWLER: Why don't we bring that up. Here we
02:31:00 6 go. It's the second paragraph.

02:31:02 7 Q. (By Mr. Fowler) Okay. It says: Thereupon,
02:31:04 8 consideration of the petition?

02:31:07 9 That's what Samsung filed, right?

02:31:09 10 A. That's my understanding.

02:31:10 11 Q. The preliminary response, that's what Maxell filed,
02:31:10 12 correct?

02:31:14 13 A. Correct.

02:31:14 14 Q. And the evidence of record, that would include the
02:31:18 15 prior art and the declaration submitted by Samsung's expert
02:31:21 16 among other things.

02:31:22 17 Correct?

02:31:24 18 A. I believe that's correct.

02:31:26 19 Q. We, meaning the Patent Office, determined that
02:31:30 20 petitioner, meaning Samsung, has shown a reasonable
02:31:33 21 likelihood that it would prevail in showing the
02:31:35 22 unpatentability of at least one of the challenged claims.

02:31:39 23 Correct?

02:31:42 24 A. At least one of the challenged claims. That's what it
02:31:44 25 says on this document.

02:31:45 1 Q. Let's look at the paragraph up above, and the
02:31:48 2 challenged claims include 11 and 12, right? Those are the
02:31:52 3 first two claims that were challenged?

02:31:54 4 A. Among a long list, yes.

02:31:56 5 Q. Okay. Okay. Thank you, sir.

02:32:03 6 Now, Claims 11 and 12 of the '848 patent claim a
02:32:10 7 very particular way of using face recognition to register
02:32:15 8 the name of a person whose name appears in the picture. Is
02:32:15 9 that fair?

02:32:20 10 A. You have paraphrased Claim 11 and 12, but as a general
02:32:24 11 gist, I think that's the general idea.

02:32:26 12 Q. So you'd agree with me?

02:32:28 13 A. You have paraphrased it, but I would agree with the
02:32:31 14 claim language in what is claimed.

02:32:33 15 Q. Okay. And if Samsung phones do not operate in a
02:32:36 16 particular way covered by Claims 11 and 12, they don't
02:32:41 17 infringe, right?

02:32:42 18 A. They do operate in that particular way.

02:32:47 19 Q. I asked you another question, Dr. Balakrishnan. If the
02:32:50 20 Samsung phones don't operate in the very specific way
02:32:54 21 claimed by Claims 11 and 12, they don't infringe, right?

02:32:57 22 A. If they don't, they don't. I've shown that they do.

02:33:00 23 Q. Well, we'll see about that.

02:33:02 24 But similar is not good enough for infringement,
02:33:05 25 right? It's got to be the same?

02:33:07 1 A. It's got to infringe every element of the claim, yes.

02:33:11 2 Q. Okay. So if there's even one difference, there's no
02:33:14 3 infringement. Would you agree with me?

02:33:15 4 A. If one element of the claim is not met, then it would
02:33:20 5 be no infringement.

02:33:21 6 Q. Okay. And for sure if there's two elements that are
02:33:23 7 not met, there's no infringement, right?

02:33:24 8 A. Sure.

02:33:25 9 Q. Okay. So let's look at the claim language.

02:33:28 10 MR. FOWLER: If we could pull up on the screen
02:33:31 11 Claim 8 of the '848 patent on which Claims 11 and 12
02:33:34 12 depend, and we could start at Line 64?

02:33:42 13 Q. (By Mr. Fowler) And I want to focus your attention on
02:33:46 14 the claim limitation that starts: Register a person.

02:33:49 15 I believe you designated those as claim
02:33:52 16 limitations 8[g] and 8[h] in your slides; is that correct?

02:33:56 17 A. I believe that is correct.

02:33:58 18 Q. Okay. Now, this limitation or these limitations
02:34:01 19 pertain to the first setting mode and the second setting
02:34:04 20 mode, correct?

02:34:04 21 A. Yes.

02:34:10 22 Q. Okay. And you agree that the claims require having, in
02:34:13 23 an accused product in order to infringe, both a first
02:34:17 24 setting mode and a second setting mode?

02:34:21 25 A. Yes.

02:34:21 1 Q. And you agree with me that the first setting mode must
02:34:24 2 be something different than the second setting mode,
02:34:24 3 correct?

02:34:27 4 A. Sure.

02:34:27 5 Q. Okay. I'd like to start talking about the second
02:34:37 6 setting mode that you identified during your testimony in
02:34:40 7 the S23 phones.

02:34:41 8 Your theory of infringement for the second setting
02:34:44 9 modes is registering a person by creating an auto-updating
02:34:48 10 album for that person in the Gallery application; is that
02:34:50 11 correct?

02:34:51 12 A. Broadly speaking, yes, but it has the specific steps I
02:34:55 13 went through in my direct exam.

02:34:57 14 Q. Okay. But having that second setting mode, the
02:34:59 15 auto-updating album, that's not enough to perform all of
02:35:03 16 Claim 8, right?

02:35:04 17 A. Just the second setting mode?

02:35:09 18 Q. Right.

02:35:10 19 A. That is correct.

02:35:10 20 Q. So if the jury were to conclude, after listening to you
02:35:15 21 for the rest of your examination and after listening to
02:35:17 22 Dr. Kia, that the only way to register a person in the
02:35:20 23 phone is through that auto-updating album, there'd be no
02:35:26 24 infringement, if that's what the jury concludes. Correct?

02:35:28 25 A. If they conclude that there is no first setting mode,

02:35:34 1 as I showed, then there would be no infringement.

02:35:37 2 Q. And that's because the auto-updating mode, that's

02:35:42 3 not -- you don't claim that's a first setting mode, right?

02:35:45 4 A. You mean the auto-updating album?

02:35:47 5 Q. Yes. Thank you for correcting me.

02:35:49 6 That's because you don't contend that the
02:35:52 7 auto-updating album is the first setting mode, right?

02:35:55 8 A. In and of itself, that's correct.

02:35:58 9 Q. Okay. Now, you understand, again, that Samsung and
02:36:01 10 Dr. Kia's opinion is that creating an auto-updating album
02:36:04 11 is the only way to register a specific person, and that
02:36:08 12 there's no first setting mode as claimed in the patent.

02:36:13 13 Correct?

02:36:13 14 A. I believe that's Dr. Kia's position, and I assume
02:36:18 15 Samsung's position.

02:36:19 16 Q. Okay. So let's -- what I'd like to do is we're going
02:36:22 17 to go back, just take a quick peek at one of your slides,
02:36:29 18 PDX-6-54.

02:36:32 19 You recall giving testimony about this slide?

02:36:35 20 A. Yes, of course.

02:36:36 21 Q. And I don't mean to minimize what you said, but is it
02:36:40 22 fair to say that this slide was intended to be a summary of
02:36:44 23 your testimony about why you think there's both a second
02:36:48 24 setting mode and a first setting mode in Samsung's phones?

02:36:51 25 A. It's a summary, but obviously I gave more detailed

02:36:54 1 testimony as to each of the modes earlier on, prior to this
02:36:58 2 slide, but I would agree that this is a summary.

02:37:00 3 Q. Okay. So what I'd like to do with you, sir, is we're
02:37:03 4 going to -- we're going to pull this down in a second, and
02:37:06 5 I'm going to ask you a series of questions, and then when
02:37:09 6 we're done getting your testimony about that, we're going
02:37:13 7 to pull this up and run through it again just to see if
02:37:16 8 there is a first and second setting mode. Is that okay?

02:37:22 9 A. Sure.

02:37:23 10 Q. Okay. So when you -- when you did --

02:37:25 11 MR. FOWLER: Let's pull that down.

02:37:26 12 Q. (By Mr. Fowler) So when you did your analysis, I think
02:37:29 13 I heard you say when you were testifying that as a
02:37:33 14 scientist, before you reached your conclusions, you
02:37:38 15 developed a testing protocol, right?

02:37:41 16 A. Yes.

02:37:41 17 Q. And that was a testing protocol that you actually had
02:37:44 18 in writing. It wasn't just something in your head?

02:37:46 19 A. Yes. I put it down as a protocol, yes.

02:37:51 20 Q. And the whole point of that testing protocol was you
02:37:53 21 were going to follow a series of steps, and those steps
02:37:58 22 would determine whether or not you concluded there was
02:38:01 23 infringement. Is that right?

02:38:02 24 A. At a very high level, that's -- that's fair. But
02:38:07 25 that's not the only evidence. I obviously provided all

02:38:11 1 kinds of other evidence that we went through today.

02:38:13 2 Q. Right. But you would agree with me, sir, that if -- if
02:38:15 3 the conclusion reached by going through your testing
02:38:19 4 protocol was that there wasn't a first setting mode, that
02:38:23 5 would be in conflict with your ultimate opinion. Right?

02:38:28 6 A. Sure.

02:38:28 7 Q. Okay. Now, this -- this protocol that you developed,
02:38:33 8 you didn't do that on your own, you worked with the Mayer
02:38:36 9 Brown attorneys to make sure that it was something that
02:38:40 10 everyone on your side of the courtroom was satisfied with.
02:38:42 11 Right?

02:38:43 12 A. Sure. There was a lot of back and forth in the
02:38:45 13 development of that protocol, yes.

02:38:47 14 Q. Okay. And when you say back and forth, you mean that
02:38:51 15 you and the Mayer Brown attorneys, you went back and forth,
02:38:54 16 and you -- you proposed something, you revised it, you
02:38:57 17 further proposed it until you were both happy that it would
02:39:01 18 be something that ultimately, at least in your view, would
02:39:03 19 show infringement. Is that right?

02:39:05 20 A. That's fair.

02:39:06 21 Q. Okay. Now, this testing protocol that you put together
02:39:17 22 required a specific set of steps to be carried out in a
02:39:20 23 specific order; is that right?

02:39:21 24 A. Generally. Some things did not have to be taken in the
02:39:27 25 same order, but as a general matter, yes.

02:39:29 1 Q. But in the written protocol -- and we can pull it up
02:39:33 2 later if you'd like. But in the written protocol you had
02:39:36 3 things that you were going to do on Day 1, and then one,
02:39:38 4 two, three, four, et cetera, right?

02:39:41 5 A. That's correct.

02:39:41 6 Q. And those were to be done in order, generally?

02:39:44 7 A. Yes.

02:39:44 8 Q. And then Day 2, one, two, three, four, et cetera,
02:39:48 9 correct?

02:39:48 10 A. Yes.

02:39:49 11 Q. Okay. And on that first day, your protocol was that
02:39:55 12 you would take at least 50 pictures of three different
02:39:59 13 people, so 150 pictures at least. Is that correct?

02:40:02 14 A. I don't recall the specific number, but it was a large
02:40:04 15 number of pictures of three different people.

02:40:06 16 Q. Well, would you just take my word for it just for
02:40:08 17 purposes of our questioning that it was 150 pictures. Does
02:40:08 18 that sound right?

02:40:12 19 A. That's fine. It's in that -- it's in that ballpark,
02:40:15 20 sure.

02:40:15 21 Q. Okay. Now, all of those pictures were taken, and I
02:40:18 22 believe you said this on direct examination, using the
02:40:21 23 camera application in the Samsung phone, right?

02:40:25 24 A. Originally, yes.

02:40:29 25 Q. Right. Well, is there any other way to take a picture

02:40:32 1 on the camera -- on the Samsung phone other than using the
02:40:36 2 camera?

02:40:36 3 A. No.

02:40:36 4 Q. Okay. So you used the camera.

02:40:38 5 Now, in this first day's series of events, after
02:40:44 6 you had the photos taken, you registered at least one of
02:40:47 7 the three people by using the name Hawah, right?

02:40:52 8 A. I created a auto-updating album for Hawah, and that
02:40:57 9 registered Hawah as a person who's registered.

02:41:01 10 Q. And that -- her name, and just to spell it for the
02:41:04 11 record, her name Hawah is H-a-w-a-h, correct?

02:41:09 12 A. Yes.

02:41:09 13 Q. And that auto-updating album where you -- you -- you
02:41:12 14 created that album for her, that's what you call the second
02:41:17 15 setting mode; is that right?

02:41:17 16 A. The creation of the album within the Gallery
02:41:20 17 application.

02:41:21 18 Q. You anticipated my next question.

02:41:23 19 So in order to do that, you had to leave the
02:41:26 20 camera application and go into the Gallery application in
02:41:29 21 the phone, right?

02:41:30 22 A. Yes.

02:41:31 23 Q. And at that point, we're not talking about the camera
02:41:35 24 anymore, correct, for this first step?

02:41:37 25 A. For the first setting mode -- the auto-update album

02:41:41 1 creation --

02:41:42 2 Q. For the second setting mode?

02:41:43 3 A. Sorry, for the second setting mode. Creation of the
02:41:46 4 auto-updating album that we've already taken the
02:41:50 5 pictures --

02:41:50 6 Q. Okay.

02:41:51 7 A. -- so we're using the Gallery application.

02:41:53 8 Q. Right. And that's -- those are pictures that have been
02:41:54 9 saved on to the phone, and you're in the Gallery
02:41:57 10 application, right?

02:41:58 11 A. Yes.

02:41:59 12 Q. Okay. So once that's happened, once you've set up that
02:42:09 13 first setting -- you've set up that auto-updating album for
02:42:13 14 Hawah in the phone, she's been registered, right, on the
02:42:17 15 phone?

02:42:18 16 A. You said first setting --

02:42:20 17 Q. I'm sorry, I may have misspoken.

02:42:22 18 So once you've used the auto-updating album to
02:42:25 19 register Hawah in the Gallery application, she has been
02:42:30 20 registered at that point.

02:42:35 21 A. Her name has been registered as being -- matching up
02:42:38 22 that face at that point for the second setting mode.

02:42:40 23 Q. And at that point, Hawah has been registered as a
02:42:46 24 specific person in the phone in the Gallery application,
02:42:48 25 right?

02:42:48 1 A. In that second setting mode, that's correct.

02:42:51 2 Q. Okay. Well, let's just back up.

02:42:59 3 At that point in time, in this point in your
02:43:01 4 protocol, if you -- if you pick up the phone that you were
02:43:05 5 using for testing, Hawah is registered as a specific person
02:43:09 6 in the Gallery application at that point in time. Right?

02:43:12 7 A. After I've created the album is what you're saying?

02:43:16 8 Q. Yeah.

02:43:16 9 A. Yes. She's registered within the application under
02:43:20 10 that second setting mode.

02:43:23 11 Q. And, in your view, that would satisfy the second
02:43:27 12 setting mode requirement of the claims, correct?

02:43:28 13 A. Yes.

02:43:30 14 Q. Okay. Now, according to your -- and let me back up.

02:43:38 15 At that point in time, nothing more needs to be
02:43:41 16 done to register Hawah on the phone? She's -- she's
02:43:44 17 registered in the Gallery app, right?

02:43:47 18 A. She has been registered once in the second setting
02:43:51 19 mode.

02:43:51 20 Q. Okay. So at this -- this -- according to your testing
02:43:55 21 protocol, the second form of registration that you claim is
02:44:01 22 the first setting mode of the '848 patent. You need to
02:44:05 23 show that next, right?

02:44:06 24 A. I need to show the first setting mode, yes.

02:44:08 25 Q. So let's talk about how you did that.

02:44:15 1 What you did is you already had the 150 pictures
02:44:18 2 of Hawah who's already been registered in the Gallery
02:44:24 3 application. You took some new pictures of Hawah, right?
02:44:27 4 A. No, there is -- there is -- I don't believe there were
02:44:31 5 150 pictures of Hawah.

02:44:32 6 Q. Okay. I'm sorry, you're right. You're right.

02:44:34 7 So there's approximately 50 pictures of Hawah on
02:44:37 8 the phone, and she's already been registered in the Gallery
02:44:41 9 application. And in order to do the first setting mode,
02:44:43 10 you took some more pictures using the camera application,
02:44:47 11 right?

02:44:47 12 A. I'm not so sure about the exact number of the 50, but
02:44:51 13 let's say that 50 is correct. I did go and take additional
02:44:56 14 pictures of Hawah in the camera application, which is now
02:45:01 15 going to be the first setting mode.

02:45:07 16 Q. Okay. So with that background in mind, let's go back
02:45:12 17 to Slide PDX-6-54. Okay. And let's start at the top where
02:45:23 18 it says: Second setting mode. Everything that we see here
02:45:26 19 at the top is happening in the Gallery application, right?

02:45:30 20 A. The -- the top row?

02:45:34 21 Q. Yes, the purple?

02:45:35 22 A. Yes, that's in the Gallery application. Obviously, the
02:45:38 23 face recognition is calling FaceServices and other
02:45:42 24 underlying code, but this is within the Gallery
02:45:45 25 application.

02:45:45 1 Q. Okay. And at the end on the right, that last -- that
02:45:51 2 last part, at that point in time, there's an auto-updating
02:45:55 3 album that's been created for Hawah, right?

02:45:57 4 A. Yes.

02:45:57 5 Q. And she's registered?

02:46:00 6 A. As -- yes. Within that album, yes.

02:46:03 7 Q. She's registered.

02:46:05 8 Okay. So now let's move to the bottom.

02:46:07 9 Now, you start there. You open up the camera
02:46:11 10 application, right?

02:46:11 11 A. Yes.

02:46:11 12 Q. Okay. And you take a new picture of Hawah. That's the
02:46:17 13 second thing that you have here?

02:46:18 14 A. We actually took several new pictures, but in this
02:46:22 15 example we take -- I'm showing just one picture.

02:46:25 16 Q. But just to be clear, when you took that -- those new
02:46:29 17 pictures, Hawah was already registered in the Gallery
02:46:33 18 application, and an existing album had already been created
02:46:39 19 for her, right?

02:46:39 20 A. She was registered once in the second setting mode,
02:46:42 21 yes.

02:46:42 22 Q. Okay. Now, when you move to the -- to the right -- and
02:46:46 23 there's no box here, but when you're in face recognition
02:46:50 24 and added to album, you're not trying to suggest to the
02:46:54 25 jury that that's happening in the camera application.

02:46:56 1 Right?

02:46:56 2 A. That the face recognition is happening in the camera
02:47:02 3 application?

02:47:03 4 Q. No. I'm saying you did not intend to suggest that,
02:47:07 5 right?

02:47:07 6 A. I'm not suggesting that.

02:47:08 7 Q. Because if you were to put a box around this like
02:47:12 8 Mr. Splansky just did --

02:47:14 9 MR. FOWLER: Could you do that again?

02:47:16 10 Q. (By Mr. Fowler) -- that's actually happening in the
02:47:17 11 Gallery application, not in the camera application, right?

02:47:20 12 A. Sure.

02:47:23 13 Q. Okay. And then what's happening here -- I think what
02:47:30 14 you're showing is you're saying that the Gallery
02:47:34 15 application recognizes her face. And then it adds it to
02:47:39 16 this existing album, right, this existing album on the
02:47:42 17 right?

02:47:43 18 A. The Gallery application recognized the face -- her new
02:47:47 19 face -- the new face and the new images, recognizes it, and
02:47:53 20 registers her as a specific person and adds it to the
02:47:56 21 album.

02:47:56 22 Q. I understand that's what your opinion is.

02:47:59 23 But the top album, the auto-updating album in the
02:48:02 24 purple and the auto-updating album at the bottom, those are
02:48:05 25 the same auto-updating album, right?

02:48:07 1 A. They are the same album. In the bottom now, new
02:48:13 2 pictures have been added to the album.

02:48:15 3 Q. Right. But it's is the same album -- what you're doing
02:48:18 4 here is a new picture of her is being added to the already
02:48:21 5 created auto-updating album, the very same album that was
02:48:24 6 created up above in the purple. Right?

02:48:27 7 A. Yes.

02:48:28 8 Q. Okay. And, a matter of fact, you could not add a new
02:48:34 9 picture of Hawah to this album unless it already existed.
02:48:37 10 You would have to create that auto-updating album in the
02:48:41 11 second setting mode in order to add a picture of her,
02:48:43 12 right?

02:48:43 13 A. Which is what I showed, yes.

02:48:45 14 Q. Well, I'm not sure how clear it was. But I think we
02:48:48 15 all now understand that these two are the same thing, the
02:48:51 16 top and the bottom are the same auto-updating album, and
02:48:55 17 they were created at one time during the second setting
02:48:58 18 mode. Right?

02:48:59 19 A. No. The album was originally created in the second
02:49:04 20 setting mode. But what you see in the bottom row is the
02:49:07 21 album after it's been updated after the first setting mode
02:49:11 22 has done additional create -- creation of new pictures.

02:49:16 23 Q. Well, the -- the -- the camera is what created the new
02:49:24 24 picture, right?

02:49:24 25 A. That is correct.

02:49:26 1 Q. Right. And then what happens is the Gallery recognizes
02:49:28 2 the picture of Hawah, who has already been registered, and
02:49:35 3 then puts her in a auto-updating album that was already
02:49:38 4 created in the second setting mode, right?

02:49:40 5 A. It was registered the first time, and it's now
02:49:44 6 registered again. Her face -- her face gets recognized
02:49:48 7 every time a picture gets taken.

02:49:50 8 Q. Okay.

02:49:50 9 A. And it's registered again and added to all relevant
02:49:55 10 albums that relate to that person or that face.

02:49:57 11 Q. I hear you keep saying the word "registered," but
02:50:01 12 the -- what's really happening here is the face recognition
02:50:08 13 technology recognizes her face and, as you say here, simply
02:50:11 14 adds that picture of the already registered person to an
02:50:15 15 already created album. Isn't that the fact of what's going
02:50:18 16 on here?

02:50:19 17 A. No. The fact is it's being -- every time a picture is
02:50:25 18 taken, if there is a face, the face is recognized, and it
02:50:29 19 gets registered and added to the appropriate albums that
02:50:33 20 might accept that face.

02:50:35 21 And in this case, Hawah's album was created in the
02:50:39 22 second setting mode that I showed in detail. Her face was
02:50:43 23 registered and recognized then, and now it's registered and
02:50:49 24 recognized again --

02:50:49 25 Q. Well, let's --

02:50:50 1 A. -- because it's being recognized every time a new
02:50:54 2 photograph gets taken.

02:50:55 3 Q. Are you -- are you saying to the jury that recognizing
02:50:59 4 the face and registering is the same thing?

02:51:02 5 A. No, I'm saying you have to recognize the face, and then
02:51:02 6 you have to register the face as belonging to a particular
02:51:06 7 album.

02:51:06 8 Q. So the registration happened up above in purple, right,
02:51:09 9 where you put in the name "Hawah," right?

02:51:13 10 You see that little box, you've typed in Hawah.
02:51:16 11 She's then been -- and then you click that box, and then
02:51:20 12 she's been registered, and you've created an auto-updating
02:51:22 13 album for her.

02:51:23 14 That's the registration that happens in this
02:51:25 15 phone, correct?

02:51:26 16 A. That was one registration step.

02:51:28 17 Q. Okay. And then when you take her picture down below,
02:51:31 18 she's already been registered, the phone already knows who
02:51:35 19 Hawah is, they already -- she already -- they already know
02:51:38 20 what she looks like. And what happens is you take that
02:51:40 21 already registered person, and you put her into the
02:51:43 22 existing album. You basically sort her picture into that
02:51:46 23 album, right?

02:51:46 24 A. I reregister her as that person --

02:51:49 25 Q. Okay.

02:51:50 1 A. -- and I put her into the album.

02:51:53 2 Q. You can say the word "register" as much as you want,
02:51:56 3 but let's talk about the evidence.

02:51:58 4 You didn't point the jury to any source code that
02:52:05 5 says that when you take a person who's already been
02:52:08 6 registered and add that person to an existing album,
02:52:10 7 there's no source code that says that's -- that sorting
02:52:14 8 operation is called registration. Right?

02:52:17 9 A. Are you looking for the name "registration" in the
02:52:22 10 source code?

02:52:22 11 Q. Yeah. Did you find anything like that, sir?

02:52:24 12 A. I'm not sure the word "registration" appears in the
02:52:27 13 source code. The source code shows how the recognition
02:52:30 14 occurs and how the appropriately recognized faces gets
02:52:35 15 registered into the appropriate album.

02:52:37 16 Q. You don't see anything that calls it registration?
02:52:40 17 That's a word that you added, right?

02:52:42 18 A. No. The word is in the claims.

02:52:44 19 Q. Right. Exactly. It's in the claims. You got to find
02:52:47 20 it in the product, sir, right?

02:52:48 21 A. I don't have to find the word in the source code.

02:52:51 22 Q. Okay. And when you didn't see any technical
02:52:54 23 documents -- you said you pored through all of Samsung's
02:52:58 24 engineering documents. You didn't see anything that says
02:53:00 25 that when you take a person who's already been registered

02:53:05 1 and you put them in an existing album, that that's somehow
02:53:08 2 called a second registration. You never saw any evidence
02:53:11 3 like that, right?

02:53:11 4 A. Oh, I disagree completely.

02:53:13 5 Q. Well, you didn't show the jury anything that said that,
02:53:16 6 did you?

02:53:16 7 A. I showed the jury lots of evidence that showed the
02:53:19 8 registration --

02:53:20 9 Q. Well, I'll be happy to have your attorney show that to
02:53:22 10 the jury again that shows that this is a second
02:53:24 11 registration.

02:53:25 12 The fact of the matter, sir, is that Hawah has
02:53:28 13 already been registered, and she's put into an album that
02:53:31 14 already exists. And all that's happening is the face
02:53:36 15 recognition is sorting it to the right album, right?

02:53:38 16 A. I disagree with that characterization.

02:53:40 17 Q. Okay. So let me go to a couple of other underlying
02:53:48 18 facts that I think you acknowledged.

02:53:50 19 The sorting down at the bottom where that photo,
02:53:58 20 that new picture, that could take a day or so to happen,
02:54:01 21 right?

02:54:02 22 A. Up to a day or so, yes.

02:54:03 23 Q. Doesn't happen automatically.

02:54:06 24 A. It happens automatically, just takes some time.

02:54:09 25 Q. Okay. And you agree that a person of ordinary skill in

02:54:12 1 the art would understand the word "mode," and this is a
02:54:16 2 claim that uses a first mode and a second mode, to mean an
02:54:21 3 operational state that a system has to be switched to,
02:54:23 4 right?

02:54:23 5 A. I think that's a reasonable -- I -- I'd agree with
02:54:29 6 that.

02:54:30 7 Q. Okay. And at the highest level, in order for the two
02:54:33 8 modes to be different, they have to be running different
02:54:36 9 algorithms, right?

02:54:36 10 A. The -- for the modes to be different?

02:54:38 11 Q. Uh-huh.

02:54:39 12 A. Yes.

02:54:39 13 Q. Okay. Yes, right? You agree with that?

02:54:43 14 A. Yes.

02:54:43 15 Q. Okay.

02:54:44 16 A. But I'll just -- I'll just add to that, if I may, that
02:54:47 17 within the algorithms, there may be subalgorithms that are
02:54:51 18 the same. The entire thing doesn't have to be completely
02:54:53 19 different in each mode. So, for example, the face
02:55:01 20 recognition module could be the same in both modes.

02:55:03 21 Q. But in order for there to be a first setting mode and a
02:55:07 22 second setting mode, you would need two different
02:55:09 23 algorithms of some kind, correct?

02:55:11 24 A. At a high level, but the algorithms could incorporate
02:55:15 25 similar modules within them so they could share

02:55:19 1 functionality as well.

02:55:19 2 MR. FOWLER: Your Honor, that's all the questions
02:55:21 3 I have on cross.

02:55:23 4 THE COURT: All right. Very good.

02:55:27 5 Redirect?

02:55:43 6 MR. LINDINGER: May I proceed, Your Honor?

02:55:44 7 THE COURT: Yes.

02:55:49 8 MR. LINDINGER: Mr. Ebersole, can you bring up
02:55:53 9 DTX-244, please?

02:55:57 10 REDIRECT EXAMINATION

02:56:12 11 BY MR. LINDINGER:

02:56:12 12 Q. All right. Professor Balakrishnan, you recall
02:56:16 13 Samsung's attorney asking you a few questions about the
02:56:21 14 inter partes review, right?

02:56:24 15 A. Yes.

02:56:25 16 MR. LINDINGER: And can you go to the second page,
02:56:28 17 Mr. Ebersole?

02:56:29 18 Q. (By Mr. Lindinger) You recall Samsung's attorney using
02:56:31 19 the phrase -- something along the lines of, well, the
02:56:34 20 final -- final word of the Patent Office is that -- and
02:56:38 21 it's that last sentence or so -- second to the last
02:56:41 22 sentence in the second paragraph, that there's a reasonably
02:56:43 23 likelihood that it would prevail in showing at least one of
02:56:48 24 the challenged claims invalid.

02:56:50 25 Do you recall those questions?

02:56:51 1 A. I do.

02:56:51 2 MR. LINDINGER: Mr. Ebersole, can you go to
02:56:53 3 Page 47 and 48 and put those side-by-side, please?

02:56:59 4 Q. (By Mr. Lindinger) So I want to direct your attention
02:57:05 5 to the conclusion of this IPR institution decision, and I
02:57:09 6 suspect they have similar claim language in some of the
02:57:14 7 other ones we've looked at this week.

02:57:16 8 I want to direct your attention to the second --
02:57:18 9 the first full paragraph on Page 48. Can you read that
02:57:24 10 first sentence, please?

02:57:25 11 A. Do you want me to read it out?

02:57:27 12 Q. Yes, sir.

02:57:27 13 A. It says: At this preliminary stage of the proceeding,
02:57:30 14 we have not made a final determination as to the
02:57:34 15 patentability of any challenged claim or any factual or
02:57:39 16 legal issue underlying the patentability inquiry.

02:57:48 17 Q. Did Samsung's attorney show you this page?

02:57:51 18 A. No, he did not.

02:57:52 19 MR. LINDINGER: You could take that down,
02:57:53 20 Mr. Ebersole.

02:57:54 21 Can you bring up PDX-54, the summary slide,
02:58:06 22 please?

02:58:06 23 Q. (By Mr. Lindinger) Professor Balakrishnan, we spent a
02:58:07 24 lot of time on this just on cross-examination. Do you
02:58:10 25 recall all those questions that Samsung's counsel asked you

02:58:14 1 about this?

02:58:15 2 A. I recall the questions mostly.

02:58:17 3 Q. I'll be very brief.

02:58:18 4 A. Thank you.

02:58:19 5 Q. Did anything that you heard in the questioning from

02:58:23 6 Samsung's attorney change or affect your opinions that the

02:58:30 7 S23 and the S23 Ultra phones have a first setting mode and

02:58:35 8 a second setting mode as required by Claim Elements 8[g]

02:58:40 9 and 8[h]?

02:58:42 10 A. No, nothing changed in my opinions.

02:58:44 11 Q. And the S23 and S23 Ultra meet Claim Elements 8[g] and

02:58:48 12 8[h], correct?

02:58:49 13 A. Absolutely.

02:58:50 14 MR. LINDINGER: No further questions, Your Honor.

02:58:51 15 MR. FOWLER: Nothing, Your Honor.

02:58:52 16 THE COURT: You may step down.

02:58:58 17 Call your next witness.

02:59:33 18 MR. LINDINGER: Your Honor, may I approach and

02:59:35 19 clean this up a little bit?

02:59:36 20 THE COURT: Yes, of course.

02:59:36 21 MR. SIDDIQUI: Your Honor, may we distribute the

02:59:39 22 binders?

02:59:40 23 THE COURT: Yes.

03:00:35 24 MR. SIDDIQUI: Your Honor, may I proceed?

03:00:37 25 THE COURT: Yes.

03:00:37 1 MR. SIDDIQUI: Your Honor, Maxell calls its next
03:00:39 2 witness, Professor Karan Singh.

03:00:42 3 THE COURT: All right.

03:00:51 4 If you would, please raise your right hand to be
03:00:54 5 sworn.

03:00:54 6 (Witness sworn.)

03:01:01 7 THE COURT: Have a seat.

03:01:02 8 You may proceed.

03:01:04 9 KARAN SINGH, PH.D., PLAINTIFF'S WITNESS, SWORN

03:01:04 10 DIRECT EXAMINATION

03:01:05 11 BY MR. SIDDIQUI:

03:01:05 12 Q. Good morning, sir. Can you please introduce yourself
03:01:11 13 to the jury?

03:01:12 14 A. My name is Karan Singh.

03:01:13 15 Q. And what is your professor -- profession?

03:01:17 16 A. I'm a professor in computer science.

03:01:19 17 Q. What, if any, materials did you prepare for your
03:01:23 18 testimony today?

03:01:23 19 A. I prepared a presentation to assist the jury in
03:01:29 20 understanding my testimony and opinions.

03:01:33 21 MR. SIDDIQUI: Can you please bring up
03:01:35 22 presentation PDX-007?

03:01:38 23 Q. (By Mr. Siddiqui) Professor Singh, would you like to
03:01:40 24 drive?

03:01:41 25 A. Sure.

03:01:42 1 MR. SIDDIQUI: Your Honor, may I approach?

03:01:44 2 THE COURT: Yes.

03:01:56 3 THE WITNESS: Thank you.

03:01:57 4 Q. (By Mr. Siddiqui) Professor Singh, is PDX-007 the
03:02:01 5 presentation that you prepared to assist with your
03:02:03 6 testimony to the jury today?

03:02:05 7 A. It is.

03:02:05 8 Q. Before we discuss your opinions, can you tell the jury
03:02:09 9 a little bit about yourself?

03:02:10 10 A. Sure. I grew up in India where I received a Bachelor's
03:02:17 11 degree in computer science at the Indian Institute of
03:02:20 12 Technology.

03:02:21 13 After that, I moved to the United States for
03:02:24 14 graduate school where I got a Master's and a Ph.D. at Ohio
03:02:30 15 State.

03:02:30 16 I then spent seven years in industry working in
03:02:33 17 the area of graphics and human computer interaction before
03:02:38 18 starting as a professor at the University of Toronto.

03:02:42 19 Q. Professor, what do you do at the university?

03:02:46 20 A. At the university, I conduct research, I teach classes,
03:02:49 21 I supervise students in the area of computer graphics and
03:02:54 22 computer-human interaction, and I also actively consult on
03:02:58 23 technology in these areas, in particular in the areas of
03:03:02 24 graphic design, film, and games.

03:03:04 25 Q. That's interesting. Are there any specific games where

03:03:07 1 you employed your expertise about computer graphics and
03:03:11 2 human-computer interaction?

03:03:13 3 A. Yes. So a recent focus of my work has been interfaces,
03:03:18 4 computer interfaces for interacting with digital faces and
03:03:24 5 characters. And I commercialized some of that research by
03:03:28 6 cofounding a company, JALI Research, that has been used on
03:03:35 7 a number of blockbuster video games, Cyberpunk and Call of
03:03:42 8 Duty II being some examples.

03:03:42 9 Q. You also mentioned films. Can you please provide any
03:03:44 10 recent examples?

03:03:45 11 A. I was also very fortunate to be invited to be part of a
03:03:49 12 team that built facial -- a system for actors and users to
03:03:57 13 control digital faces in the film Avatar: The Way of Water.
03:04:04 14 And I can show a short clip of that system in action.

03:04:08 15 Q. Sure, please.

03:04:10 16 A. There's some sound on this.

03:04:12 17 (Videoclip played.)

03:04:36 18 Q. (By Mr. Siddiqui) And what, in particular, was your
03:04:38 19 contribution to the software for that film?

03:04:40 20 A. Well, as you saw in this clip, one of the innovations
03:04:45 21 of the film was this facial animation system for which the
03:04:55 22 film won a visual effects Oscar at the 95th Academy Awards.

03:05:00 23 Q. And what is the snippet at the bottom of the slide,
03:05:05 24 Professor Singh?

03:05:05 25 A. That's -- that's just a snippet from the film credits

03:05:08 1 acknowledging the work of my team.

03:05:10 2 Q. How does this work that you did relate to the subject
03:05:15 3 at issue of your testimony today?

03:05:17 4 A. So a lot of the foundation that goes into the software
03:05:23 5 that I've shown that drives these innovations in film and
03:05:28 6 games is the same foundations of graphics and
03:05:31 7 human-computer interaction at issue in the '815 patent in
03:05:36 8 this case.

03:05:37 9 Q. How so?

03:05:37 10 A. So at a high level, the '815 patent provides inventions
03:05:49 11 aimed at providing an improved user experience for one or
03:05:53 12 more users when they are trying to manage and customize and
03:06:00 13 engage with video content on a digital device like a
03:06:04 14 smartphone or tablet.

03:06:06 15 Q. Professor Singh, what was your assignment in this case?

03:06:09 16 A. I was asked to use my background and my expertise to
03:06:16 17 examine the evidence in the case. I was asked to examine
03:06:19 18 the '815 patent and determine if a set of accused Samsung
03:06:24 19 products infringed specifically Claims 1, 21, and 24 of the
03:06:30 20 patent. I was also asked to determine if these claims, 1,
03:06:37 21 21, and 24, were valid.

03:06:41 22 Q. Do you consider yourself as a -- qualified as an expert
03:06:44 23 to offer an opinion on -- on whether the accused Samsung
03:06:47 24 products infringe the '815 patent?

03:06:48 25 A. I -- I believe so. I've -- for over 30 years now,

03:06:54 1 computer graphics and human-computer interaction has been
03:06:56 2 the focus of my -- my research, my education, my teaching,
03:07:02 3 my industrial work.

03:07:03 4 MR. SIDDIQUI: Your Honor, we proffer Professor
03:07:05 5 Singh as an expert in the field of human-computer
03:07:08 6 interaction, user interfaces, and computer graphics, which
03:07:10 7 is the subject matter of the '815 patent.

03:07:13 8 MR. FOWLER: No objection, Your Honor.

03:07:14 9 THE COURT: Very well.

03:07:15 10 Q. (By Mr. Siddiqui) Professor Singh, when did you first
03:07:20 11 begin working on this case?

03:07:21 12 A. Over a year ago. I would say in the spring of 2024.

03:07:28 13 Q. What, if any, materials have you reviewed in connection
03:07:31 14 with this case over the past year?

03:07:32 15 A. Oh, I reviewed a large number of materials. They're
03:07:36 16 actually shown here on this slide. I started with the '815
03:07:39 17 patent itself and its file history.

03:07:42 18 I reviewed a number of Samsung technical
03:07:45 19 documents, discovery responses.

03:07:50 20 Reviewed lots of Samsung's source code, the
03:07:54 21 Court's claim construction order in this matter.

03:07:55 22 Also reviewed the testimony of a Samsung engineer,
03:07:59 23 JungHee Lee.

03:07:59 24 And, very importantly, I tested Samsung products,
03:08:05 25 including a couple of Galaxy S23 devices.

03:08:09 1 Q. About how much time did you spend reviewing all of
03:08:11 2 these materials in this case to form your opinions?
03:08:15 3 A. Somewhere between 150 and 200 hours, I would imagine.
03:08:20 4 Q. Did you submit an expert report summarizing your
03:08:23 5 opinions in this case?
03:08:24 6 A. I did.
03:08:25 7 Q. Are these in a binder in front of you?
03:08:28 8 A. Yes, I believe so.
03:08:36 9 Q. And is there any evidence that you rely on in a binder
03:08:43 10 in front of you, as well?
03:08:44 11 A. This is a different binder.
03:08:54 12 Yes, I believe there are -- this binder has a
03:08:56 13 number of exhibits that I've -- of evidence that I've
03:09:00 14 relied on.
03:09:01 15 Q. Please feel free to refer to that throughout the course
03:09:05 16 of your testimony today, Dr. Singh.
03:09:08 17 A. Okay. Thank you.
03:09:09 18 Q. Based on your review of Samsung products and all of the
03:09:12 19 evidence, did you form any opinions in this case?
03:09:14 20 A. I did.
03:09:14 21 Q. Can you please provide a summary of your opinions?
03:09:17 22 A. So it is my expert opinion that the accused Samsung
03:09:23 23 products do infringe Claims 1, 21, and 24 of the '815
03:09:29 24 patent. And it is also my opinion that these -- these
03:09:34 25 Claims 1, 21, and 24 of the '815 patent are valid.

03:09:39 1 Q. Are you going to be mainly focused on one of these two
03:09:42 2 topics today?

03:09:43 3 A. Yes, I'm going to focus on infringement today. I will
03:09:48 4 come back to talk about validity.

03:09:51 5 Q. Thank you, Professor.

03:09:52 6 You mentioned a claim construction order. What is
03:09:55 7 that?

03:09:56 8 A. So the Court in this case issued a claim construction
03:10:01 9 order where it provided meaning to a number of terms that
03:10:07 10 appear in the accused claims in this patent.

03:10:09 11 And on this slide, you see a list of the claim
03:10:15 12 terms for which the Court has provide -- provided meaning
03:10:21 13 for the accused claims that are in the '815 patent.

03:10:25 14 Q. What about the remaining claim terms, how did you
03:10:29 15 interpret them?

03:10:29 16 A. The remaining claim terms I interpreted using the plain
03:10:38 17 and ordinary meaning as a person of ordinary skill in the
03:10:41 18 art would have understood around the time that the patent
03:10:45 19 was filed, around 2004.

03:10:49 20 Q. You mentioned level of skill in the art. What would be
03:10:52 21 the -- a level of skill -- skill of the art of a person of
03:10:57 22 ordinary skill for the patent in 2004?

03:10:59 23 A. So a person of ordinary skill in the art, or a POSITA,
03:11:03 24 I would expect, would have a good foundation in the general
03:11:08 25 principles of human-computer interaction, user interfaces,

03:11:14 1 managing content. These are the concepts in the '815
03:11:19 2 patent.

03:11:19 3 And so I would expect a POSITA, a person of
03:11:22 4 ordinary skill in the art, to be somebody with at least
03:11:25 5 maybe a bachelor's degree in computer science or a related
03:11:29 6 field and maybe one or more years of experience in these
03:11:33 7 topics.

03:11:34 8 Q. Did you have at least a level of skill in the art of a
03:11:38 9 POSITA in 2004?

03:11:39 10 A. Yes, I believe I was at least a POSITA and more in
03:11:42 11 2004.

03:11:45 12 Q. Professor Singh, could you please introduce the '815
03:11:48 13 patent to the jury?

03:11:48 14 A. Yes. So here you see the front face of the '815
03:11:54 15 patent. Its title is: Editing Method and Recording and
03:12:00 16 Reproducing Device.

03:12:00 17 And you see its priority date around December
03:12:06 18 2004.

03:12:07 19 Q. Professor Singh, what do you mean by priority date?

03:12:09 20 A. Right. So to begin with, the '815 patent is a part of
03:12:19 21 a chain of patents starting -- and I'll just read some
03:12:23 22 exhibit numbers from the bottom, left to right, PX-309,
03:12:30 23 DTX-059, DTX-060, DTX-061, DTX-212, coming up to PX-006,
03:12:38 24 which is the '815 patent.

03:12:42 25 Now, if you notice, all of these patents share the

03:12:49 1 exact -- they share the identical description and figures.
03:12:54 2 And what that means is that the '815 patent is entitled to
03:13:01 3 the priority date of the earliest patent in this chain.

03:13:11 4 Q. Is there any additional evidence you considered to
03:13:13 5 support your opinion that the '815 patent is entitled to
03:13:16 6 the earliest priority date?

03:13:17 7 A. Yes. So I also studied the file history of the '815
03:13:22 8 patent, that's the file history with the U.S. Patent
03:13:25 9 Office, and confirmed that during prosecution, the U.S.
03:13:30 10 Patent Office did indeed confirm that the '815 patent met
03:13:36 11 all the conditions for this December 2004 priority date.

03:13:39 12 And you can see this in the file history that's
03:13:43 13 PX-012.

03:13:46 14 Q. Professor Singh, is -- do you have an opinion on
03:13:49 15 whether the inventors of the '815 patent set out to solve
03:13:52 16 any particular problems?

03:13:54 17 A. Yes. So around the time around 2004, advances in
03:14:02 18 computers and digital media videos had really resulted in
03:14:05 19 increasingly large amounts of video content being
03:14:09 20 transmitted, stored, viewed. And the techniques at the
03:14:13 21 time did not make it easy for users to manage, customize,
03:14:19 22 and engage with these videos in an intuitive manner and
03:14:22 23 without interference -- interfering with other users. So
03:14:27 24 this is a problem.

03:14:31 25 For example, imagine a family sharing a bunch of

03:14:35 1 videos that were all stored in one place on a shared
03:14:39 2 computer. A mom -- like my mom who is always trying to
03:14:44 3 learn how to knit from my grandma -- may have placed a
03:14:48 4 knitting lesson that her son might delete out of a lack of
03:14:53 5 interest or to create space to add other videos.

03:14:59 6 So this causes a lot of confusion, frustration, I
03:15:03 7 guess, on part of each user because they're interfering
03:15:07 8 both with how -- what their content is and how it's
03:15:10 9 presented and viewed with each other. That was the
03:15:13 10 problem.

03:15:15 11 Q. I see you chose ZZ Top concert as an example on this
03:15:20 12 slide. Is there any particular reason for that?

03:15:23 13 A. I was looking for a band that actually had a small name
03:15:28 14 to fit on that slide.

03:15:32 15 Q. What's -- do you have a favorite song from ZZ Top by
03:15:36 16 any chance?

03:15:37 17 A. Yes -- I mean, I am also a big blues and jazz fan.

03:15:43 18 Favorite ZZ Top song, probably My Head's in
03:15:48 19 Mississippi.

03:15:49 20 Q. Okay. Right now you need to be in Texarkana. Sorry,
03:15:52 21 that's my fault. I shouldn't have gone there. But all
03:15:52 22 right.

03:15:54 23 Coming back to the '815 patent, how did the
03:15:56 24 inventors address this problem?

03:15:58 25 A. So, as I said, the problem was users getting in the way

03:16:03 1 of each other's consumption of video content.

03:16:08 2 So the patent begins by disclosing a new layered
03:16:12 3 data structure. So that's just a way of structuring data
03:16:16 4 in a layered fashion.

03:16:17 5 As you can see over here, this is Figure 1 from
03:16:19 6 the patent. And, really, what it's trying to show is it
03:16:23 7 was structuring data in a way on the computer that made
03:16:26 8 it -- that allowed users to be able to store videos -- so
03:16:33 9 videos over there are being shown as what they're calling
03:16:37 10 programs on Figure 4. And what we call playlist, groups of
03:16:43 11 video information, on Figure 5.

03:16:45 12 And, further, you could have multiple users -- in
03:16:46 13 this case, Figure 6 showing a mother user and a father user
03:16:51 14 that were able to manage their own video content in a way
03:16:57 15 that was based on their own tastes and without interference
03:17:02 16 from each other. So this was the solution that the '815
03:17:05 17 inventors presented.

03:17:06 18 Q. Professor Singh, are these solutions covered by any
03:17:11 19 particular claim of the '815 patent?

03:17:13 20 A. Yes. They are covered by Claims 1, 21, and 24 at
03:17:20 21 least.

03:17:20 22 Q. Thank you for introducing the '815 patent.

03:17:23 23 Can you please describe the state of the art of
03:17:27 24 the '815 patent around 2004?

03:17:28 25 A. Yes. So the '815 patent is a fairly old patent, but

03:17:38 1 sometimes inventions -- good inventions, you know, stand
03:17:42 2 the test of -- test of time. And, you know, old is gold in
03:17:46 3 that sense.

03:17:48 4 Around 2004, while digital broadcast was known,
03:17:55 5 most of us that were around in 2004 actually consumed that
03:18:01 6 video content by walking across to a Blockbuster store to
03:18:05 7 rent or buy DVDs. And even Netflix would mail us DVDs
03:18:13 8 in -- send us DVDs in the mail.

03:18:14 9 It wasn't until 2007, three years later, that
03:18:17 10 Netflix actually launched a streaming service to send
03:18:22 11 videos over streaming.

03:18:24 12 Q. What else happened in 2007?

03:18:26 13 A. Oh, yes. So, in 2007, Apple also launched the very
03:18:32 14 first iPhone which ushered in the era of smartphones and
03:18:37 15 tablets, which are the devices at issue today.

03:18:42 16 And then going a decade further, Apple in 2016
03:18:48 17 launched an Apple TV app for managing streaming video on
03:18:54 18 iPhone devices.

03:18:55 19 And then Samsung followed suit a few years later
03:19:00 20 with a partnership with Netflix to provide streaming
03:19:04 21 services on Samsung devices.

03:19:09 22 Q. Thank you, Professor Singh.

03:19:10 23 Do you know which Samsung products are being
03:19:14 24 accused of infringing the '815 patent in this case?

03:19:17 25 A. Yes. So there is a slide here which has a large number

03:19:23 1 of Samsung products. But just reading from the top, it
03:19:26 2 says all Samsung Galaxy smartphones and tablet models sold
03:19:32 3 after 7/7/2021.

03:19:35 4 And, fortunately, the parties agree in this case
03:19:39 5 that the Samsung Galaxy S23 is a representative product.
03:19:45 6 So what that means is that if the jury should find that the
03:19:50 7 S23 infringes, then all these models should be found to
03:19:53 8 infringe.

03:19:54 9 Q. Is there any particular functionality in the Samsung
03:19:58 10 Galaxy S23 that you analyzed?

03:19:59 11 A. Yes. In particular, for the -- for Claim 1, I analyzed
03:20:07 12 the Samsung Gallery app, and for Claims 21 and 24, I
03:20:12 13 analyzed the pre-installed Netflix app.

03:20:15 14 Q. And how are the claims related to these apps?

03:20:19 15 A. Well, the claimed inventions of the '815 are actually
03:20:26 16 critical to the implementation of personalized user
03:20:28 17 experiences in the Samsung Gallery and the Netflix
03:20:33 18 applications on S23. The claims here cover many important
03:20:44 19 aspects of how the user interface and user interaction of
03:20:49 20 these applications work.

03:20:49 21 Q. What components in the S23 implement these
03:20:51 22 functionalities?

03:20:52 23 A. So there are a number of components, but they're sort
03:20:57 24 of the components that you would expect of a device such as
03:21:01 25 the S23. You require that device can communicate with

03:21:09 1 other devices. So circuits like Bluetooth, WiFi, and
03:21:11 2 cellular circuits that can be used for wireless data
03:21:14 3 communication.

03:21:14 4 The device needs to communicate with users, so a
03:21:19 5 touchscreen to take input from a user, a display to provide
03:21:23 6 visual output to a user, storage and memory for storing
03:21:27 7 videos and applications, the ability to remember. And
03:21:31 8 finally a central processing unit, CPU, a processor that
03:21:35 9 controls many of the functions of the smartphone -- of the
03:21:40 10 S23.

03:21:40 11 Q. Thanks for providing that explanation.

03:21:43 12 What claims of the '815 patent would you like to
03:21:46 13 address first, Professor Singh?

03:21:48 14 A. I'd like to start by -- just in order, I'll start with
03:21:55 15 Claim 1.

03:21:55 16 Q. Can you please provide a brief overview of Claim 1?

03:21:59 17 A. Yes. So, as you can see, this is a very long claim,
03:22:05 18 and I'm going to do my best to try and go through it as
03:22:09 19 engagingly and as efficiently as possible. But I do need
03:22:13 20 to go through it diligently, so please bear with me.

03:22:18 21 To make this a little more streamlined, I have
03:22:23 22 grouped various claim elements from 1[preamble] and then
03:22:28 23 1[a] all the way through 1[e] into device components. So,
03:22:31 24 roughly speaking, the components that are necessary on the
03:22:34 25 device to practice the claim.

03:22:36 1 Then another group, [f] to [i], that correspond to
03:22:42 2 the user interface and how you can display and view videos
03:22:48 3 and store videos.

03:22:49 4 And then, finally, Elements [j], [k], [l], [m],
03:22:56 5 which deal with how users can customize this content for
03:23:00 6 themselves.

03:23:01 7 Q. For Claim 1, do you have an understanding as to whether
03:23:04 8 Samsung's expert Dr. Kia disputes certain claim elements?

03:23:10 9 A. It is my understanding that Dr. Kia does not dispute a
03:23:15 10 majority of the elements of Claim 21, and they're shown
03:23:20 11 here in this green shading. There are only 2 out of 14
03:23:25 12 elements that are disputed by Dr. Kia.

03:23:28 13 Q. Moving on to Claim 1. What evidence, if any, did you
03:23:31 14 analyze when performing an infringement analysis of Claim
03:23:34 15 1?

03:23:35 16 A. So there are a number of pieces of evidence that I
03:23:38 17 relied upon. I can just read through them quickly.

03:23:41 18 PX-316, Samsung discovery responses; PX-044, the
03:23:47 19 S23 block diagram; PX-296, my product testing results;
03:23:53 20 PX-108, an S23 device; PX-054, the S23 user guide; PX-276,
03:24:03 21 an internal Samsung design document; and then, finally, the
03:24:08 22 deposition of JungHee Lee.

03:24:10 23 Q. You mentioned product testing, PX-296. How did you go
03:24:16 24 about doing that?

03:24:17 25 A. So I started by understanding, by studying the claims.

03:24:23 1 I then developed a testing protocol to test actual devices
03:24:31 2 and perform certain functions to see whether the infringing
03:24:35 3 behavior existed on the device or not.

03:24:38 4 Having developed the protocol, I then performed
03:24:41 5 that testing myself on actually more than one physical S23
03:24:50 6 device.

03:24:51 7 Once I've done that, I then communicated that
03:24:54 8 testing protocol and my testing collaboratively to a
03:25:02 9 paralegal, Brittany Etters, and instructed her to record
03:25:11 10 and extract information for all of that testing. And that
03:25:19 11 information is what is referred to as PX-296.

03:25:24 12 Q. Will that information be available to the jury as an --
03:25:29 13 as an exhibit for evidence?

03:25:30 14 A. Yes, it will.

03:25:33 15 And I should add that I -- not only did I instruct
03:25:39 16 her to perform -- to record that testing, but I verified --
03:25:47 17 to close the loop, I verified that all that testing that
03:25:52 18 was performed was in accordance and -- and precisely
03:25:54 19 reflected my own testing. So it's as if I had performed
03:25:58 20 those myself.

03:26:00 21 Q. Okay. And is it your understanding it'll be in a -- in
03:26:03 22 a USB drive, PX-296?

03:26:05 23 A. That's right. It -- it should be available in -- in a
03:26:09 24 drive that will be available to the jury.

03:26:11 25 Q. What claim element of the '815 patent would you like to

03:26:16 1 address first, Professor?

03:26:17 2 A. I'd like to start with the first group, the preamble,

03:26:20 3 and then 1 going all the way through -- 1[a] going all the

03:26:23 4 way through 1[e].

03:26:24 5 Q. Please.

03:26:25 6 A. So you're going to be seeing a lot of these claim

03:26:30 7 elements coming up, so I'm trying to set it up in a way

03:26:35 8 that on the left, you'll see the claim element, and then on

03:26:39 9 the right, you'll see some information or evidence

03:26:43 10 pertaining to that element.

03:26:46 11 So let's start with an information processing

03:26:49 12 apparatus. Well, the S23 is an information processing

03:26:52 13 apparatus. It has a processor that runs applications and

03:26:58 14 displays information like videos in the Samsung Gallery

03:27:02 15 App.

03:27:02 16 A network interface. A network interface is

03:27:05 17 definitely part of -- of S23 because it includes circuits

03:27:11 18 like wireless, Bluetooth, and cellular for communicating

03:27:15 19 with a network wirelessly to receive videos, for instance.

03:27:19 20 1[b] has some more words in there, but for the

03:27:26 21 moment, let's just focus on a recording medium and the

03:27:30 22 ability to store a plurality of video information.

03:27:33 23 So being able to store more than one video and

03:27:39 24 being capable of receiving video information wirelessly

03:27:43 25 across a network interface. So receiving videos from

03:27:48 1 another information processing apparatus. So, for example,
03:27:52 2 from another Galaxy device. So that's 1[b].

03:27:55 3 Q. What about Claim Elements 1[c], 1[d], and 1[e]?

03:27:59 4 A. So 1[c] says at least some of the plurality of videos
03:28:04 5 is associated with a user profile.

03:28:05 6 Now, if you look on the S23, there's a My Files
03:28:10 7 application, and you can see specific folders and
03:28:13 8 directories to store videos that have this video
03:28:17 9 information that is associated with a user profile.

03:28:22 10 Moving on, we have 1[d], which simply says a
03:28:25 11 display. The Galaxy S23 does include a display with a
03:28:29 12 touchscreen.

03:28:31 13 And 1[e], which is a processor for controlling the
03:28:33 14 display. And that's already been established by the fact
03:28:39 15 that there is a processor. And there is a display. The
03:28:44 16 processor does indeed control the display.

03:28:46 17 MR. SIDDIQUI: Your Honor, at this time, we would
03:28:47 18 like to seal the courtroom for Samsung confidential
03:28:50 19 information.

03:28:50 20 THE COURT: All right. The courtroom will need to
03:28:53 21 be sealed at this time.

03:28:57 22 MR. FOWLER: Your Honor, may the Samsung
03:28:58 23 representatives stay?

03:28:59 24 THE COURT: May the Samsung representatives stay?

03:29:02 25 MR. SIDDIQUI: Yes, Your Honor.

03:29:04 1 (Courtroom sealed.)

03:29:04 2 (This portion of the transcript is sealed

03:29:04 3 and filed under separate cover as

04:58:54 4 Sealed Portion No. 9.)

04:58:54 5 (Courtroom unsealed.)

04:59:17 6 Q. (By Mr. Siddiqui) All right. Professor Singh, finally

04:59:19 7 21[m] -- literally an "m." What is your opinion as to

04:59:25 8 Claim Element 21[m]?

04:59:26 9 A. Well, once the video is decrypted, 21[m] simply says

04:59:28 10 that the display displays the decrypted video information,

04:59:32 11 essentially that it plays the video.

04:59:35 12 So in this -- in my product testing in PX-296,

04:59:39 13 you'll see that upon -- you can select an Avatar:

04:59:47 14 Airbender video from among the My List videos, and it

04:59:52 15 starts to play the video after decrypting.

04:59:56 16 Q. I see you picked Avatar: The Last Airbender. Did you

05:00:01 17 have anything to do with that?

05:00:02 18 A. Not at all. This is actually a complete coincidence.

05:00:06 19 I had absolutely nothing to do with Avatar: The Last

05:00:11 20 Airbender. My work was with Avatar: The Way of Water.

05:00:16 21 Q. Professor Singh, based on your analysis of the

05:00:19 22 evidence, the Court's claim constructions, and the claim

05:00:22 23 elements, did you reach an opinion with respect to Claim

05:00:26 24 Elements 21[j], 21[k], 21[l], and 21[m]?

05:00:29 25 A. I did. Having walked through all of the claim language

05:00:33 1 of all these elements, it is my opinion that the Netflix
05:00:38 2 functionality on the S23 meets Claim Elements 21[j], [k],
05:00:44 3 [l], and [m].

05:00:46 4 Q. Do you have an opinion as to whether Dr. Kia disputes
05:00:50 5 any of these claim elements?

05:00:51 6 A. Dr. Kia overall only disputes two elements. One of
05:00:58 7 them is 21[j]. He does not dispute [k], [l], and [m].

05:01:02 8 Q. Thank you, Professor.

05:01:06 9 We walked through a lot of your evidence, claim
05:01:09 10 elements, constructions. Just like you did for Claim 1, do
05:01:12 11 you mind summarizing your opinions for Claim Element 21 --
05:01:17 12 or Claim 21?

05:01:19 13 A. Sure. So we started out with this first user
05:01:23 14 interface. As you can see on this slide, this first user
05:01:27 15 interface had multiple user profiles on it.

05:01:30 16 We identified one as Miyagi-Do, we identified
05:01:35 17 another as Kids, and we identified user profiles, we
05:01:43 18 identified certain characters, that you could select the M
05:01:49 19 in Miyagi-Do, the K in Kids, very similar to the user you
05:01:56 20 see in the patent.

05:01:58 21 Figure 6 of the patent shows letters "M" in
05:02:03 22 Mother, seven shows the letter "F" in father, and you can
05:02:06 23 select these to go to a second user interface. And the
05:02:10 24 second user interface has video information associated with
05:02:18 25 those user profiles.

05:02:22 1 In particular, on top you see Miyagi-Do's My List.
05:02:27 2 At the bottom, you see the Kids My List. You can see
05:02:34 3 perhaps other playlists as well. And so that established
05:02:37 4 that first part.

05:02:38 5 Q. And what about the second part of the claim?

05:02:40 6 A. So following that, we identified one video that was in
05:02:45 7 common, that Dragons video that was part of both
05:02:49 8 Miyagi-Do's My List and Kids My List.

05:02:52 9 And so having identified that Dragons video, we
05:02:56 10 then removed that video from Miyagi-Do's My List by tapping
05:03:03 11 on the check symbol. Having done so, we were able to
05:03:07 12 verify that that video -- the Dragons video had been
05:03:12 13 removed from Miyagi-Do's My List.

05:03:16 14 Q. And what happens after you remove the video, Professor?

05:03:20 15 A. Well, we can go back and verify that indeed if you look
05:03:26 16 at Kids My List, it is unaffected by the removal of Dragons
05:03:34 17 from Miyagi-Do's My List.

05:03:36 18 So it remains there. It's very much along the
05:03:39 19 lines of the solution that the '815 invention set out to
05:03:46 20 provide the ability for multiple user profiles to
05:03:49 21 independently control their content without interference
05:03:54 22 from each other.

05:03:55 23 Q. Professor Singh, and what happens next?

05:03:58 24 A. Yes, there's a last little bit, and that last little
05:04:02 25 bit basically says that when you tap on another video in

05:04:05 1 the first group, in the My List, that video is decrypted by
05:04:10 2 the processor and then displayed to the user.

05:04:14 3 Q. Professor Singh, based on your analysis of the
05:04:16 4 evidence, the Court's claim constructions, and the claim
05:04:19 5 elements, what is your ultimate opinion about Claim 21?

05:04:21 6 A. Well, it is my expert opinion that the pre-installed
05:04:29 7 Netflix app running on the Galaxy S23 literally infringes
05:04:34 8 Claim 21.

05:04:37 9 Q. Professor Singh, do you have any opinions with respect
05:04:40 10 to any additional claims of the '815 patent?

05:04:44 11 A. Yes.

05:04:45 12 Q. And --

05:04:46 13 A. There was Claim 24, as well.

05:04:48 14 Q. And what are those opinions?

05:04:50 15 A. So Claim 24 says the information processing apparatus
05:04:55 16 of Claim 21. So essentially what it means is that all the
05:05:00 17 information that is there in Claim 21, all the -- all the
05:05:05 18 steps that we have performed in Claim 21, we should be able
05:05:10 19 to do that.

05:05:11 20 And, in addition, wherein the processor generates
05:05:16 21 a list of video information based on preferences of a user
05:05:20 22 determined by a user selection of thumbnails from the first
05:05:25 23 or second group of thumbnails.

05:05:26 24 And so what it does, firstly, is it recites a
05:05:32 25 processor, and that matches the Qualcomm SM8550 that we've

05:05:38 1 already talked about. That definitely runs the Netflix
05:05:43 2 functionality.

05:05:44 3 And as you can see over here among the video
05:05:48 4 information for the Miyagi-Do user profile, there is a list
05:05:56 5 of videos that say because you add -- added the Flash, so
05:06:02 6 the Flash over here is a video that was added by the
05:06:06 7 Miyagi-Do user by selecting -- based on their preferences
05:06:13 8 by a selection of thumbnails.

05:06:17 9 So that's one example of a list.

05:06:20 10 There are other lists, such as top picks for
05:06:24 11 Miyagi-Do. And the ability to generate such lists is also
05:06:29 12 corroborated by a user document, a Netflix user document,
05:06:36 13 PX-280, 280.

05:06:38 14 Q. Thank you, Professor Singh.

05:06:40 15 Based on your analysis of the evidence with
05:06:42 16 respect to Claim 24, what is your ultimate opinion about
05:06:46 17 Claim 24?

05:06:47 18 A. It is my expert opinion that the pre-installed Netflix
05:06:51 19 application on the Galaxy S23 literally infringes Claim 24.

05:06:56 20 Q. Thank you, Professor Singh.

05:06:57 21 MR. SIDDIQUI: Your Honor, I pass the witness.

05:06:59 22 THE COURT: All right. Mr. Fowler and
05:07:03 23 Mr. Siddiqui, if you would approach.

05:07:08 24 (Bench conference.)

05:07:11 25 THE COURT: We got a little bit of a late start

05:07:13 1 after our second break. So I don't know if you want to go
05:07:16 2 a little while or if it makes sense for us to go ahead and
05:07:19 3 break now. You all have a preference?

05:07:23 4 MR. FOWLER: I'll do whatever the Court wants. I
05:07:25 5 think the jury might throw things at me if I keep -- if we
05:07:30 6 go right now.

05:07:31 7 THE COURT: All right. Let's stop.

05:07:32 8 (Bench conference concluded.)

05:07:33 9 THE COURT: All right. Ladies and gentlemen of
05:07:34 10 the jury, I -- it has been a long day, and I think now is a
05:07:37 11 good stopping place for the evening.

05:07:42 12 So I'll ask you to be back at 8:45 so that you can
05:07:45 13 get into the building and get situated. And we'll plan to
05:07:48 14 start promptly here at 9:00 o'clock with the
05:07:52 15 cross-examination of this witness.

05:07:53 16 As a reminder, don't discuss the case with anyone,
05:07:57 17 including among yourselves. Don't allow it to be discussed
05:08:02 18 in your presence. Don't do any independent research or
05:08:04 19 investigation into any matter associated in any respect
05:08:07 20 with this case.

05:08:08 21 And, finally, don't post anything about your
05:08:10 22 involvement as a juror on any social media website or app.

05:08:15 23 We'll see you back at 8:45 in the morning. Hope
05:08:19 24 you all have a very nice evening.

05:08:23 25 COURT SECURITY OFFICER: Please rise for the jury.

05:08:25 1 (Jury out.)

05:08:49 2 THE COURT: You can step down.

05:08:59 3 THE WITNESS: Your Honor, would you like me also
05:09:01 4 to be here by 8:45?

05:09:04 5 THE COURT: Yeah, that would be good.

05:09:06 6 THE WITNESS: Thank you.

05:09:06 7 THE COURT: Anything to discuss before we adjourn
05:09:09 8 from the Plaintiffs?

05:09:10 9 MR. FUSSELL: Ladies first.

05:09:13 10 MS. GIBSON: Okay. Thank you. Thank you.

05:09:14 11 THE COURT: You all can be seated.

05:09:23 12 MS. GIBSON: Yes, Your Honor, thank you.

05:09:25 13 We had an issue that came up in Dr. Singh's
05:09:27 14 testimony, and we can address it now or in the morning, but
05:09:30 15 I'll preview what it is.

05:09:31 16 While he was on the stand, there was a very
05:09:33 17 gratuitous number, a large annual subscriber amount for an
05:09:39 18 agreement, a subscriber agreement between Samsung and
05:09:42 19 Netflix that came out of the witness's mouth on the stand.

05:09:47 20 He did have that opinion in some rebuttal to our
05:09:52 21 non-infringing alternative position that we withdrew in
05:09:54 22 this case, so that's no longer part of the case of his
05:09:59 23 opinion. And Maxell's damages expert only relied on this
05:10:02 24 number in conjunction with his income approach that's
05:10:05 25 subject to Your Honor's Daubert order.

05:10:08 1 So we're concerned that this amount is now on the
05:10:11 2 transcript in the case when we've worked so hard to keep
05:10:14 3 big unapportioned numbers out of the case.

05:10:17 4 And the subscriber agreement, Your Honor, not only
05:10:20 5 relates to smartphones but TVs that are not even at issue
05:10:24 6 in the trial.

05:10:25 7 So our concern, Your Honor, is we don't want to
05:10:27 8 hear it again. We certainly don't want to hear that on --
05:10:29 9 through Mr. Jarosz or through cross of our witnesses when
05:10:32 10 it's our turn. And that's the issue, Your Honor.

05:10:33 11 THE COURT: I don't recall there being an
05:10:34 12 objection at the time the testimony was given. Was there?

05:10:38 13 MS. GIBSON: No, there wasn't, Your Honor. He
05:10:41 14 blurted it out, and we realized it right after the fact.

05:10:42 15 THE COURT: All right. So you're talking about
05:10:43 16 mainly going forward.

05:10:45 17 MS. GIBSON: I am, Your Honor.

05:10:46 18 THE COURT: Or only going forward.

05:10:48 19 MS. GIBSON: Correct.

05:10:48 20 THE COURT: Okay. Good. Well, fair enough.

05:10:50 21 Does anyone on the Plaintiff's side want to
05:10:51 22 address this issue now? Mr. Beaber?

05:10:53 23 MR. BEABER: I will, Your Honor. I mean, I
05:10:55 24 don't -- we don't think it's a huge amount. It was said.
05:11:00 25 The jury heard it --

05:11:01 1 THE COURT: Right. Not going to come up again.

05:11:02 2 MR. BEABER: I don't think it's going to come
05:11:04 3 again, but I don't think we need to do anything with
05:11:07 4 respect to what has been done --

05:11:09 5 THE COURT: All right. Well, let's make sure it
05:11:13 6 doesn't come out again.

05:11:14 7 MR. BEABER: Understood, Your Honor.

05:11:14 8 THE COURT: Okay. Did Mr. Fussell have something?

05:11:19 9 MR. FUSSELL: Yes, Your Honor, just sort of some
05:11:21 10 housekeeping.

05:11:22 11 Pursuant to the pretrial order, we're supposed to
05:11:24 12 notify the Court and the parties -- excuse me, opposing
05:11:27 13 party when we intend to -- to rest.

05:11:31 14 Pursuant to agreement between the parties, two of
05:11:34 15 their witnesses will be called in their case-in-chief,
05:11:38 16 which we -- we listed as will-call witnesses, Your Honor.
05:11:42 17 So we have an agreement that we will not rest our case
05:11:45 18 until they present all their witnesses.

05:11:48 19 And we also have an agreement, Your Honor, to
05:11:51 20 present and offer proof and also the JMOLs at the close of
05:11:56 21 evidence if -- if that's okay with Your Honor.

05:11:59 22 THE COURT: Sure. Yeah. That's fine.

05:12:02 23 So do the Plaintiffs -- does the Plaintiff have
05:12:05 24 one additional witness only? Okay.

05:12:07 25 MR. FUSSELL: Yes, Your Honor.

05:12:08 1 THE COURT: And, so, of course, we don't know how
05:12:09 2 long the cross-examination will take in the morning.

05:12:12 3 Can you anticipate what the final witness -- or at
05:12:17 4 least the final witness in your case-in-chief, putting
05:12:24 5 aside the two you're going to call in their -- in their
05:12:28 6 case, how long you expect that to take?

05:12:30 7 MR. FUSSELL: We anticipate approximately an hour
05:12:32 8 and 15 minutes.

05:12:34 9 THE COURT: Okay. All right.

05:12:35 10 MR. FUSSELL: The final witness would be our
05:12:38 11 damages expert.

05:12:39 12 THE COURT: Right. Okay. And so likely that's
05:12:42 13 going to put us somewhere in the middle of the afternoon
05:12:46 14 tomorrow finishing the Plaintiff's case-in-chief?

05:12:50 15 MR. FUSSELL: Not knowing their crosses --

05:12:53 16 THE COURT: Yeah.

05:12:54 17 MR. FUSSELL: -- I would think early afternoon.

05:12:56 18 THE COURT: Early afternoon perhaps.

05:12:58 19 MR. FUSSELL: Yeah.

05:12:58 20 THE COURT: Okay. All right. And then will the
05:13:01 21 Defendants be prepared to start with their first witness at
05:13:04 22 that time?

05:13:04 23 MR. FOWLER: Yes, Your Honor.

05:13:05 24 THE COURT: Okay.

05:13:07 25 MS. SMITH: And, Your Honor, just to flag if for

05:13:09 1 Your Honor, that witness will be translated. And
05:13:11 2 Your Honor has approved, I believe, our chosen translator?

05:13:14 3 THE COURT: We have.

05:13:16 4 MS. SMITH: I just wanted to let you know that
05:13:18 5 that's going to be --

05:13:19 6 THE COURT: We have. Okay. Good.

05:13:20 7 All right. So early to mid-afternoon, Plaintiffs
05:13:22 8 will finish, and then the Defendants will begin.

05:13:26 9 MR. FUSSELL: Yes, sir.

05:13:27 10 THE COURT: All right. Good enough.

05:13:29 11 And then an offer of -- I mean, I'm looking at the
05:13:33 12 clock, of course. You know, I think if both parties -- if
05:13:39 13 all the parties use all of their time, we -- we may be well
05:13:44 14 into -- into Tuesday before we finish the testimony to the
05:13:50 15 extent that I'm not sure we're going to get this to the
05:13:54 16 jury on Tuesday.

05:13:54 17 But that assumes that both parties use all of
05:13:58 18 their time. I certainly don't know whether that's going to
05:14:02 19 happen or not. But just sort of mapping out what the day
05:14:05 20 is going to look like, it would be late in the day on
05:14:09 21 Tuesday.

05:14:09 22 Any thoughts about that? Not asking for any
05:14:13 23 response. I just -- making an observation.

05:14:16 24 MR. FUSSELL: I think our projections, Your Honor,
05:14:19 25 we had anticipated that we would close on Tuesday.

05:14:24 1 Obviously, not knowing how long their witnesses will go and
05:14:27 2 the translated witness, we had anticipated closing Tuesday,
05:14:32 3 but I could see where it could carry over.

05:14:35 4 THE COURT: That's all I'm saying, too. I mean, I
05:14:36 5 think we all had sort of thought we would get this to the
05:14:40 6 jury on Tuesday. I'm just saying if everybody uses all of
05:14:44 7 their time, that's beginning to look a little doubtful.

05:14:47 8 MR. FOWLER: Our -- at least as of yesterday, we
05:14:50 9 thought we could get this case to the jury on Tuesday.
05:14:53 10 We'll re-huddle tonight. We're actually shortening some of
05:14:57 11 our -- my cross of Mr. Balakrishnan was shorter than I had
05:15:03 12 budgeted, for example.

05:15:03 13 THE COURT: Can I get you to go to the podium for
05:15:05 14 me?

05:15:07 15 MR. FOWLER: I'm sorry.

05:15:07 16 As of yesterday, we thought that we could get to
05:15:10 17 the jury on Tuesday. We're going to go back and
05:15:13 18 re-evaluate. We're trying to shorten our case. My cross
05:15:18 19 of Dr. Balakrishnan was shorter than the time I had
05:15:22 20 budgeted, for example. I'll try to do the same thing with
05:15:26 21 Dr. Singh.

05:15:26 22 We are shortening the direct that we're doing
05:15:29 23 because we really want to try to get this to the jury on
05:15:32 24 Tuesday, if we can. So we'll do our best to accomplish
05:15:34 25 that.

05:15:35 1 THE COURT: Well, to be clear, I mean, I -- you
05:15:36 2 know, I'm not a fan of things going to the jury late in the
05:15:40 3 day. So, you know, and I think -- but -- and I don't think
05:15:42 4 the jury -- unless I've misled them in some way, I don't
05:15:46 5 think the jury has strong expectations that this will
05:15:50 6 finish on Tuesday.

05:15:53 7 You know, I can go back and look at the transcript
05:15:55 8 and see exactly what I said, but, you know, I think you've
05:16:01 9 got the time that you've got, and you're more than welcome
05:16:04 10 to use it.

05:16:04 11 I'm not asking you all to streamline. I'm not
05:16:07 12 asking the Plaintiffs to do anything of that nature, as
05:16:12 13 well. I mean, you all have the time you've got, and you're
05:16:16 14 welcome to use it however you see fit. I'm just not a big
05:16:20 15 fan of sending things to the jury late in the day.

05:16:24 16 MR. FOWLER: Thank you, Your Honor.

05:16:26 17 THE COURT: I would like to say this about jury
05:16:29 18 instructions. I've taken a look at them, and I will
05:16:34 19 compliment the parties. They're in remarkably good shape.
05:16:38 20 I appreciate your efforts to meet and confer.

05:16:45 21 I wondered whether you all had completed that
05:16:49 22 process or there were any ongoing discussions about jury
05:16:53 23 instructions.

05:16:54 24 MR. FOWLER: So I think we've had a very thorough
05:16:57 25 meet and confer. On our side, I've been the one that's

05:17:01 1 been doing the meeting and conferring.

05:17:04 2 As always, my experience in trial is we see how
05:17:07 3 the evidence comes in, and then we see if there's any
05:17:10 4 extraneous instructions that didn't pan out because the
05:17:13 5 evidence didn't come in in some way. So I think that still
05:17:18 6 needs to be done.

05:17:18 7 But we could hold the jury instruction conference
05:17:20 8 at your pleasure. I'd like to get another day of evidence
05:17:24 9 under our belt before we do that.

05:17:26 10 THE COURT: That's what I was thinking, too. I
05:17:28 11 was thinking Friday night actually. I know you all
05:17:31 12 probably have big plans for Friday night, but in the event
05:17:35 13 that you don't, we could, you know, have a short charge
05:17:39 14 conference.

05:17:39 15 I do think another couple of days of testimony
05:17:42 16 would be helpful, and I think by that point, we'll actually
05:17:44 17 know whether -- what the likelihood of us getting this to
05:17:49 18 the jury on Tuesday really is. And if it looks like it is
05:17:53 19 likely, certainly we would need to do it no later than
05:17:57 20 Friday.

05:17:58 21 But, as I said, I think they -- they are in
05:18:03 22 remarkably good shape for -- for a trial like this.
05:18:09 23 There's significant differences on the verdict form, but I
05:18:12 24 think honestly at the end of the day, most of that is just
05:18:16 25 going to come down to, you know, which side I'm more

05:18:20 1 comfortable with.

05:18:21 2 The differences in the instructions themselves are
05:18:24 3 truly not that significant.

05:18:25 4 So what I would suggest is we sort of pencil in
05:18:30 5 Friday night after the jury goes home, and we will do an
05:18:34 6 informal charge conference, and I'll hear from both sides
05:18:38 7 about, you know, why you think your instruction is right
05:18:44 8 and the like and what the evidence that's been submitted is
05:18:47 9 to support it.

05:18:51 10 And then I'll ponder that over the weekend to the
05:18:55 11 extent that becomes necessary, and we'll plan to circulate,
05:18:58 12 most likely on Monday, what is our -- basically our final
05:19:05 13 set of instructions.

05:19:06 14 And then you all can put your objections on the
05:19:08 15 record on Tuesday morning early, or, you know, as the case
05:19:13 16 may be, depending on how the testimony plays out.

05:19:16 17 MR. FOWLER: That'd be --

05:19:17 18 THE COURT: Not everybody has to be here for that
05:19:19 19 informal charge conference, but anyone who may later have
05:19:23 20 an opinion about it does need to be here.

05:19:26 21 MR. FOWLER: I'll be here, and that works out
05:19:28 22 fine. And I'm sorry the Court would have to do work on
05:19:31 23 Monday on a holiday, but --

05:19:32 24 THE COURT: Oh, it's okay.

05:19:33 25 MR. FOWLER: -- that plan would be otherwise great

05:19:36 1 with us.

05:19:36 2 THE COURT: Does that work for the Plaintiff,
05:19:39 3 Mr. Fussell?

05:19:40 4 MR. FUSSELL: Absolutely, Your Honor, that would
05:19:42 5 work great. And I likewise would thank the Court and their
05:19:47 6 staff for working on Monday.

05:19:48 7 I would just flag, if your -- would like for me
05:19:50 8 to, one issue that has already come up that isn't
05:19:53 9 specifically addressed in the -- in the jury instructions
05:19:57 10 as they currently stand. And that -- that is we believe
05:20:01 11 that given the scope of the IPRs that have come out --

05:20:06 12 THE COURT: Yeah. Right.

05:20:09 13 MR. FUSSELL: -- we do -- we do intend to propose
05:20:11 14 some additional language. It's -- I think it would relate
05:20:14 15 to the presumption of validity that's in dispute already.
05:20:18 16 But we obviously can propose that to opposing counsel and
05:20:22 17 meet and confer --

05:20:23 18 THE COURT: Well, I definitely are going to want
05:20:24 19 you -- I'm definitely going to want you to meet and confer
05:20:27 20 about that.

05:20:28 21 MR. FUSSELL: Of course.

05:20:28 22 THE COURT: I do think in light of the fairly
05:20:35 23 rare, you know, set of exceptions to letting in IPRs in
05:20:41 24 cases like this, you know, there are -- our instructions
05:20:45 25 about that are fairly limited.

05:20:48 1 And this is a highly unusual case in the sense
05:20:53 2 that the door got, you know, widely opened on this, and
05:20:57 3 there's been an awful lot of testimony about it.

05:21:00 4 So I'm not prejudging that in any way. The extent
05:21:08 5 to which I think there are, you know, appropriate
05:21:11 6 instructions out there, I think is just a decision for
05:21:15 7 another day. But I -- but I obviously am going to want the
05:21:19 8 parties to do their dead-level best to reach some sort of
05:21:23 9 an agreement about it.

05:21:25 10 MR. FUSSELL: Understood.

05:21:26 11 THE COURT: Before -- before we discuss it.

05:21:28 12 Okay. So in light of that, this is Wednesday.
05:21:32 13 Why don't I ask the parties to meet and confer about that,
05:21:36 14 and let us know the status of that by Friday morning first
05:21:41 15 thing.

05:21:43 16 So that gives you all -- that gives you all this
05:21:45 17 evening, if you don't have other plans, and all day
05:21:49 18 tomorrow to meet and confer -- and tomorrow evening to meet
05:21:52 19 and confer. Let us know if you can reach some resolution
05:21:55 20 on that.

05:21:56 21 MR. FUSSELL: Yes, sir, we will.

05:21:57 22 THE COURT: Okay. What else?

05:21:59 23 MR. FOWLER: Nothing else from Defendants,
05:22:02 24 Your Honor.

05:22:02 25 THE COURT: All right.

05:22:02 1 MR. FUSSELL: Nothing else from us, Your Honor.

05:22:04 2 THE COURT: All right. Thanks to all of you.

05:22:06 3 COURT SECURITY OFFICER: All rise.

05:22:11 4 (Court adjourned at 5:22 p.m.)

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CERTIFICATION

I HEREBY CERTIFY that the foregoing is a true and correct transcript from the stenographic notes of the proceedings in the above-entitled matter to the best of my ability.

/S/ Shelly Holmes
SHELLY HOLMES, CSR, TCRR
CERTIFIED SHORTHAND REPORTER
State of Texas No.: 7804
Expiration Date: 10/31/2025

5/21/2025
Date