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Transcript of Chris Kyriakakis, Ph.D.

Date: August 13, 2025

Case: RODE Microphones, LLC, et al. -v- Zaxcom, Inc. (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 RØDE MICROPHONES, LLC AND
6 FREEDMAN ELECTRONICS PTY LTD.
7 Petitioners,
8 v.
9 ZAXCOM, INC.,
10 Patent Owner.

11 IPR2025-00230
12 IPR2025-00231
13 IPR2025-00232
14 Patent 7,711,443
15 Patent 7,020,902
16 Patent 10,276,207

17
18 VIDEOCONFERENCE DEPOSITION TESTIMONY OF
19 CHRIS KYRIAKAKIS, Ph.D.
20 TAKEN ON WEDNESDAY, AUGUST 13, 2025

21 REPORTED BY:

22 Rebecca Klanderud, RPR, CSR

Job No. 595246

1 VIDEOCONFERENCE DEPOSITION TESTIMONY OF
2 CHRIS KYRIAKAKIS, Ph.D. was taken in the
3 above-styled and numbered cause on Wednesday,
4 August 13, 2025, at 11:56 a.m. EDT, via Zoom
5 communication, before Rebecca Klanderud, RPR,
6 CSR and reported remotely by machine shorthand
7 and realtime technology, pursuant to the Federal
8 Rules of Civil Procedure for the United States
9 District Court pertaining to the taking of
10 depositions and the provisions stated on the
11 record or attached hereto.

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3 BY: MICHAEL A. FISHER, ESQUIRE

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15
16 Also Present:

17 Glenn Sanders, Zaxcom, Inc.

18 Addison McNaughton, Exhibit Technician

19
20 (All parties present joined remotely.)

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1 THE COURT REPORTER: Good morning,
2 everyone.

3 This is Rebecca Klanderud, the court
4 reporter for today's deposition, California
5 Certified Shorthand Reporter, License Number
6 14527.

7 Do counsel stipulate and agree that I
8 may administer the oath remotely, and that the
9 oath so given is valid for the purposes of this
10 deposition, please?

11 Ms. Chipperson?

12 MS. CHIPPERSON: Yes. That's fine.

13 THE COURT REPORTER: Thank you,
14 ma'am.

15 Mr. Fisher?

16 MR. FISHER: That's fine on our side,
17 too.

18 THE COURT REPORTER: Very good.
19 Thank you, sir.

20 Doctor, kindly raise your right hand.
21 (The court reporter administered the
22 oath to CHRIS KYRIAKAKIS, PH.D.)

1 THE WITNESS: I do.

2 THE COURT REPORTER: Thank you, sir.

3 Counsel, the witness has been sworn,
4 and you may proceed.

5 MS. CHIPPERSON: Great. Thank you,
6 Rebecca.

7 CHRIS KYRIAKAKIS, PH.D.,
8 a witness in the above-entitled matter,
9 having been first duly sworn,
10 testified on his oath as follows:

11 EXAMINATION

12 BY MS. CHIPPERSON:

13 Q. Good morning, I guess to both of you.
14 It's good afternoon for us here in New Jersey.

15 So, Dr. Kyriakakis, I think I heard
16 you tell Rebecca that she could call you Dr. K.

17 Would that be okay if I do the same?

18 A. That would be fine.

19 Q. Okay.

20 A. It reminds me of my basketball days,
21 so that's good.

22 Q. Okay. All right. I don't want to

1 mangle your name, so that will definitely make
2 it easier.

3 So -- so as you're aware, I represent
4 -- I'm with Chipperson Law Group. I represent
5 Zaxcom, Inc. who is the patent owner in this
6 proceeding, so I represent them for --

7 MS. CHIPPERSON: And let's see here.

8 Addison, I guess if you can pull up
9 the declaration of Dr. K?

10 That's the 001 exhibit, and I think
11 that's probably the exhibit we'll be using most
12 often today.

13 BY MS. CHIPPERSON:

14 Q. But once that's pulled up, on the
15 first page, it will identify the IPR numbers and
16 the corresponding patent numbers, so I just want
17 to clarify with you that that's what we will be
18 discussing today.

19 THE EXHIBIT TECHNICIAN: Okay.

20 One moment while I get that pulled
21 up.

22 Okay. The exhibit is on the screen.

1 (Deposition Exhibit 1 was marked
2 for identification.)

3 BY MS. CHIPPERSON:

4 Q. Okay. So, Dr. K, do you recognize
5 this as your declaration submitted in the three
6 IPR proceedings that are listed there on this
7 first page?

8 A. I do.

9 Q. Okay. Thank you.

10 So just as a point of clarification,
11 I'm sure your counsel has probably told you, but
12 the IPR2025-00231, the institution was vacated
13 on Friday, and that is the one that relates to
14 U.S. Patent Number 7,929,902. So this --
15 today's deposition will not be related to that
16 matter.

17 MS. CHIPPERSON: And I think, Addison
18 and Rebecca, that other than this declaration
19 which was submitted in the past, that we've --
20 we've changed everything to just represent those
21 two IPRs, correct?

22 MR. FISHER: I'm sorry.

1 Could you repeat your -- are you
2 asking the witness or me?

3 MS. CHIPPERSON: No. I'm ask- -- I'm
4 clarifying with Rebecca and Addison that the
5 documents have been changed to just refer to the
6 00230 and the 00232 matters.

7 THE COURT REPORTER: Very good.
8 Thank you for that clarification, Ms.
9 Chipperson. We appreciate it.

10 MS. CHIPPERSON: Okay. Okay. Thank
11 you.

12 MR. FISHER: Just a couple of -- a
13 couple of points.

14 I don't think the documents
15 themselves have been changed, so I'm not sure
16 what you mean by that.

17 MS. CHIPPERSON: I'm just making a
18 simple clarification that with -- if you look at
19 our markings on the documents, they're --
20 originally, we scheduled the deposition for
21 three IPRs, and that was the case header for the
22 documents and what we gave to Planet Depos for

1 everything, but now we've asked them to remove
2 one of them.

3 So if you look at our header on the
4 bottom of the documents that we uploaded for
5 today, they only referenced the 230 and 232
6 IPRs.

7 MR. FISHER: So I think the problem
8 is that we're not -- we're not actually able to
9 see the whole document. I see you've presented
10 -- and I guess I have to object to it on that
11 basis as well. We're seeing one page of it, but
12 you haven't made it available for download.

13 So I guess I don't know how you're
14 going to proceed with exhibits with just showing
15 a page at a time where we don't have access to
16 the whole exhibit.

17 So can you --

18 MS. CHIPPERSON: Do you want to
19 download the documents?

20 I mean, we were going to go to the
21 relevant pages as I go through the deposition,
22 but if you'd like to download them, you know,

1 you can do that as well.

2 MR. FISHER: I mean we're entitled to
3 see the whole document.

4 MS. CHIPPERSON: Um-huh.

5 MR. FISHER: So I think that the --

6 THE COURT REPORTER: We can put it in
7 the chat if you'd like. If both counsel agree,
8 we can put it in the chat, and you can download
9 it from there if you'd like.

10 MR. FISHER: If that's the most
11 efficient way of doing it, that's fine. I just
12 don't -- we can't really accept having a page of
13 a document just in general that -- that Zaxcom
14 is presenting without having access to the whole
15 exhibit. In fact -- yeah. That also goes to,
16 you know, recognizing even whether this is, in
17 fact, the -- I'm sure it's the actual
18 declaration with no, you know, omissions or
19 anything, but just as a formality, I think we
20 need to actually have access to the whole
21 exhibit in each instance.

22 MS. CHIPPERSON: Okay.

1 MR. FISHER: So if the chat's the way
2 to do that, then that's fine.

3 MS. CHIPPERSON: Okay.

4 MR. FISHER: And the witness should
5 be allowed to download it and pull up a local
6 copy.

7 MS. CHIPPERSON: Yeah. That's fine.

8 THE EXHIBIT TECHNICIAN: Yeah. I
9 could create a shared folder, and then share the
10 link in the chat, and then you can click on
11 that. And if you refresh when I add the
12 exhibit, you should see them and be able to
13 download them or just open them up from that
14 folder, if that works.

15 MR. FISHER: That's fine.

16 THE EXHIBIT TECHNICIAN: Okay. Give
17 me one moment. I'm just going to get that
18 folder set up.

19 MR. FISHER: As long as it works, I
20 think that's fine. We'll try it out.

21 THE EXHIBIT TECHNICIAN: Okay.

22 MS. CHIPPERSON: Okay.

1 THE EXHIBIT TECHNICIAN: Give me one
2 moment. I'm just going to get that folder. It
3 shouldn't take me more than a minute, and I'll
4 share the link in the chat in a moment here.

5 MS. CHIPPERSON: And can we proceed
6 while you're doing that, Addison, since,
7 Rebecca, you're still available for the record,
8 correct?

9 THE COURT REPORTER: Absolutely. I'm
10 writing every word here. Thank you.

11 MS. CHIPPERSON: Okay. So let's move
12 ahead that's --

13 MR. FISHER: Yeah. I'm -- yes.

14 I'm okay proceeding with this
15 exhibit, but I'd like this resolved before the
16 next exhibit is presented.

17 MS. CHIPPERSON: That's fine. No
18 problem.

19 BY MS. CHIPPERSON:

20 Q. I think I have some other general
21 questions that don't relate to the exhibit, so
22 that's why I'm thinking we can go ahead. And

1 then I'll circle back to my question about
2 whether or not you recognize the document as
3 your declaration once you have that local --
4 local copy. That's fine.

5 MR. FISHER: That's fine.

6 BY MS. CHIPPERSON:

7 Q. Okay. So from your recollection, you
8 signed your declaration in Los Angeles,
9 California on December 4th of 2024; is that
10 correct?

11 A. I'd have to look at the last page to
12 see that. That sounds like the right month. I
13 don't remember the date.

14 Q. Okay. Okay. We'll circle back.

15 MR. FISHER: This goes to, you know,
16 the concern I had with access to the whole
17 exhibit rather than just whatever page you
18 happen to be presenting.

19 MS. CHIPPERSON: Okay. That's fine.

20 BY MS. CHIPPERSON:

21 Q. So just to get some formalities out
22 of the way about how I would like to refer to

1 things shorthand just to -- for brevity, so when
2 I refer to the parties today, I would like to
3 refer to Zaxcom, Inc. as Zaxcom. RØDE
4 Microphones, LLC I will refer to it just as
5 RØDE. And Freedman Electronics Party LTD I will
6 refer to as Freedman.

7 Is that fine with you, Dr. K?

8 A. Yes.

9 Q. Okay. And then as far as patents, if
10 it is a patent of Zaxcom, I will refer to that
11 by its last three digits. So, for example, U.S.
12 Patent number 7,711,443, I will call that the
13 '443 patent, and U.S. Patent number 10,276,207,
14 I'll refer to that as the '207 patent.

15 Is that clear?

16 A. Yes.

17 Q. Okay. When it comes to prior art
18 patents, I will just refer to them by their
19 first inventor name.

20 So, for example, I will refer to U.S.
21 Patent number 6,825,875 just as Strub, which I
22 think is the way we've -- both parties have been

1 kind of referring to it in the documents. And
2 for another example U.S. Patent Number
3 5,479,351, I'll refer to that as Woo, okay?

4 Is that fair?

5 A. Yes.

6 Q. Okay. Okay. And I think Rebecca has
7 already gone through some of this stuff, but,
8 you know, I'm going ask you questions regarding
9 your declaration and your analysis therein.

10 If you do not understand the
11 question, let me know, and I will repeat it or
12 rephrase it for you. If you answer the
13 question, I will -- I will assume you understood
14 it.

15 Is that understood?

16 A. Yes.

17 Q. Okay. Okay. And can you just tell
18 me a little bit: What type of computer are you
19 on today?

20 A. What type?

21 It's a Macintosh.

22 Q. Okay. Is this your personal

1 computer?

2 A. Yes.

3 Q. Okay. I guess it has probably an
4 integral camera or external?

5 A. No. It's an integrated camera and
6 microphone and speaker.

7 Q. Okay.

8 A. Yeah.

9 Q. Okay. And can you please close out
10 any other applications on your laptop other than
11 this -- this -- Zoom screen, and then, you know,
12 obviously whatever you need to open a local copy
13 of the documents?

14 A. Yeah. I don't have anything else
15 open. I have --

16 Q. Okay.

17 A. I have Adobe Acrobat Reader open.

18 Q. Oh, that's fine.

19 But no email, no messaging apps?

20 A. No.

21 Q. Okay. Okay. And who else is in the
22 room with you?

1 A. Other than Mr. Fisher?

2 Mr. Fisher. That's it. It's just
3 the two of us.

4 Q. Okay. Okay. And can you just do a
5 pan around the room just to show us like the
6 environment that you're in?

7 A. Yes. I have an external moni- -- an
8 external monitor connected, so I just don't want
9 to lose the dongle.

10 Hold on for me. Okay. Let me pick
11 up the cables. Here's my -- Mr. Fisher. And
12 behind me, I think you can see what's behind me.

13 Is that --

14 Q. And how about straight in front of
15 you?

16 A. In front of me, I have a box that I'm
17 using to lift my computer up to eye level, close
18 to eye level. I don't know if --

19 Q. Can you just pan your computer around
20 so I can see what's straight in front of you?

21 A. I guess I'm not seeing my -- oh, I'm
22 sorry. Behind camera.

1 MR. FISHER: She wants to see --

2 THE WITNESS: Yeah, yeah. I gotcha.

3 I gotcha. I gotcha, yeah. Here.

4 MR. FISHER: That dongle is about to
5 fall off the table.

6 THE WITNESS: Yeah. That dongle's
7 going to fall off.

8 Can you see that?

9 BY MS. CHIPPERSON:

10 Q. Okay. Yes. Thank you very much.

11 A. Okay.

12 Q. Okay. Do you have a cell phone with
13 you today?

14 A. I do, but it's blank. It's sitting
15 on the desk. I can put it away if you'd like.

16 Q. Yeah. Maybe just put it somewhere
17 behind you.

18 A. All right. I'll put it in my bag.

19 Q. Okay.

20 A. Okay.

21 Q. Okay. So if you need a break at any
22 point, just let me know. Obviously, I'm happy

1 to accommodate.

2 If there's a question pending,
3 though, I'll -- I will ask that you answer the
4 question before we take break.

5 I think Rebecca mentioned please
6 answer all questions verbally. The court
7 reporter can't write down a nod, a shrug, or a
8 gesture.

9 Even if you know what my question
10 will be, please wait until I finish. Give your
11 counsel a second to potentially object so that
12 we can get a clean record.

13 Does that -- do you understand?

14 A. Yes.

15 Q. Okay. Okay. Will you please state
16 your full name for the record?

17 A. My name is Chris Kyriakakis.

18 Q. And what is your current address?

19 A. My current address -- home address or
20 business address I guess?

21 Q. Business is fine.

22 A. Yeah. 3480 McClintock Avenue, little

1 C, big C, Los Angeles, California 90089, and
2 that's University of Southern California.

3 Q. Okay. That's your address at the
4 University of Southern California?

5 A. Um-huh.

6 Q. Okay. All right. Have you had your
7 deposition taken in the past?

8 A. Yes.

9 Q. How many times?

10 A. Eight or nine. I lost track.
11 Something like that.

12 Q. And what type of -- were those all
13 different matters, or were you deposed multiple
14 times in the same matter?

15 A. I believe there was a recent matter
16 that I was deposed twice because of -- there was
17 a response that I was deposed on, but I think --
18 all the others were set different -- separate
19 matters.

20 Q. Were they all IPRs?

21 And do you know what I mean by IPR?

22 A. I do. They were -- no. They were

1 not all IPRs. Most were IPRs.

2 Q. Okay. So how many of them were not
3 IPRs?

4 A. Two. Yes, two.

5 Q. And were those patent litigations?

6 A. Yes.

7 Q. Okay. And in the patent litigation,
8 did you represent the patent owner or the
9 accused infringer?

10 A. I have done both, but I don't know
11 the percentage of my cases. It's been mostly
12 the patent owner, but I have done both sides.

13 Q. Okay. So for the two patent
14 litigations, one was for the patent owner, and
15 one was for the accused infringer?

16 A. You mean the non-IPR ones?

17 Q. Yes.

18 A. One was for the -- let me think.

19 Yes. That's right.

20 Q. Okay. So in the six to seven IPRs,
21 how many of those were for the patent owners?

22 In how many of those cases did you

1 represent the patent owner?

2 A. In the depositions?

3 Because I've had other depositions
4 that are not -- I haven't been deposed in.

5 In the depositions, it's been -- I'm
6 sorry. I don't have the numbers in front of me.
7 I'm giving you approximate numbers but it's --

8 Q. That's fine. Approximate is fine.

9 A. I would say two for patent owner and
10 four on the -- for the defendant.

11 Q. Okay. And how many other IPRs have
12 you participated in where you were not deposed?

13 A. There was -- there was only one that
14 I participated in, and the other side decided
15 not to depose me. It was instituted, but they
16 didn't depose me.

17 Q. Okay.

18 A. The others -- there are others that
19 I'm currently on that haven't reached the
20 deposition stage yet.

21 Q. Okay. What would you say is the
22 approximate quantity?

1 A. Of --

2 Q. IPRs that you were not deposed in?

3 A. Because of not reaching that stage
4 yet or because I was passed over?

5 I would say -

6 Q. That you were --

7 A. -- eight to ten, something like that.

8 Q. Okay. And how --

9 THE COURT REPORTER: I would just ask
10 you folks to slow down a little bit. You are
11 just kind of cutting each other off.

12 MS. CHIPPERSON: Okay.

13 THE COURT REPORTER: So I think if
14 you slow down your speech a little bit, I think
15 we'll avoid that problem.

16 MS. CHIPPERSON: Okay.

17 THE COURT REPORTER: From my
18 experience, that's usually the answer.

19 Thank you so much.

20 MS. CHIPPERSON: Okay.

21 BY MS. CHIPPERSON:

22 Q. Let's see.

1 And how many patent litigations were
2 you involved in in which you were not deposed?

3 A. Other than the ones that are ongoing
4 and awaiting decisions, I will -- it was only
5 one.

6 Q. And how many patent litigations do
7 you have ongoing at this point in time?

8 A. Three.

9 Q. Three, including the patent
10 litigation relating to this IPR?

11 A. No. That would be four, then. Three
12 plus this one in various stages.

13 Q. So is it -- well, how would you --
14 let me strike that.

15 How would you split your time between
16 -- well, strike that.

17 What is your -- what is your primary
18 profession?

19 A. I'm a professor at the University of
20 Southern California.

21 Q. So you would consider being an expert
22 as your secondary profession?

1 MR. FISHER: Object to the form.

2 THE WITNESS: It's a consulting
3 profession.

4 BY MS. CHIPPERSON:

5 Q. Okay. And what is the time split
6 that -- between being a professor and being a
7 consultant for patent-related matters, let's
8 say, for the -- for this year, 2025?

9 A. I don't know. I didn't estimate
10 that. I should say so the other cases that I
11 mentioned are not all -- every day. You know,
12 they're not in the same stage, so it's not like
13 I have multiple cases per week to work on. I
14 have to say I don't know how attorneys do it.
15 It's pretty amazing to me, but -- so they're in
16 various stages. So I don't know. I would say
17 80 percent, 80/20, if you count weekends and
18 nights. I haven't thought of it that way.

19 Q. So during the year, 2025, you
20 estimate that you spent 80 percent of your time
21 teaching as a professor, and 20 percent of your
22 time consulting on patent-related matters?

1 A. Assuming by "your time," you mean 7
2 days a week, 24 hours, not -- I don't spend my
3 teaching days doing patent work unless it's the
4 evening. So, yes.

5 Q. Well, let me rephrase.

6 Of the time that you spend working as
7 a professor and doing consulting, would you say
8 that 80 percent of it is spent as a professor
9 teaching, and 20 percent is spent as a
10 consultant on patent-related matters?

11 A. Yes, with the clarification that most
12 of the patent-related work is done after I'm
13 finished with my professor -- it's usually done
14 on weekends or evenings, so, yes. For the total
15 week, yes.

16 Q. And if we were to ask you about the
17 year 2024, what would you break -- what would
18 you say is the breakdown?

19 A. I believe I had -- I didn't have as
20 many cases. I probably had two cases in 2024.
21 Again, I'm going from memory, so I'd have to --
22 and some cases overlap between '24 and '25, so I

1 would say it was a higher percentage for -- or
2 lower percentage for the patent consulting.

3 Q. Okay. Do you understand that being
4 under oath means you're sworn to tell the truth?

5 A. Yes.

6 Q. Okay. And do you understand that
7 your responses here have the same force as in a
8 courtroom with a judge and a jury?

9 A. Yes, I do.

10 Q. Is there anything that would prevent
11 you from testifying accurately today?

12 A. No.

13 Q. Are you taking any medications that
14 will interfere with your ability to testify
15 accurately?

16 A. No.

17 Q. Have you ever been convicted of a
18 felony or misdemeanor?

19 A. No.

20 Q. What do you understand your role to
21 be in this matter?

22 MR. FISHER: Object to the form.

1 THE WITNESS: My role is to read
2 through the materials that were at issue and
3 provide expert opinions on many of the technical
4 terms that were discussed in these documents.

5 BY MS. CHIPPERSON:

6 Q. Is it your role to opine on the
7 validity of the Zaxcom's patents?

8 MR. FISHER: Same objection.

9 THE WITNESS: It's my role to
10 understand how it -- if at all, it relates to
11 prior art, and then, yes, opine on the validity
12 based on that understanding.

13 BY MS. CHIPPERSON:

14 Q. Did you review your declaration
15 before coming to this deposition today?

16 A. Yes, I did.

17 Q. Is there anything in your declaration
18 you would like to clarify or restate?

19 A. Not at this time. As we go through
20 it, if we find a typo here and there, I'll
21 probably let you know, but I didn't --

22 Q. Okay.

1 A. Yeah.

2 Q. Did you review any materials prior to
3 preparing your declaration?

4 A. Prior to preparing my declaration?

5 Q. Um-huh.

6 A. Yes. I think we have provided the
7 materials listed somewhere. Yeah. It was a lot
8 of the prior art and other documents that are
9 listed there.

10 Q. Did you include all of the materials
11 that you reviewed in preparation of your
12 declaration in your declaration?

13 MR. FISHER: Object to the form.

14 THE WITNESS: I believe they are --
15 pointed to a separate exhibit. I'm not -- I'm
16 not positive about that.

17 MR. FISHER: Again, I'm going to
18 object. Unless the -- okay. The -- I see the
19 exhibit folder has been provided.

20 MS. CHIPPERSON: Okay. I don't have
21 the chat open here.

22 MR. FISHER: Dr. K, you can open up

1 the declaration there and look at it or
2 otherwise look at a copy.

3 THE WITNESS: Yep.

4 So I do have a section -- I'm looking
5 here on the screen. I do have a section on --

6 BY MS. CHIPPERSON:

7 Q. I can help you with that. I believe
8 it's at page 17 and 18.

9 A. Yep. Here it is. Yep. I believe
10 that's a summary, though. It's not -- I don't
11 think it's a list of every single document. I
12 was under the impression that that was provided
13 separately by the attorneys as a -- as part of
14 the docket, but I'm not sure how that works.

15 Q. Okay. So you -- you believe you
16 reviewed materials in addition to what is listed
17 on pages 17 and 18 of your declaration during
18 preparation of your declaration?

19 MR. FISHER: Object to the form,
20 mischaracterizes prior testimony.

21 THE WITNESS: Let me just take a
22 quick look to see what I said here.

1 So at the top of page 18, "I reviewed
2 the Challenge Patents, their file histories, the
3 prior art, and all exhibits cited in this
4 declaration, including the documents in the
5 Table of Exhibits."

6 So those are the documents that I
7 reviewed.

8 BY MS. CHIPPERSON:

9 Q. Did you review documents in addition
10 to those listed in paragraph 35 of your
11 declaration?

12 A. So when you say reviewed, you mean
13 did I draw knowledge from things that I know
14 from in the past?

15 I'm not sure what you mean "review."

16 Q. It's the typical review.

17 I mean, what would you consider a
18 review?

19 Did you read the document at all?

20 MR. FISHER: Object to the form.

21 THE WITNESS: My opinion is based on
22 these things, but I can't -- you know, if 5

1 years ago I read a book that has to do with
2 satellite GPS, I don't know if I would consider
3 that review for this. It's knowledge that I
4 gained.

5 BY MS. CHIPPERSON:

6 Q. So you may be relying on additional
7 documents for the preparation -- when you
8 prepared your declaration?

9 MR. FISHER: Same objection.

10 THE WITNESS: I'm relying on what I
11 say in the beginning of paragraph 35: In
12 forming the opinions expressed in this
13 Declaration, drawing on my experience in the
14 field of signal -- of audio signaling
15 processing, including teaching, research, and
16 consulting experiences. (as read)

17 So I did not put anything in here
18 that is not cited, but knowing where to look may
19 have been -- for example, in looking through all
20 the prior art is influenced by my knowledge of
21 this field.

22 BY MS. CHIPPERSON:

1 Q. Okay. How were you retained in this
2 matter?

3 A. In what sense "how"?

4 Q. How were you retained?

5 How were you hired for this matter?

6 A. I was contacted by the law firm, had
7 a discussion, um, and they gave me a letter of
8 retention.

9 Q. And who -- who did you speak to at
10 the law firm when you were retained?

11 A. It was Mr. Fisher.

12 Q. Okay. About when were you retained?

13 A. It was late 2024 that I -- it's -- I
14 don't remember the exact month.

15 Q. Would you say it was after September
16 1st, 2024?

17 A. I'm sorry. I'm not sure. I could
18 easily look at it at the break if you would like
19 a more precise date and I can -- I can let you
20 know.

21 Q. Okay. We can do that.

22 And just to sidestep back for a

1 second, now that you have a full copy of your
2 declaration, do you agree that this is your
3 declaration?

4 A. Yes.

5 Q. Okay.

6 A. Well, I didn't read the whole thing,
7 but I scrolled through it, and it looks like
8 what I wrote.

9 Q. Okay. So how many different matters
10 have you worked on for Freedman?

11 A. This is the first one.

12 Q. Okay. And how many different matters
13 have you worked on for RØDE?

14 A. The first. This is the first.

15 Q. And is your billing rate for this
16 matter still 525, as stated in your declaration?

17 A. Yes, it is.

18 Q. And approximately how much have you
19 billed so far for these matters?

20 A. I can tell you approximately in
21 hours. It's around 50 hours so far. I guess we
22 can multiply that out.

1 Q. So you have billed approximately 50
2 hours for all -- well, strike that.

3 Have you worked on all four IPRs for
4 Freedman, RØDE?

5 That would be the three in the cover
6 page, plus one for the '444 patent?

7 A. Yes, I have. Yes.

8 Q. Okay. So you have spent around 50
9 hours working in total for all four matters?

10 A. Yes. That's not counting today's
11 deposition.

12 Q. Okay.

13 A. Yeah.

14 Q. And what was the work that you
15 performed in those 50 hours?

16 A. I had to -- I read through the
17 patents at issue. I found prior art. Wrote the
18 -- that's it. Had to work on the technology
19 backgrounds, and then go through the challenged
20 claims. Tried to map them to the prior art.

21 I don't know how much more detail.
22 It's the normal work that is required for

1 putting together an expert witness.

2 MR. FISHER: I would just as a --
3 voice a cautionary privilege objection and
4 counsel the witness not to reveal the substance
5 or details of any conversations or
6 correspondence with counsel in the course of
7 these matters.

8 THE WITNESS: (Witness indicating).

9 BY MS. CHIPPERSON:

10 Q. Okay. We've covered some of these
11 while we were waiting for the exhibit.

12 I will also refer to the United
13 States Patent and Trademark Office as the USPTO.

14 Okay with you?

15 So has anyone ever asked --

16 THE COURT REPORTER: I'm sorry.

17 Was that a -- I'm sorry. I didn't
18 get an answer to that.

19 THE WITNESS: The answer was yes.

20 THE COURT REPORTER: Thank you.

21 If you could just keep your voice up
22 a little bit, and then just continue slowing

1 down. Thank you.

2 THE WITNESS: Okay.

3 MR. FISHER: If you can -- I wonder
4 if it's possible to increase the volume of your
5 microphone --

6 THE WITNESS: Yes. I can do that.

7 MR. FISHER: -- a little further?

8 THE WITNESS: I'll put it on maximum,
9 and hopefully we won't click. But if we do,
10 Addison will tell us. All right.

11 BY MS. CHIPPERSON:

12 Q. Okay. Has anyone ever asked the
13 USPTO to exclude your expert testimony in an
14 IPR?

15 A. No.

16 Q. Has anyone ever asked to exclude your
17 test- -- expert testimony in a patent
18 litigation?

19 A. No.

20 Q. And, earlier, we talked about the
21 number of IPRs in patent litigation cases that
22 you have been involved in.

1 How many of those cases were with
2 Dechert?

3 A. I think I answered that earlier.
4 It's none. You asked me if I had done other
5 work with Dechert, and I have not. This is my
6 first case with Dechert.

7 Q. Okay. That -- I don't believe that
8 was a question that I answered [sic], but thank
9 you for that.

10 So this is your first case with
11 Dechert?

12 A. Yes.

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

15 A. I reread my report and some of the
16 relevant prior art or some of the prior art.

17 MR. FISHER: Just hold one second.

18 I'm happy for you to generally answer
19 the question with the same privilege objection,
20 and caution you not to reveal any discussions,
21 the substance of any discussions that you had
22 with counsel. Otherwise, you can go ahead and

1 answer.

2 THE WITNESS: Sorry. That's how I
3 prepared. I read my report and some of what I
4 thought were relevant sections in prior art.

5 BY MS. CHIPPERSON:

6 Q. So did you meet with anyone to
7 prepare for today's deposition?

8 A. I met with Mr. Fisher.

9 Q. How much time did you spend with
10 Mr. Fisher?

11 A. It was just -- I don't know -- six to
12 eight hours.

13 Q. So the six to eight hours that you
14 spent meeting with Mr. Fisher to prepare for the
15 declaration, is that part of the 50 hours that
16 you've spent working on these cases?

17 A. No, it's not.

18 Q. Okay. So prior to today's
19 deposition, you've spent about 56 to 58 hours
20 working on these cases?

21 A. That sounds about right, yes.

22 Q. Okay. And you did not meet with

1 anyone else other than Mr. Fisher?

2 A. Yesterday, no.

3 Q. In preparation for today's
4 deposition, did you meet with anyone other than
5 Mr. Fisher?

6 A. There was another attorney remote in
7 for a short period of time, but there was no
8 conversation. There was -- he was just
9 listening in.

10 Q. So another attorney attended your
11 meeting with Mr. Fisher?

12 A. Remotely to listen in for a short
13 period of time.

14 Q. So prior to today's deposition, you
15 did not have any other meetings with anyone
16 other than Mr. Fisher?

17 MR. FISHER: I'll object to the form.

18 THE WITNESS: You're asking in
19 preparation for the deposition or --

20 BY MS. CHIPPERSON:

21 Q. Yes, um-huh.

22 A. That's correct.

1 Q. Okay. Have you reviewed the exhibits
2 -- strike that.

3 Do you believe you have reviewed all
4 of the exhibits filed in the IPRs to date?

5 A. I do. I can't say that I did yest-
6 -- all of them yesterday, but, yes, I did.

7 Q. And those would include exhibits
8 filed after you signed your declaration?

9 A. I don't know the dates of the
10 exhibits filed, but -- I'm not sure. I'm not --
11 it's possible. I just -- I don't know the
12 timeline of all the exhibits.

13 Q. But it is your understanding that
14 you've reviewed all of the exhibits filed in all
15 of the -- in both IPRs at issue today?

16 A. Yes.

17 Q. Okay. Okay. If we could go to
18 paragraph 6 of your declaration?

19 A. Yes.

20 Q. You state -- hold on. I'm getting
21 there on my copy.

22 So you state that your curriculum

1 vitae was attached as an appendix to the
2 declaration.

3 Is that correct?

4 A. That's what I -- that's what it says
5 there, yes.

6 Q. So is that statement accurate?

7 MR. FISHER: Object to the form.

8 THE WITNESS: I'm looking to -- at
9 the table of contents, and I don't see
10 appendices. So maybe it was supposed to be an
11 appendix, but probably became part of the
12 exhibits. So I'm not sure if that's -- if it's
13 there. I don't see it.

14 BY MS. CHIPPERSON:

15 Q. So is section 6 of your declaration
16 accurate?

17 MR. FISHER: Object to the form.

18 THE WITNESS: My intent was to
19 provide my CV. Maybe at the time I wrote this I
20 was under the impression it would be an
21 appendix, but it didn't make it as an appendix.
22 I believe I've provided it, but if you're asking

1 if the word appendix is accurate -- I'll see.

2 Okay. It's not accurate.

3 BY MS. CHIPPERSON:

4 Q. So should this paragraph be stricken
5 from your declaration?

6 MR. FISHER: Object to the form,
7 calls for a legal conclusion.

8 THE WITNESS: That's --

9 MR. FISHER: It mischaracterizes his
10 prior testimony.

11 THE WITNESS: I don't know if it
12 should be stricken. I think it should be say --
13 it should say was provided or is provided in the
14 exhibits, or something to that effect. I don't
15 know the right legal language.

16 BY MS. CHIPPERSON:

17 Q. So is it your position that paragraph
18 6 of your declaration should be amended?

19 A. To show the loca- --

20 MR. FISHER: Object- -- hold on.

21 THE WITNESS: Sorry.

22 MR. FISHER: Object to the form.

1 THE WITNESS: It -- a few words
2 should be changed to show where the CV is.

3 BY MS. CHIPPERSON:

4 Q. How would you amend paragraph 6 to
5 correct your declaration?

6 A. Change the last five words to
7 provided in the exhibits.

8 Q. Okay.

9 A. I'm improvising here because I don't
10 -- I don't know how my CV was provided. I know
11 it was, though.

12 Q. But this is your declaration,
13 correct?

14 A. Yes.

15 Q. Can you tell us whether you have any
16 experience in television broadcasting?

17 A. I have experience over many years of
18 research in working with people and teams in
19 television and broadcasting for experimental
20 purposes to further my research goals, yes.

21 Q. Have you ever worked in television
22 broadcasting?

1 A. Not as an employee. As a consultant
2 looking at new technologies that could change
3 how television and broadcasting -- some aspects
4 of -- audio aspects of television and
5 broadcasting could look into the future.

6 Q. Who did you consult for in your work
7 in television broadcasting?

8 A. I consulted -- and these were -- just
9 to clarify, consulting implies payment. These
10 were unpaid consulting jobs or engagements that
11 were part of my research.

12 And so I was -- I consulted with WGBH
13 in Boston, the -- I'm trying to remember here.
14 Panasonic. These have been over several years,
15 so I'm sorry if I'm straining to remember some
16 of them.

17 Q. That's fine.

18 A. Yeah.

19 Q. So you've never been paid to work in
20 television broadcasting?

21 A. That's right.

22 Q. Okay. And what was the unpaid work

1 that you did for those companies?

2 A. It was to put together experimental
3 setups that bring multiple microphones and
4 recording devices into a space or in distributed
5 spaces, meaning at a distance connected by
6 Internet or wirelessly, to figure out if there's
7 a next generation -- if there are next
8 generation technologies that could advance the
9 science in immersive audio, which is my main
10 area of research over the years.

11 Q. And when was this work done?

12 A. It's been done over the past 20 years
13 sporadically.

14 I should mention. You asked about
15 television and broadcast. Some of -- several
16 others were not done directly with a television
17 broadcast company, but with some of the artists
18 themselves.

19 So, for example, the New World
20 Symphony in Miami, we did the world's first
21 immersive distributed device concert over a
22 multi-channel audio concert over the Internet.

1 I worked with the rock and roll group
2 Duran Duran to do an immersive picture and sound
3 capture of one of their performances.

4 And there are other examples, Herbie
5 Hancock, many others.

6 Q. So in those examples you just
7 provided, was any of that work paid?

8 A. No, it was not. As I said, it was
9 part of my research to further the goals of what
10 we were doing in the lab that resulted in
11 publications and the other normal academic path.

12 Q. Okay. Can you tell us whether you
13 have any experience in production sound
14 recording?

15 A. Yes. So those -- some of the
16 examples that I already mentioned, plus other
17 collaborations within the School of Cinema and
18 Television at the university working with
19 students in studios to do production sound, both
20 in the studio and in remote locations.

21 I'm listed on IMDb as -- what is my
22 title -- immersive audio engineer for a movie

1 that was released past in production.

2 Q. What movie was that?

3 A. It was called Seven Swans.

4 Q. And you're listed on IMDb as an
5 immersive audio engineer?

6 A. I would have to get the exact words
7 for you. It's -- I'm not sure what the exact
8 title was for my listing, but I know it's there.

9 Q. And that work was unpaid?

10 A. Yes.

11 MR. FISHER: Object to the form.

12 THE WITNESS: Sorry.

13 BY MS. CHIPPERSON:

14 Q. Okay. In paragraph 10, it says you
15 performed several multi-channel recordings.

16 Can you describe what you mean by
17 multi-channel recording?

18 A. Yes. It's -- these are recordings
19 that involve many microphones and not just
20 microphones, but also what the industry calls
21 direct feeds from instruments. So tracks, I
22 guess, and I list here some of the ones that I

1 already mentioned.

2 64-track recording, that means there
3 were 64 audio inputs to the recording equipment.
4 Some of them were microphones that were wireless
5 on the performance. Others were wired
6 microphones, you know, drum kits, and other
7 things, the typical way you would do a
8 recording, except that we added many more
9 microphones than is typical in a concert because
10 we were trying to capture the spatial
11 distribution of instruments and sound in the
12 venue.

13 I also worked with the Boston
14 Symphony and the Handel and Haydn Society. This
15 was through the collaboration with WGBH, as I
16 mentioned, so I had the -- the purpose of it was
17 to capture the acoustical characteristics of an
18 amazing concert hall, Boston Symphony Hall, and
19 that required multiple microphones, some on the
20 performer or near the performers, some hanging
21 from the ceiling, so combinations of those and
22 many others. I think I list them all here.

1 Q. So in the -- let's just use this 64
2 audio --

3 A. Um-huh.

4 Q. -- track example that you provide for
5 this next few questions.

6 You said that the 64 audio inputs
7 were microphones or direct feeds.

8 Were the microphones individual
9 performers?

10 A. It was a combination. Simon Le Bon,
11 the main singer, had, for example, a microphone
12 on him that was wireless. There was a
13 background microphone on him.

14 Nick Rhodes on the keyboards also had
15 it by a microphone because he sings backup
16 vocals, but there was also a direct feed from
17 his keyboard, so it's a combination.

18 The drum kit had eight microphones
19 arrayed around and two on contact microphones on
20 the instruments themselves. So that's why we
21 had so many tracks. It's very difficult to
22 capture these.

1 Q. Did any of the tracks include more
2 than one audio source?

3 MR. FISHER: Object to the form.

4 THE WITNESS: The ones worn by the
5 singers were just the singer. The microphones
6 that were not worn by performers but were placed
7 on stands were intended to pick up the nearest
8 instrument, but they may have picked up others
9 as well.

10 One of the reasons we use so many
11 microphones is to try to isolate as much as
12 possible.

13 BY MS. CHIPPERSON:

14 Q. Do you recall any track that included
15 two or more audio sources?

16 A. In one track?

17 Q. Yes.

18 A. I -- it's been a few years, so I
19 don't remember. That wasn't the intent. The
20 intent was to capture each individual instrument
21 or performer separately because that's what
22 makes it easier to mix later. So I'm sorry. I

1 don't remember checking each track for
2 instruments for other than the intended sound.

3 Q. So the reason that you had one audio
4 source per track was to make it possible to mix
5 the track later?

6 MR. FISHER: Object to the form,
7 mischaracterizes prior testimony.

8 THE WITNESS: It's not to make it
9 possible. It's -- sometimes that's useful
10 because it gives you more flexibility.

11 BY MS. CHIPPERSON:

12 Q. Did any of your audio tracks include
13 a recording of the entire performance?

14 A. Yes. There was a set of microphones,
15 a stereo pair of microphones on the cameras that
16 were at the back of the club, and I'm trying to
17 remember. I believe we had some hanging -- yes.
18 We had an experimental microphone hanging from
19 the ceiling that looks like a sphere, and it's
20 picking up ambient sounds.

21 Q. And what do they call a track that
22 has all of the audio on it?

1 MR. FISHER: Object to the form.

2 THE WITNESS: Well, here's the thing.

3 Saying all of the audio is a bit strange
4 because, you know, the distant microphones don't
5 pick all of the audio, they pick up the
6 reflected sound in the hall, but that was just a
7 clarification.

8 I don't -- I don't know if there's a
9 name for that track. If it's intended to pick
10 up ambience, as I mentioned before, they might
11 be called ambient mics or hall mics in a concert
12 hall.

13 BY MS. CHIPPERSON:

14 Q. Are you familiar with the term
15 "scratch track"?

16 A. A scratch track. I think so. I
17 think it's a track that is sometimes recorded by
18 the camera as -- or some other device that has
19 -- that's trying to pick up everything there for
20 reference in case it's needed to listen to
21 something that was not caught by the other
22 microphones.

1 It's hardly ever -- it's not used in
2 production unless there was some disaster.

3 Q. So the microphones that recorded all
4 audio available at the microphone were not
5 included in the multi-track recording of the
6 event?

7 MR. FISHER: Object to the form.

8 BY MS. CHIPPERSON:

9 Q. Is that correct?

10 A. Yeah. All --

11 MR. FISHER: Same objection.

12 THE WITNESS: All 64 microphones -- I
13 guess they weren't 60- -- they were -- I'm
14 trying to think. I think there were 58
15 microphones and six direct instrument feeds.
16 All of those tracks were recorded from the
17 event.

18 BY MS. CHIPPERSON:

19 Q. Did those 64 tracks include the
20 tracks recorded by the camera?

21 A. They did. They were not used in the
22 final production, but they did -- we did record

1 them.

2 Q. And why were they not used in the
3 final production?

4 A. Well, in the final production, when
5 we do these things, we -- a perspective is
6 selected as to how to present the performance:
7 Where in the audience do you want to put the
8 listeners in?

9 And that determines aesthetically
10 what and how much of each microphone feed to
11 use.

12 And I believe in that one, we decided
13 that those were too far away to give us any
14 useful perspective. So instead, for ambience,
15 we used the hanging sphere microphone.

16 Q. So would it have been possible to
17 create a multi-track recording for that event
18 just on the audio recorded at the cameras and in
19 the sphere?

20 MR. FISHER: Object to the form.

21 THE WITNESS: A multi-track recording
22 based on those microphones could certainly be

1 created. It wouldn't have been very good, but
2 -- technically, we can record -- anything can be
3 recorded. The intent was not to just record for
4 the sake of recording but to have useful
5 content.

6 BY MS. CHIPPERSON:

7 Q. How would -- if you were to use the
8 ambient microphones -- I'll use your term, your
9 ambient microphones to create a multi-track
10 recording, how would you individually edit,
11 let's say, the singer?

12 MR. FISHER: Object to the form.

13 THE WITNESS: Well, that's the thing.
14 The ambient microphones pick up very little of
15 the singer because they're too far away. So if
16 your intent is to edit the singer, you need a
17 microphone in front -- you need the microphone
18 closer to the singer.

19 BY MS. CHIPPERSON:

20 Q. And do you have any experience in
21 actually miking a singer, meaning, putting the
22 microphone on the singer?

1 A. Yes, absolutely.

2 Q. And how would do you that for someone
3 like Simon Le Bon?

4 A. First, you ask permission very nicely
5 because -- it depends on the kind of microphone.
6 So if it's -- if it's going to be a head-worn
7 kind of a boom little mic that goes in front of
8 his mouth, he didn't want that. So we had to
9 come up with ways to both hide the wires to the
10 -- I'm talking about the wireless mic. There
11 was another mic near him that he was holding
12 that wasn't mounted on him. But the wireless
13 mic, you have to hide the wires. You have to
14 hide the transmitter, make sure it has
15 batteries, and then run the wires to where it's
16 acceptable to him.

17 Q. What type of microphone was that?
18 Do you recall?

19 A. Whoo. I'm sorry. Maybe Sennheiser,
20 but I'd have to go back. It's been a while.

21 Q. Was it a Lavalier microphone?

22 A. No. It was -- well, so we started

1 with a Lavalier during rehearsals. He didn't
2 want it showing. So we ended up putting a
3 smaller microphone hidden inside his clothing
4 just like they do in Broadway plays, inside --

5 Q. Okay.

6 A. -- near his mouth, yeah.

7 Q. And how do you direct the microphone
8 to make sure that it's capturing that singer?

9 A. You mean, how do I point it?

10 Q. Yes.

11 A. Oh, I see. Well, it depends on the
12 kind of microphone that -- in the case of an
13 omnidirectional microphone, there's no need to
14 point.

15 In the case of a directional
16 microphone, you -- there are some indicators on
17 the microphone that tell you which way is front
18 and which way is back because the back won't be
19 picking up very much.

20 Q. So how would you position a
21 directional microphone?

22 A. In the same way as I described the

1 process. You just have to make sure, take a
2 little bit more care in which way the capsule is
3 pointing, so it's mostly pointing towards the
4 singer's mouth.

5 Q. Now, you said he had a microphone
6 pointing towards his mouth, and he also held the
7 microphone in his hand?

8 A. Yes. He actually switched between
9 the two. I'm not sure the reasons. Singers
10 sometimes prefer one type of mic over another.
11 So both were being recorded, and the front of
12 house engineer from Duran Duran that was running
13 the console had a pre-agreed set of fader
14 positions on the console to decide which of the
15 two mics to use for each song or for each part
16 of the song.

17 Q. Okay. So the performance was --
18 scratch that.

19 Was the performance mixed live during
20 the performance by the audio mixer?

21 A. The front of house audio mixer was
22 mixing for the loudspeakers. I believe there

1 were three, left, center, and right, above the
2 band. This was in the House of Blues. And so
3 they were mixing because this was a live
4 performance, and the audience dancing on the
5 floor wanted to hear that mix.

6 The mix that we were making was not
7 -- was a -- was intended for my research lab
8 where we were looking at many more channels of
9 -- loudspeaker channels for reproduction, and so
10 that was mixed after the fact in the lab.

11 Q. And how would the sound engineer mix
12 for attendees?

13 A. So that engineer works with the
14 group, so knows them very well, knows what's
15 coming, and so they have a preset perspective
16 that they want to do for each song. There are
17 some sound effects.

18 One of my favorite songs, Girls on
19 Film, has cameras snapping. Obviously that
20 wasn't happening on stage. It was a pre-made
21 sound effect, and so the engineer would play
22 that from a recorder and mix it in with whatever

1 else was happening, the guitars, and so on.

2 So they decided on a perspective, and
3 then just know what instruments -- some
4 instruments are not used for every song, so they
5 turn those faders down to avoid noise pickup.

6 I'm just describing very normal
7 mixing techniques here. It's just that this
8 wasn't a person that just walked in. They had
9 knowledge of what's going to happen, and they
10 had notes.

11 Q. So would a sound engineer adjust
12 characteristics of the lead singer's audio track
13 relative to other audio tracks?

14 MR. FISHER: Object to the form.

15 THE WITNESS: That's possible, yes.

16 BY MS. CHIPPERSON:

17 Q. Is it typical?

18 MR. FISHER: Same objection.

19 THE WITNESS: It kind of depends on
20 the song, since we're talking about songs here.
21 Sometimes the -- for whatever reason, if the
22 crowd is getting louder, the engineer might want

1 to turn up the voice by a little bit. I'm just
2 thinking of -- so, yes, it happens. I don't
3 know if it's typical, but it does happen.

4 BY MS. CHIPPERSON:

5 Q. Would you be able to adjust the
6 characteristics of, for example, the lead
7 singer's audio if you were only using the
8 ambient mic track?

9 A. For the live performance, that would
10 be very hard. For after the fact, there -- if
11 for some reason those were the only tracks you
12 were given and were asked to turn up his voice,
13 there are signal, audio signal processing
14 techniques that would allow you to achieve that
15 by isolating the voice from the recording and
16 raising it and doing other things, but that's
17 not something that would happen live.

18 Q. Is it very hard, or is it not
19 possible?

20 MR. FISHER: Object to the form.

21 THE WITNESS: Is what very hard?

22 I'm sorry.

1 BY MS. CHIPPERSON:

2 Q. Is it difficult to adjust the
3 characteristics of the lead singer's audio from
4 an ambient mic recording, or is it not possible
5 to do that?

6 MR. FISHER: Same objection.

7 THE WITNESS: If we're talking about
8 a live recording, meaning a playback of a live
9 recording, as we were talking about here in the
10 club, it -- the answer depends on where the
11 ambient mics are. There's no -- you know, some
12 ambient mics are not directly on the singer but
13 reasonable nearby in which case it's relatively
14 easy. If they're further back, then the singer
15 gets more distant and more reverberant, and it
16 becomes less effective. It's not hard to do
17 after the fact if you have the right signal
18 processing chain.

19 BY MS. CHIPPERSON:

20 Q. If you pointed the microphone, the
21 directional microphone on a singer in the wrong
22 direction, what would happen?

1 MR. FISHER: Object to the form.

2 THE WITNESS: It depends on what kind
3 of directional microphone it is. They each have
4 patterns that are intended to be either very
5 narrow in the front, but allow some from the
6 back or slightly wider pickup from the front and
7 really, really diminish the sound pickup from
8 the back. But in general, what would happen is
9 you would get a lower level of the singer's
10 voice compared to an omnidirectional microphone.

11 BY MS. CHIPPERSON:

12 Q. So if a directional microphone on a
13 singer were pointed at the audience instead of
14 the singer, would you -- what would be the mix
15 in the resulting audio between the audience's
16 audio and the singer's audio approximately?

17 MR. FISHER: Object to the form.

18 THE WITNESS: The singer's voice, as
19 I said, would be lower than it would have been
20 if the microphone was pointed at the singer, but
21 I can't give you an exact result because this is
22 not a laser, right?

1 So it depends on the angle at which
2 it's -- the microphone is seeing the singer's
3 mouth.

4 BY MS. CHIPPERSON:

5 Q. Okay. And you would likely still
6 hear the singer in such a scenario?

7 MR. FISHER: Same objection.

8 THE WITNESS: If it was bumped by
9 accident, yes, but if I was intending to do that
10 I could make it so that you could almost not
11 hear the singer, especially among the other
12 noise. That's -- those are -- that's the intent
13 of a directional microphone.

14 BY MS. CHIPPERSON:

15 Q. Okay. And how many directional
16 microphones were used in your 64-bit performing
17 -- performance?

18 A. 64 track.

19 Q. 64-track recording, yes.

20 A. I wish it was 64 bit.

21 How many directional microphones
22 other than the one on Simon Le Bon?

1 I don't recall the one on
2 Nick Rhodes. It might have been directional as
3 well, but I'm not positive about that. The
4 others were not -- oh, okay. Sorry. Revise me.

5 There was a kick drum microphone
6 that's placed inside the kick drum, and that was
7 a directional mic. I think that's it.

8 Q. What was the type of the other
9 microphones that were used?

10 A. The none -- the other
11 omnidirectional.

12 Q. Okay.

13 A. Yeah.

14 Q. And do you have similar experience
15 putting mics on actors --

16 A. Yes.

17 Q. -- in television recordings?

18 A. Sorry. Yeah. The answer to that,
19 yes.

20 It was a -- another experimental
21 production that we did. It was actually with
22 the same -- the same director that directed the

1 movie that I mentioned earlier also was part of
2 a Shakespeare group and paying an homage to
3 Shakespeare's Theater in the Round where the
4 audience sits around the play, we actually
5 reversed that and put -- sorry. Yeah. Yes. We
6 put the actors around the audience. And so for
7 that, we needed wireless microphones on them as
8 they were moving around, plus, again, ambient
9 microphones to capture some of the sound in the
10 sound stage.

11 Q. Did you use directional microphones
12 for the actors?

13 A. No. Those were all omnidirectional.

14 Q. Okay. Are you a member of a sound
15 union?

16 A. I'm not.

17 Q. So in your declaration, you refer to
18 multi-channel and multi-track.

19 Do you use those two words
20 interchangeably?

21 MR. FISHER: Object to the form.

22 THE WITNESS: Are we still on

1 paragraph 10, just for reference?

2 BY MS. CHIPPERSON:

3 Q. No. This is just in general.

4 MR. FISHER: Same objection.

5 BY MS. CHIPPERSON:

6 Q. Let me see if --

7 A. I think --

8 Q. Let me see if I can find you a
9 section.

10 A. Okay.

11 Q. I think I can.

12 If we look at paragraph 44 on page
13 22.

14 A. Okay. I'm scrolling. 44, yes.

15 Q. So you say that each -- at the end of
16 the middle of the sentence, "each dedicated to a
17 single channel or track."

18 Does that mean that a channel and a
19 track are the same thing?

20 MR. FISHER: Object to the form.

21 THE WITNESS: No. Sometimes they are
22 confused that way, but in my mind, channels --

1 and I was going to answer your earlier question.
2 Multi-channel, when I say that, I mean multiple
3 loudspeakers as in a surround sound is
4 multi-channel, and tracks are the recorded
5 tracks that we were talking about before.

6 Typically, in these elaborate
7 productions, you have many more tracks than
8 loudspeakers, unless you have a very
9 understanding partner at home like I do, and
10 then you can have a lot of loudspeakers.

11 BY MS. CHIPPERSON:

12 Q. Okay. Did you use any Zaxcom
13 equipment in any of your recordings?

14 A. No, we did not.

15 Q. You mentioned Sennheiser.
16 Did you use Sennheiser wireless
17 transmitters in any of your recordings?

18 A. We did. That was one of them, yes.

19 Q. Do you recall the model number?

20 A. No, not off the top of my head.

21 Q. Is the Sennheiser wireless
22 transmitter was essentially the same as a Zaxcom

1 transmitter when it -- scratch that.

2 Does -- in your understanding, would
3 a Sennheiser wireless transmitter perform the
4 same functions as a Zaxcom transmitter?

5 MR. FISHER: Object to the form.

6 THE WITNESS: That's -- I don't know
7 -- other than the function of recording and
8 transmitting, I don't know the inner workings of
9 either one actually, so I can't answer that.

10 BY MS. CHIPPERSON:

11 Q. What is your familiarity with Zaxcom
12 equipment?

13 A. Just what I saw on their website.

14 Q. And what did you see on their
15 website?

16 A. I believe it's been a while since I
17 looked, but it's products that they sell that
18 are related to wireless microphones and
19 receivers.

20 Q. And you're familiar with the Zaxcom
21 products that are described in the Zaxcom
22 patent, correct?

1 MR. FISHER: Object to the form.

2 THE WITNESS: I don't know.

3 Does the patent list model numbers?

4 I'm not familiar with -- I couldn't
5 tell you each model number and what it does. I
6 just saw them -- whatever is on their website as
7 of a few months back when I was first retained.

8 BY MS. CHIPPERSON:

9 Q. Were any -- scratch that.

10 What was the size of the Sennheiser
11 wireless transmitter that you used
12 approximately?

13 A. I don't know. A few inches, a
14 rectangle.

15 Q. Two inches?

16 A. I don't know the exact number.

17 Q. Could -- can you please provide a
18 range?

19 A. Three to 5, something like that.

20 Q. Three to 5 inches square?

21 A. I believe it's rectangular. I don't
22 know. It's -- so maybe 3 to 5 by 2 to 4. I

1 don't know. I'm really improvising here.

2 Q. When's the last time you used a
3 Sennheiser wireless transmitter?

4 A. It was for the live performance of
5 the Byzantine chants. Well, not the live
6 performance. The recording in the studio that I
7 mentioned back in that paragraph that we were in
8 my CV. It was last year.

9 Q. So you last used a Sennheiser
10 transmitter in the year 2024, but don't recall
11 the size?

12 A. I wasn't looking at it for size. It
13 was something that we clipped onto some of the
14 performers.

15 Q. Did you personally clip the device
16 onto a performer?

17 A. No. The tech at the studio did that.

18 Q. Did you handle the Sennheiser
19 wireless transmitter at all?

20 A. In what sense?

21 Did I hold it? Yes.

22 Q. What would you say the weight was of

1 the Sennheiser transmitter?

2 A. Well, you're really testing my
3 guessing abilities here. I don't know.

4 Q. Less than a half a pound?

5 A. Probably, yes.

6 Q. Okay. Let's switch back to the
7 Zaxcom patents for a moment.

8 What do you believe the purpose of
9 the Zaxcom patents to be?

10 MR. FISHER: Object to the form.

11 MS. CHIPPERSON: Yeah. I'll --
12 scratch that.

13 BY MS. CHIPPERSON:

14 Q. Would you agree that the purpose of
15 the Zaxcom patents is to prevent dropouts?

16 MR. FISHER: Same objection.

17 THE WITNESS: No. I don't agree with
18 that at all. I wrote about the background of
19 what I believe were the Zaxcom patents in my
20 report, and we can jump there if you'd like.

21 BY MS. CHIPPERSON:

22 Q. Sure.

1 A. I'll just need to find that section.
2 I guess one area, in one place where
3 I read that is on page 23, which is more of a
4 summary of the specifications for the challenged
5 patents, paragraph 46. And I go into some
6 detail in the next paragraphs, that they -- the
7 patents have to do with synchronization, time
8 code generators, and then in paragraph 52 I say
9 that they disclose embodiments in which each --
10 in which each performer is equipped with a local
11 audio device capable of locally recording.

12 So I think the -- the Figure 1 that's
13 there on the next page right above paragraph 53,
14 I think a POSA would understand by just looking
15 at this figure that there are recorders that
16 connect wirelessly to a main -- to a -- to a
17 console or receiver, and there's a remote
18 control.

19 There's very little -- I don't think
20 there was any mention in the -- well, I'm sure
21 there's no mention in the claim of dropouts. I
22 believe maybe twice in the abstract of I think

1 both patents, so, no. I wouldn't consider them
2 to be dropout related.

3 Q. You do not consider the Zaxcom
4 patents to be dropout related?

5 MR. FISHER: Same objection, asked
6 and answered.

7 THE WITNESS: None of the challenged
8 claims talk about dropouts. The specification,
9 as far as I can remember, only mentions the word
10 dropout in the abstract.

11 BY MS. CHIPPERSON:

12 Q. What do you understand a dropout to
13 be?

14 A. In the context of audio recording, a
15 dropout is a piece of a -- a part of a recording
16 that has either not been recorded or has a click
17 or a distortion. Usually in wireless, a dropout
18 is something that is -- just didn't make it
19 across.

20 Q. And it is your position that the
21 Zaxcom patents do not address dropouts?

22 MR. FISHER: Same objection,

1 mischaracterizes prior testimony.

2 THE WITNESS: The opinions I gave
3 were based on the challenged claims. There's
4 nothing in those that I saw that has anything to
5 do with dropouts. So, yes, that is my position.

6 BY MS. CHIPPERSON:

7 Q. I'm asking about the patent as a
8 whole, including the specification and the
9 claims.

10 Does any portion of the patent
11 document as a whole address dropouts?

12 MR. FISHER: Object. Object to the
13 form.

14 THE WITNESS: I don't believe so,
15 other than the abstract.

16 BY MS. CHIPPERSON:

17 Q. If we take a look at page 37,
18 paragraph 70 of your declaration, you talk about
19 dropouts there and the prior -- in this section,
20 you're talking about the prior Lectrosonics
21 IPRs.

22 Did the prior decisions address

1 dropouts in those prior IPRs?

2 MR. FISHER: Object to the form.

3 THE WITNESS: Are you asking about
4 the board's decisions on the Lectrosonics IPRs?

5 BY MS. CHIPPERSON:

6 Q. Yes.

7 A. So I looked at those after I opined
8 on all -- everything that I wrote here. I'm
9 trying to remember. At least what I -- what I
10 wrote here, which was probably from the notes,
11 that when I read those -- when I read those --
12 not the notes, but when I read the decision.

13 The "dropout repair" shows up on page
14 38, but I believe what the board found is that
15 it -- it had no nexus with the claims.

16 MR. FISHER: Counsel, is there some
17 specific decision you want the witness to look
18 at?

19 MS. CHIPPERSON: No. This -- I am
20 asking about his declaration and what he wrote
21 in his declaration. So we can go to the
22 decision and -- let's see. Let's switch to --

1 yeah. Let's go to Exhibit 14, which is the
2 final written decision in IPR2018-00972.

3 THE EXHIBIT TECHNICIAN: One moment.

4 And do you want me to keep this
5 marked as Exhibit 14 or Exhibit 2 for today?

6 MS. CHIPPERSON: You can mark it as
7 Exhibit 2.

8 THE EXHIBIT TECHNICIAN: Okay.

9 One moment. I'll get that posted,
10 and I will also add it to the shared folder.

11 (Deposition Exhibit 2 was marked
12 for identification.)

13 MR. FISHER: Okay. I do see that
14 that exhibit has appeared in the shared folder.

15 THE WITNESS: Yeah.

16 MR. FISHER: Do you have access to
17 that?

18 THE WITNESS: I do.

19 THE EXHIBIT TECHNICIAN: Okay.

20 The exhibit is on the screen.

21 BY MS. CHIPPERSON:

22 Q. Did you review this decision in

1 preparation of your declaration?

2 A. Yes. I believe I did.

3 Q. So does this decision discuss
4 dropouts?

5 MR. FISHER: Object to the form.

6 THE WITNESS: The last time I saw it
7 was six or seven months ago, so I'd have to go
8 read through it and -- to answer that
9 accurately.

10 I'm trying to see if in the paragraph
11 -- in paragraph 70 if the reference -- if the
12 citation I have says anything about that, but I
13 just don't remember off the top of my head.

14 BY MS. CHIPPERSON:

15 Q. Do you recall if the claims in this
16 proceeding in this Exhibit Number 2 were
17 amended?

18 A. I don't recall.

19 As I said, this was -- I read this as
20 supplementary material, but I didn't -- I don't
21 recall everything that was in the decision. The
22 patents were not the same patents, even though

1 they had a lot of overlapping similar claims,
2 but I would really have to go read that decision
3 again. It's been months.

4 Q. But you discuss this decision in your
5 declaration, correct?

6 A. Right. Which I wrote six months ago
7 or so or more.

8 Q. So you don't recall what's in your
9 declaration at this point?

10 MR. FISHER: Object to the form.

11 THE WITNESS: I recall what I see on
12 the screen in my declaration, I just don't
13 recall every aspect of the Lectrosonics
14 decision.

15 BY MS. CHIPPERSON:

16 Q. Your paragraph 70 discusses the word
17 "dropout."

18 Can you elaborate on what you are
19 saying about dropout in this paragraph?

20 A. I guess -- the sentence that starts:
21 "But the PTAB found," what I'm saying here is
22 I'm -- I guess I'm summarizing that -- so I

1 guess Zaxcom had some objective indicia related
2 to replacing remotely recorded audio data. And
3 the purpose of that sentence I think -- which is
4 called dropout repair by them, and the purpose
5 of that sentence was my opinion that the PTAB
6 found that there was no nexus with claims.

7 Q. And what does that mean that there's
8 no nexus with the claims?

9 MR. FISHER: Object to the form.

10 THE WITNESS: Without being an
11 attorney and giving the legal, exact definition,
12 to me it means that what's in the claims and
13 what was purported to be objective indicia, it
14 doesn't -- is not supported by the claims.

15 BY MS. CHIPPERSON:

16 Q. And which claims are you referring to
17 here?

18 A. Presumably the board has listed which
19 claims. I didn't write that here, so I don't
20 know.

21 Q. You didn't write section -- paragraph
22 70 of your declaration?

1 A. No. I didn't write which claims, the
2 numbers of the claims, the claim numbers.

3 Q. Generally, are you referring to the
4 original claims or the amended claims?

5 MR. FISHER: Object to the form.

6 THE WITNESS: Just based on this,
7 what I wrote here, I think -- I believe -- I'm
8 referring to whichever claims the PTAB used to
9 make this decision. I don't know -- I don't
10 know that I recall the full history.

11 BY MS. CHIPPERSON:

12 Q. Do you recall what the decision said
13 regarding dropout repair that we've shown you in
14 Exhibit 2?

15 MR. FISHER: Same objection.

16 THE WITNESS: I would have to go read
17 that exhibit to find -- to answer that. I don't
18 -- I don't recall off the top of my head, no.

19 BY MS. CHIPPERSON:

20 Q. Did Zaxcom amend its claims in the
21 case in this IPR -- IPR2018-00972?

22 A. I don't recall.

1 Q. So in paragraph 70, when you use the
2 word "claims," you don't know whether you're
3 referring to original claims or amended claims?

4 MR. FISHER: Object to the form.

5 THE WITNESS: As I said before, I'm
6 referring to the claims that the PTAB based
7 their decision on, but I don't know if they were
8 the original or the amended without reading that
9 entire decision again.

10 BY MS. CHIPPERSON:

11 Q. So based on your experience, were
12 radio frequency dropouts a problem in the
13 concerts you recorded prior to May of 2005?

14 MR. FISHER: Object to the form.

15 THE WITNESS: First, to clarify, it's
16 not radio frequency dropouts, it's audio
17 dropouts.

18 But in my recollection, because I was
19 involved in the mixing of all of those after --
20 afterwards, I don't recall of any time where we
21 had a dropout.

22 BY MS. CHIPPERSON:

1 Q. Is one reason for an audio dropout a
2 loss of radio frequency communication?

3 A. Between the transmitter and the
4 receiver, that is one reason, yes.

5 Q. Would that be considered a radio
6 frequency dropout?

7 A. That's not a term that a POSA would
8 use because it implies that the radio frequency
9 itself dropped out. It -- it would cause a
10 dropout of audio packets that were being carried
11 by that channel of communication.

12 Q. And what was your role in preventing
13 dropouts during the recording of these concerts
14 you have listed?

15 MR. FISHER: Object to form.

16 THE WITNESS: Crossing fingers was
17 the number one role.

18 The best role was -- the more -- most
19 important role was to make sure that the
20 transmitters had good line of sight to the
21 receivers in the venues. Usually it's objects
22 such as metal objects or walls that would cause

1 that kind of interference.

2 Other kind of dropout -- um, I would
3 say that's -- that was my main role was to set
4 the channels of -- the radio frequency channels
5 of each of the receivers so that they don't
6 overlap and cause interference with each other,
7 with each of the transmitters. I'm sorry. And
8 making sure that we use best practices in RF
9 communications.

10 BY MS. CHIPPERSON:

11 Q. Do you have any experience preventing
12 dropouts in the filming of a television show or
13 movie?

14 A. Well, I don't work in the industry
15 that does that. I have done however -- I've
16 done recordings in studios with cameras and had
17 to deal with preventing dropouts at WGBH
18 studios, for example, and also at the USC
19 studios.

20 Q. Have you ever been at a location
21 where they were recording a motion picture or
22 television show?

1 A. Yes, several times.

2 Q. Do you recall how many times?

3 A. I don't know. Five or six.

4 Q. And what -- what was the show that
5 was -- the shows -- what were the shows that
6 were being recorded?

7 A. Well, these were all student
8 productions, so I don't remember the titles of
9 all of the shows. But at the USC School of
10 Cinema, students have to make their own films,
11 and that involves exactly what you said, sets
12 and on-location recordings, production -- sound
13 stages. So I've been in all of those.

14 I've also been present in sound stage
15 recordings in the WGBH studios, so I have
16 experience with that as well.

17 Q. So your experience with the filming
18 of motion picture and television was in
19 association with the student productions at USC?

20 MR. FISHER: Object to the form,
21 mischaracterizes.

22 THE WITNESS: The productions were --

1 the students were from USC, but the productions
2 were not all at USC. Some of the sound stage
3 elements were, but there was -- you know, there
4 -- we visited Joshua Tree for some scenes. I'm
5 trying to remember other places in Downtown Los
6 Angeles, outdoor scenes.

7 BY MS. CHIPPERSON:

8 Q. Was this experience part of your
9 duties as a professor at USC?

10 A. So the way -- yes. It was part of my
11 job at USC to -- not to go do these productions
12 but to further the research that I contribute
13 to; that in an academic position, we get judged
14 by papers and advancing science as it's
15 recognized by others. And because the science
16 that we were looking at here was the number of
17 audio channels and how that infor- --
18 loudspeaker, playback channels, and how that
19 influences human perception of direction and
20 envelopment of sound, the best way to do that
21 was not only by equations, but by doing hands-on
22 recordings. And so, yes, that was -- that was a

1 part of that research.

2 Q. So this experience was part of your
3 duties as a professor at USC.

4 Yes or no?

5 A. I -- duties isn't the right term
6 here. I'm saying I don't have duties. Like, I
7 don't have -- I don't get judged what I did by
8 the end of the week.

9 So it was -- my goal was to become a
10 tenured professor and publish papers, and that's
11 what I get judged on in my annual record or
12 report. So it was part of that, yes.

13 Q. Were the students in these recordings
14 your students or another professor's students?

15 A. Both.

16 Q. Did you have outdoor performances,
17 outdoor recordings of these performances?

18 I think you mentioned the Joshua
19 Tree.

20 Was that an outdoor recording?

21 A. It was. I was -- I guess it's a
22 performance because there were actors, but, yes.

1 It was part of a film. Yes.

2 Q. And how did you protect against audio
3 dropouts in an outdoor performance?

4 A. There, it was not -- it was mostly
5 not about walls being in the way, but it was
6 distance, line of sight, and keeping the
7 distance reasonable, and keeping the channels
8 separated enough so they don't interfere with
9 each other.

10 Q. So would a dropout occur when a
11 transmitter worn by a performer moved out of
12 range of a receiver?

13 MR. FISHER: Object to form.

14 THE WITNESS: That's -- it's
15 possible, yes. That's one way that a dropout
16 can occur.

17 BY MS. CHIPPERSON:

18 Q. Can a transmitter that's not in the
19 range of a receiver properly transmit to that
20 receiver?

21 MR. FISHER: Same objection.

22 THE WITNESS: Well, if it's

1 completely out of range, I don't think it would
2 even see the receiver as a -- as a receiver of
3 its signal, right?

4 BY MS. CHIPPERSON:

5 Q. So would that result in a dropout?

6 MR. FISHER: Same objection.

7 THE WITNESS: If it was out of range,
8 it would result in a no audio being transmitted,
9 period.

10 BY MS. CHIPPERSON:

11 Q. Would you define no audio being
12 transmitted as a dropout?

13 MR. FISHER: Same objection.

14 THE WITNESS: No. A dropout to me
15 means there was audio being transmitted.
16 Something happened, and some of it got lost, and
17 then it got picked up again, so there's a gap in
18 the audio.

19 BY MS. CHIPPERSON:

20 Q. So in your definition of dropout,
21 there's always continuous communication between
22 the transmitter and the receiver?

1 MR. FISHER: Object to the form,
2 mischaracterizes.

3 THE WITNESS: No. That's not what I
4 said.

5 If there's a dropout, communication
6 must have stopped for some reason. So it's not
7 continuous. But when there's no dropout, there
8 is continuous communication.

9 BY MS. CHIPPERSON:

10 Q. Is one form of communication dropping
11 out that a transmitter has moved out of the
12 range of its receiver?

13 A. That is one form. There are other
14 forms, but that is one, yes.

15 Q. Is it possible to not have a dropout
16 when a transmitter has moved out of the range of
17 its receiver?

18 MR. FISHER: Object to the form.

19 THE WITNESS: To not -- the thing
20 with the range is that it's not a hard line in
21 the sand, so it degrades slowly depending on
22 environmental conditions and other things. So

1 you might -- if there's a specified range for
2 which the receivers and transmitters are well
3 within and you cross it by a little bit, you
4 still might be fine. So I don't know how to
5 answer that more precisely.

6 BY MS. CHIPPERSON:

7 Q. If you cross it by a lot and you're
8 clearly out of range of the transmitter's
9 receiver, will a dropout in communication occur?

10 MR. FISHER: Same objection.

11 THE WITNESS: Yes.

12 BY MS. CHIPPERSON:

13 Q. How did the movie or television
14 industry deal with dropouts that occurred in May
15 of 2005 and earlier?

16 MR. FISHER: Object to the form.

17 THE WITNESS: I mean, I don't know if
18 I can speak for the entire industry.

19 In my experience, because I know
20 several recording engineers, we meet at the
21 Audio Engineering Society conferences, and there
22 are papers presented there. Typically, they're

1 -- they try to -- if they don't have a backup
2 recording from another microphone that could
3 fill in that gap, then they -- other techniques
4 are used in post production and digital audio
5 workstations to try to fill that gap or to
6 minimize the -- any clicks or drops that would
7 be audible.

8 BY MS. CHIPPERSON:

9 Q. Were backup recordings known prior to
10 May 2005?

11 MR. FISHER: Object to the form.

12 THE WITNESS: Yes, they were.

13 BY MS. CHIPPERSON:

14 Q. What type of equipment would perform
15 a backup recording prior to May of 2005?

16 A. Backup recordings have been around
17 since the beginning of studio recording history.
18 You can -- even before digital. Multiple tape
19 recorders were used just in case there was a
20 problem.

21 It depends on the situation. You
22 could have a digital recorder that records

1 straight to hard disk. There are digital audio
2 tapes, multi-channel or two channel. There are
3 many -- it depends on the availability of
4 equipment and the situation and sometimes the
5 budget.

6 Q. And where were these digital
7 recorders located?

8 A. During the recording?

9 Q. Yeah.

10 A. Typically, near the equipment rack.
11 Yeah.

12 Q. Would that digital recorder record
13 ambient audio or individual audio?

14 MR. FISHER: Same objection, form.

15 THE WITNESS: Well, the purpose of a
16 backup -- I think is what we're talking about
17 here -- is to record everything at two different
18 locations.

19 BY MS. CHIPPERSON:

20 Q. And by "equipment rack," do you mean
21 sound cart?

22 Is -- would "sound cart" be another

1 term for equipment rack?

2 MR. FISHER: Object to the form.

3 THE WITNESS: That is -- that is one
4 type. In a studio, the equipment rack is in the
5 control room. In the field, sometimes there's a
6 sound cart or a truck in production, you know,
7 in sports production or concerts, many different
8 places.

9 BY MS. CHIPPERSON:

10 Q. And would a sound cart or an
11 equipment rack need to change location to stay
12 close to an actor or someone wearing a wireless
13 transmitter?

14 MR. FISHER: Object to form.

15 THE WITNESS: That really depends on
16 the kind of production. If it's wireless only
17 or if it's wired, you typically want those
18 within range of whatever technology is used to
19 bring the audio from the performer to the
20 recorder.

21 BY MS. CHIPPERSON:

22 Q. According to your experience, would a

1 member of the sound crew need to notify the
2 director if an actor wearing a wireless
3 transmitter moved out of range of the sound
4 cart?

5 MR. FISHER: Object to the form.

6 THE WITNESS: Yes. They typically do
7 that so they can re-shoot the scene if possible.
8 It's not always caught because the sound person
9 may be distracted, is listening to other things,
10 but, yes. When it's caught, it's usually --
11 they notify.

12 BY MS. CHIPPERSON:

13 Q. And what would typically happen if a
14 director is notified that a transmitter moved
15 out of range?

16 MR. FISHER: Same objection.

17 THE WITNESS: The director would
18 probably go and listen to what happened to judge
19 the severity of it, ask about whether it was
20 also in all microphones, if there's coverage
21 from other microphones.

22 I'm blending together multiple

1 performance -- the director, when I mean that,
2 in a movie. In a music production, it might be
3 different because they would just do another
4 take right away.

5 So multiple ways of checking would
6 happen, and then deciding what to do after that.

7 BY MS. CHIPPERSON:

8 Q. And I think you said one possible
9 outcome is you would refilm the scene; is that
10 correct?

11 MR. FISHER: Object to form,
12 mischaracterizes prior testimony.

13 THE WITNESS: That is one possible
14 outcome.

15 In modern -- well, in all -- for many
16 years, filmmaking, a lot of the production
17 sound, wherever the scene was being shot, is
18 actually not used or very little of it is used
19 in the final film. The actors go into a stage
20 which is called a loop stage and/or ADR,
21 automatic -- automated dialogue recording [sic],
22 and they rerecord in a studio environment their

1 dialogue by lip-syncing exactly to what they
2 were saying during the movie in the scene, and
3 that obviously doesn't have dropouts because
4 it's in a studio.

5 BY MS. CHIPPERSON:

6 Q. Would you consider the receipt of an
7 Emmy Award from the Academy of Television Arts
8 and Sciences to be a notable honor?

9 MR. FISHER: Object to the form.

10 THE WITNESS: I -- it depend- -- I
11 don't know. Yes, I would. It depends on what
12 area it was in I suppose.

13 BY MS. CHIPPERSON:

14 Q. Would you consider the receipt of a
15 Technical Achievement Award from The Academy of
16 Motion Picture Arts and Sciences to be a notable
17 honor?

18 MR. FISHER: Same objection.

19 THE WITNESS: I don't know how to
20 classify honors as notable or more or less
21 notable. It's -- it's an award.

22 BY MS. CHIPPERSON:

1 Q. Have you ever seen a 24-pound
2 backpack used as a wireless transmitter?

3 A. I have not weighed every backpack
4 that I have seen, so I don't know.

5 Q. Have you seen a backpack used as a
6 wireless transmitter?

7 A. Well, a backpack by itself or with
8 equipment in it or on it?

9 Q. A backpack similar to what is shown
10 in Figure 1 of Strub?

11 We can go to that and pull that up.

12 MS. CHIPPERSON: Addison, that would
13 be our Exhibit Number 6.

14 THE WITNESS: We could --

15 MR. FISHER: Hold on.

16 Object to the form.

17 And why don't we wait until the
18 exhibit appears before you --

19 THE EXHIBIT TECHNICIAN: One moment.
20 I'll get that Exhibit 6 pulled up.

21 And can I mark that as Exhibit 3
22 before I pull that up?

1 MS. CHIPPERSON: Yes.

2 THE EXHIBIT TECHNICIAN: Okay. One
3 moment.

4 And then I will also add that to the
5 shared folder.

6 MS. CHIPPERSON: Thank you.

7 THE WITNESS: Actually,
8 Ms. Chipperson, would this be an okay time to
9 take a short break?

10 MS. CHIPPERSON: Sure. We've been
11 going for a bit.

12 THE WITNESS: Okay.

13 I don't know what's a reasonable --

14 MS. CHIPPERSON: What do you feel
15 comfortable with?

16 MR. FISHER: Do you want to say 10
17 minutes?

18 THE WITNESS: Ten minutes? Yeah.

19 MS. CHIPPERSON: Ten minutes?

20 That sounds good.

21 THE WITNESS: Okay. Thank you.

22 MS. CHIPPERSON: Okay. Thank you.

1 And, Addison, do you think it makes
2 sense to just make all of the exhibits
3 available?

4 Although you've been pretty quick
5 with this so -- or should we just wait and use
6 them as needed?

7 THE EXHIBIT TECHNICIAN: If you're
8 okay with me adding them all to the shared
9 folder, I'm happy to do that.

10 MS. CHIPPERSON: Why don't you do
11 that just so we can save a little time.

12 THE EXHIBIT TECHNICIAN: Yeah,
13 definitely. Over the break, I will add all of
14 those to the folder.

15 MS. CHIPPERSON: Thank you. I
16 appreciate it.

17 THE EXHIBIT TECHNICIAN: You're
18 welcome.

19 (A short recess was taken.)

20 (Deposition Exhibit 3 was marked
21 for identification.)

22 MS. CHIPPERSON: So, Addison, could

1 we go to page 6 of the exhibit that you have on
2 the screen, which is Strub. Right there. Yes.
3 Perfect.

4 Would it possible to rotate that 90
5 degrees clockwise?

6 MR. FISHER: Could you repeat that
7 again?

8 What's the exhibit number now?

9 THE EXHIBIT TECHNICIAN: This will be
10 Exhibit 3, and the file is 006.

11 BY MS. CHIPPERSON:

12 Q. Okay. So I think the question that
13 we had was: Have you ever seen a wireless
14 transmitter in the form of a backpack as shown
15 in Figure 6?

16 MR. FISHER: Object to the form.

17 THE WITNESS: I wouldn't call it a
18 wireless transmitter in the form of a backpack.
19 The backpack has equipment in it, including a
20 wireless transmitter and probably other things
21 like a battery, but, so, yes. I've seen that
22 kind of setup.

1 BY MS. CHIPPERSON:

2 Q. Where have you seen this type of
3 setup?

4 A. I have seen it -- let's see. It was
5 -- I'm trying to remember. It -- it was an
6 experimental system at a university that was
7 doing research on immersive recordings with
8 mobile units. This was -- I'm trying to
9 remember where it was because I -- but possibly
10 Carnegie Mellon.

11 It's not exactly the same picture,
12 but it was a back- -- it was a backpack with
13 batteries and a receiver -- a transmitter,
14 excuse me, and a camera.

15 Q. What type of wireless transmitter was
16 being used?

17 A. I don't remember the details. This
18 was more than 20 years ago.

19 Q. So you don't recall what type of
20 transmitter was included?

21 A. If you're asking --

22 MR. FISHER: Object to the form.

1 THE WITNESS: If you're asking about
2 the model, no, I don't. It was an RF
3 transmitter mount in a very similar way in the
4 diagram, and there were two or three people
5 walking around in the lab environment, and they
6 were communicating. It's been a long time, but
7 I've seen similar things, yes.

8 BY MS. CHIPPERSON:

9 Q. In your experience, you've -- have
10 you only seen these things in an experimental
11 environment?

12 MR. FISHER: Same objection.

13 THE WITNESS: Well, no. Sound
14 recording engineers -- now that I -- on location
15 recording engineers also have backpacks or belt
16 packs that carry a bunch of equipment, including
17 batteries and portable mixers, wireless
18 receivers and transmitters. The picture may
19 look -- not look exactly like this, but it's
20 worn on their body sometimes in the form of a
21 belt, sometimes with batteries on the back.

22 BY MS. CHIPPERSON:

1 Q. Was the sound engineer -- scratch
2 that.

3 In that example, was the sound
4 engineer being recorded?

5 MR. FISHER: Same objection.

6 THE WITNESS: The sound engineer had
7 a microphone and a transmitter to be able to
8 talk to people either on stage or -- I'm trying
9 to remember if this was outdoor. This was
10 probably outdoor, so people closer to the
11 performers or maybe -- I don't know. I don't
12 know who they were talking to, but there was a
13 transmission from the sound engineer to either
14 performers or assistants of performers.

15 BY MS. CHIPPERSON:

16 Q. In this example, was the audio of the
17 sound engineer being recorded to a track?

18 MR. FISHER: Same objection.

19 THE WITNESS: I don't know the answer
20 to that.

21 BY MS. CHIPPERSON:

22 Q. In a typical scenario, is the audio

1 of a sound engineer recorded to a track?

2 MR. FISHER: Same objection.

3 THE WITNESS: It could be if they
4 want a record of communications. I don't know
5 if it's typical or not.

6 BY MS. CHIPPERSON:

7 Q. Okay. So in your declaration, you've
8 reviewed the claims of the Zaxcom patents, the
9 challenged claims, correct?

10 A. Correct.

11 Q. Do these challenged claims all
12 require some form of transmitter?

13 A. I didn't memorize them. If you'd
14 like, I can go look.

15 Q. I think we'll -- we'll scratch that.

16 A. Okay.

17 Q. So let's look at your declaration at
18 page 118.

19 A. 118.

20 Q. So here you say -- well, you can go
21 ahead.

22 Why don't you read your statement

1 into the record?

2 My question for you is: Is this
3 statement that you've written correct?

4 A. You're referring to paragraph 198?

5 Q. 118.

6 MS. CHIPPERSON: Oh, sorry. 118,
7 please.

8 THE WITNESS: 118 paragraph or page?

9 BY MS. CHIPPERSON:

10 Q. Paragraph on page 65.

11 A. Okay. Because the one you have up --
12 I see it. Okay. It's not you. I gotcha.

13 Q. So my question is: Is this statement
14 in paragraph 118 correct?

15 A. Yes.

16 Q. So where do you see recording unit
17 200 located in Figure 1?

18 MR. FISHER: Object to the form.

19 THE WITNESS: I don't know if Figure
20 1 is a detailed drawing of every wire and
21 transmitter. I think it's more indicative of a
22 scenario for Strub. It could be on person 107

1 and person 101, that little oval thing on the
2 strap.

3 It's not indicated if that's what
4 you're asking.

5 BY MS. CHIPPERSON:

6 Q. What is item 200?

7 A. I need to look at the Strub exhibit.

8 Item 200 shown in his Figure 2 and
9 elsewhere described is one example of a -- what
10 he calls a recording device, and it shows the
11 blocks of -- the component blocks that could be
12 in that example.

13 Q. And what is depicted as 105 in Figure
14 1?

15 A. Well, it's pointing to the back of
16 the person of 101, but I think I might have to
17 search through the document to find that.

18 Q. That's fine.

19 A. Is that okay?

20 Q. Yes.

21 A. Okay. So in column 8 where they --
22 where Strub talks about Figure 1, line --

1 starting at line 10, column 8: Each of the
2 participants (designated by 101, 2, 3, and 4)
3 are equipped with a recording unit (designated
4 by the numerals 105, 6, 7, and 8), [as read],
5 and then there's more discussion of that.

6 So it's a recording unit.

7 Q. Okay. And what is item 200?

8 A. Also searching. In column 11 -- it's
9 referenced in several places, but in column 11:
10 "FIG. 2 is a block diagram illustrating the
11 functional components of a recording unit 200 in
12 accordance with the invention."

13 And then further down, in the next
14 paragraph, line 37, it describes what it
15 includes, a system controller 201, and so on,
16 and then goes on to talk about other ways of
17 doing recording units, starting with Figure 3.

18 Q. So what is item 200?

19 A. It's a recording unit. One instance
20 of a recording unit -- sorry. I --

21 Q. And you can -- we might -- just for
22 the sake of time, we might want to keep -- you

1 can keep your answers shorter, and you don't
2 have to explain every -- every one, unless it's
3 necessary.

4 A. Well, I --

5 MR. FISHER: Counsel, the witness has
6 the right to give a fulsome answer and say --
7 and explain his answer, so he makes a clear
8 record and is -- and testifies in a factually
9 correct manner. He's not obligated to give
10 sound bites.

11 MS. CHIPPERSON: Okay.

12 BY MS. CHIPPERSON:

13 Q. Well, what -- is --

14 A. I just want to --

15 Q. -- item 200 a recording unit?

16 A. It -- I was going to --

17 MR. FISHER: Object to the form.

18 THE WITNESS: I was going to just say
19 that item 200 is one example of the -- of
20 recording -- of a recording unit that Strub
21 gives. It is actually a subset, exact subset of
22 the more general one in Figure 3, which is unit

1 -- recording unit 300 on which he spends
2 probably the next 50 columns of his patent
3 describing every component.

4 BY MS. CHIPPERSON:

5 Q. So is recording unit 200 shown in
6 Figure 1?

7 MR. FISHER: Object to the form,
8 asked and answered.

9 THE WITNESS: Figure 1 shows a
10 recording unit without designating which one it
11 is. Considering that the patent of Strub is
12 heavily -- tens of pages focused on recording
13 unit 300 which is the most general one of which
14 recording unit 200 is a simplified subset, I
15 would think that a POSA would look at that and
16 say this is the recording unit that he's talking
17 about.

18 BY MS. CHIPPERSON:

19 Q. Is it your position that there are no
20 recording units labeled in Figure 1?

21 MR. FISHER: Object to the form.

22 THE WITNESS: I thought we

1 established that 105 was a recording unit

2 but . . .

3 BY MS. CHIPPERSON:

4 Q. Yes.

5 Is recording unit 200 shown in Figure
6 1?

7 MR. FISHER: Object to the form,
8 asked and answered.

9 THE WITNESS: It's not indicated by
10 number, but since the recording unit that Strub
11 deals with is unit 300, I would assume that
12 that's the one that's in that figure.

13 BY MS. CHIPPERSON:

14 Q. Is recording unit 200 the same as
15 recording unit 105?

16 MR. FISHER: Object to the form,
17 asked and answered.

18 THE WITNESS: Recording unit 105
19 doesn't designate if it's 200 or 300, but my
20 opinion is that it is the most general one
21 because that's what Strub is all about. 200 is
22 just a simplified example in one of the many

1 instances of recording units that he talks
2 about.

3 BY MS. CHIPPERSON:

4 Q. Does Strub teach that recording units
5 105 through 108 have a transmitter?

6 MR. FISHER: Object to form.

7 THE WITNESS: Strub's teaching about
8 recording units with transmitters is -- comes
9 later when he brings in what is inside these --
10 Figure 1 doesn't go into detail of the
11 components of a recording unit. The rest of the
12 patent does.

13 BY MS. CHIPPERSON:

14 Q. Which recording unit of Strub has a
15 transmitter?

16 MR. FISHER: Object to the form.

17 THE WITNESS: The recording unit in
18 Figure 3.

19 BY MS. CHIPPERSON:

20 Q. And which recording unit is that?

21 A. It's 300.

22 Q. Do any of the other recording units

1 taught by Strub include a transmitter?

2 MR. FISHER: Object to the form,
3 asked and answered.

4 THE WITNESS: Strub goes into great
5 detail about the applications of these
6 transmitters. For example, skiing, bicycle
7 riding, all of those a POSA would understand
8 have transmitters in them if they're
9 communicating with others.

10 BY MS. CHIPPERSON:

11 Q. Does Figure 2 show a transmitter?

12 A. Figure 2 is four blocks from Figure 3
13 that do not include the transmitter.

14 Q. And which recording unit is depicted
15 in Figure 2?

16 MR. FISHER: Object to the form,
17 asked and answered.

18 THE WITNESS: I guess he calls it
19 200.

20 BY MS. CHIPPERSON:

21 Q. So does recording unit 200 have a
22 transmitter as taught by Strub?

1 MR. FISHER: Same objection.

2 THE WITNESS: Recording unit 200 does
3 not. It's a subset of 300 that does.

4 BY MS. CHIPPERSON:

5 Q. Thank you.

6 Where does Strub teach that 300 is
7 lightweight or small?

8 And it -- I'm still looking at your
9 paragraph 119 in your declaration. So for
10 reference, you say that these recording units
11 are lightweight and small.

12 So where does Strub teach that
13 recording unit 300 is lightweight?

14 MR. FISHER: Sorry, Counsel.

15 Which paragraph of the declaration
16 are you referring to?

17 MS. CHIPPERSON: 119.

18 THE WITNESS: So I have several
19 citations there.

20 Are you asking me to point you to --
21 to point to those or something else?

22 BY MS. CHIPPERSON:

1 Q. I -- I am asking where Strub teaches
2 that recording unit 300 is lightweight or small.

3 MR. FISHER: Same objection, form.

4 THE WITNESS: So it's -- my opinion
5 is that Strub's entire patent, 94 columns of it
6 or whatever it is, is talking about a recording
7 unit that has all of the components in Figure 3
8 because that is the most general one. He may
9 not say 300 in the abstract, but that is what
10 he's talking about because that's what the whole
11 patent is about.

12 I don't remember -- I have to go look
13 at what column 8 citations and the other ones
14 are. I do recall that in the 24-pound question
15 that you asked me before, the ending of that
16 paragraph is that the 24 pounds of a backpack
17 would be if you basically bought those
18 components off the shelf, a POSA, and then says
19 they can be made much smaller and lighter at the
20 end of that paragraph and further down.

21 So he's clearly talking about small
22 portable recorders, and the only one that he

1 just spends multiple parts of his specification
2 on is the one -- describing the components in
3 the block diagram of 300.

4 BY MS. CHIPPERSON:

5 Q. In order for Strub to teach the
6 elements of the Zaxcom claims -- strike that.

7 To your knowledge, was the invention
8 of Strub ever commercialized?

9 A. I don't know.

10 Q. To your knowledge, was the invention
11 of Strub ever built?

12 A. I don't know.

13 Q. Are you aware of any product that is
14 commercially available that has the features
15 taught by Strub?

16 MR. FISHER: Object to the form.

17 THE WITNESS: The features -- which
18 are the features?

19 You mean Figure 3 features?

20 BY MS. CHIPPERSON:

21 Q. All features. I didn't -- my
22 question's not limited.

1 MR. FISHER: Same objection.

2 THE WITNESS: I'm sorry. He has so
3 many features that I'd have to go look through
4 them to see. There are certainly products today
5 that have features, some of the features that I
6 list there in paragraph 119: position sensing,
7 transmitting, receiving, recording, but I don't
8 know how to give a full answer for it because
9 I'm not -- I don't know if I know every
10 commercial product out there.

11 BY MS. CHIPPERSON:

12 Q. Do you know the filing date of Strub?

13 A. I have it here somewhere. No. I
14 don't recall it. I have to look it up.

15 Q. I can --

16 A. It looks like April 21st, 2000.

17 Q. Yes. That's correct.

18 A. Okay.

19 Q. So do you believe that in April of
20 2000, a person of skill in the art in audio and
21 wireless communications could have built a
22 battery-powered recording unit that was wearable

1 on the body with the capability of
2 simultaneously recording video, displaying
3 video, wirelessly transmitting video, and
4 receiving video?

5 MR. FISHER: Object to the form.

6 THE WITNESS: I believe a person of
7 skill with those skills could have built that.
8 I -- as I mentioned, I saw versions in the
9 university lab that had those, but if you're
10 asking me about product, I don't know the answer
11 to that. I don't -- I don't know if there --
12 it's technically possible to build. I don't
13 know if there was one at that time (witness
14 indicating).

15 BY MS. CHIPPERSON:

16 Q. Do you believe that a person of skill
17 in the art in April of 2000 could have built a
18 battery-powered recording unit that was wearable
19 on the body with the capability of
20 simultaneously recording video, displaying
21 video, receiving video, and transmitting video
22 simultaneously in the form -- in the form of a

1 personal camcorder?

2 MR. FISHER: Object to the form,
3 asked and answered.

4 THE WITNESS: I'm sorry.

5 You said wearable on the body in the
6 form of a personal camcorder. I'm not able to
7 reconcile those two statements.

8 BY MS. CHIPPERSON:

9 Q. I'll re- -- I'll restate the
10 question.

11 Are you -- do you believe that in
12 April of 2000, a person of skill in the art in
13 audio and wireless communications would be able
14 to build a recording unit that was battery
15 powered, wearable on the body, and capable of
16 simultaneously recording video, displaying
17 video, receiving video, and transmitting video
18 in the size of a personal camcorder?

19 MR. FISHER: Object to the form.

20 THE WITNESS: Yes, I do.

21 BY MS. CHIPPERSON:

22 Q. And what size would you say?

1 What would you say the size of such a
2 device could be approximately?

3 MR. FISHER: Objection.

4 THE WITNESS: The size of a
5 reasonably sized set of VR goggles with
6 microphones and screens and cameras on them.

7 BY MS. CHIPPERSON:

8 Q. And this is in April of 2002?

9 A. Yes. That was the beginning of the
10 multimedia industry --

11 Q. Sorry. Sorry. April of 2000.

12 A. 2000. Yes. I understood it to be
13 2000.

14 Yes. There was -- I saw -- I
15 personally saw demonstrations of those kinds of
16 goggles with head trackers and cameras, wireless
17 transmission, all of the features that you
18 mentioned. So I believe it's poss- -- that
19 wasn't what you were asking me. You were asking
20 me if it's possible that somebody could build
21 it, and I firmly believe that it is -- that it
22 was.

1 Q. What do you believe was the size of a
2 personal camcorder in April 2000?

3 MR. FISHER: Object to the form.

4 THE WITNESS: I don't know. 8 inches
5 by 3, something like that, by 2 wide.

6 BY MS. CHIPPERSON:

7 Q. So approximately 8 inches by 3 inches
8 by 2 inches.

9 Okay. So I'll ask the question again
10 just for clarity.

11 Do you believe that in April of 2000,
12 a person of skill in the art in audio and
13 wireless communications could have built a
14 battery-powered recording unit that was wearable
15 on the body with the capability of
16 simultaneously recording video, displaying
17 video, receiving video, and transmitting video
18 in a package that was equal to or smaller than 8
19 inches by 3 inches by 2 inches?

20 MR. FISHER: Same objection, asked
21 and answered.

22 THE WITNESS: I do, and that's why I

1 gave you the example of the goggles. They were
2 roughly the same size worn on the head and had
3 all those components in them.

4 I personally saw demonstrations in
5 the USC labs, the computer vision labs and
6 others -- well, the computer vision lab. There
7 was demonstrations of that in a room with two or
8 three students walking around doing what you
9 described.

10 BY MS. CHIPPERSON:

11 Q. What were the dimensions of the VR
12 goggles?

13 A. They're roughly the size of a camera.
14 I mean, I don't know. Whatever the width of the
15 head is, 6 or 8 inches (witness indicating).
16 I'm sorry. I don't -- it's goggles that were
17 worn on the head in front of your eyes with
18 screens and transmitters and other things,
19 batteries.

20 Q. In April 2000, are you aware of a
21 personal camcorder that was able to transmit or
22 stream video?

1 MR. FISHER: Object to the form.

2 THE WITNESS: There were certainly
3 camcorders that could transmit video, but I
4 don't know -- professional ones. I don't
5 know --

6 BY MS. CHIPPERSON:

7 Q. Which personal camcorders could
8 transmit video in April of 2000?

9 MR. FISHER: Same objection.

10 THE WITNESS: Yeah. I'm having
11 trouble with placing them at the exact date, so
12 I'm not -- I guess my best answer is I don't
13 know. It was around that time, so, yeah.

14 BY MS. CHIPPERSON:

15 Q. So you're not sure whether there was
16 a personal camcorder available in April 2000
17 that was capable of transmitting video?

18 MR. FISHER: Same objection.

19 THE WITNESS: No. That wasn't
20 something that I looked at for this report.

21 BY MS. CHIPPERSON:

22 Q. Are you aware of any personal

1 camcorders that existed in April of 2000 that
2 were capable of receiving video from an external
3 device?

4 A. I am aware of camcorders that were
5 receiving video from an external device, but,
6 again, I don't know the exact dates.

7 Canon had some models that could do
8 that, but I'm not able to give you a more
9 precise date.

10 Q. Do you believe that model existed in
11 April of 2000 or earlier?

12 A. I believe so, but, again, I don't
13 have -- I don't have a recollection of the date
14 that I first saw it.

15 Q. And approximately how much did a
16 conventional camcorder weigh in April of 2000?

17 A. Um --

18 MR. FISHER: Object to the form.

19 THE WITNESS: I don't know. I guess
20 a pound. I've -- I don't know.

21 BY MS. CHIPPERSON:

22 Q. Do you think that a conventional

1 camcorder as it existed in April of 2000 was
2 able to be fit in a pocket?

3 MR. FISHER: Same objection.

4 THE WITNESS: No. I don't think so.

5 It depends on the size of the pocket,
6 but, no.

7 BY MS. CHIPPERSON:

8 Q. And to clarify, I'm talking about a
9 pants pocket. Let's use that as an example.

10 MR. FISHER: Same objection.

11 THE WITNESS: No. I don't think so.

12 BY MS. CHIPPERSON:

13 Q. So does Strub teach a person of skill
14 in the art how to make a device that could
15 simultaneously record, transmit, receive, and
16 display video in the size of a conventional
17 camcorder?

18 MR. FISHER: Object to the form.

19 THE WITNESS: Strub teaches what
20 would -- all the components would be for
21 somebody to build a device that he describes in
22 his patent. He gives several examples of very

1 small forms of such devices where this invention
2 could be used, for example, mounting on a
3 bicycle or somebody skiing. Presumably, those
4 are very small. So in my mind, he does teach
5 that, yes.

6 BY MS. CHIPPERSON:

7 Q. Does Strub teach the components that
8 would be required to build a device that could
9 simultaneously record, transmit, receive, and
10 display video in the size of a conventional
11 camcorder?

12 MR. FISHER: Same objection, asked
13 and answered.

14 THE WITNESS: The components -- so he
15 teaches the function of each block in Figure 3,
16 but I don't know what you mean by "components."

17 BY MS. CHIPPERSON:

18 Q. Does Strub teach every component that
19 would be required to make a device that could
20 simultaneously record, transmit, receive, and
21 display video in the size of a conventional
22 camcorder?

1 MR. FISHER: Same objection, asked
2 and answered.

3 THE WITNESS: A POSA looking at
4 Figure 3 of Strub would know exactly what every
5 component is. If you're asking if Strub teaches
6 how to manufacture the plastics or metals,
7 that's not what the patent is about. That
8 becomes just a manufacturing problem. The
9 components to me are something that makes it
10 work, and that's what he teaches in Figure 3 and
11 in the whole patent, of course (witness
12 indicating).

13 BY MS. CHIPPERSON:

14 Q. So does Strub teach every component
15 that would be required to make a device that
16 records, displays, transmits, and receives video
17 in the size of a camcorder?

18 MR. FISHER: Object to the form,
19 asked and answered.

20 THE WITNESS: Yes. Figure 3 are
21 those components, and I believe that's what
22 Strub is teaching.

1 BY MS. CHIPPERSON:

2 Q. So what does Strub teach for a --
3 let's turn -- sorry.

4 Let's turn to Figure 3 now of Strub,
5 which is page 5.

6 A. Yes. I have it.

7 Q. Okay. So do you see the system
8 controller 301 in the center of that figure?

9 A. Um-huh, yes.

10 Q. What does Strub teach as that
11 component?

12 MR. FISHER: Object to the form.

13 THE WITNESS: I'm looking through the
14 Strub patent.

15 BY MS. CHIPPERSON:

16 Q. That's fine.

17 A. So in column 12 is one place that's
18 helpful here, line 10 or line 11, "the system
19 controller 301 controls the operation of, and
20 mediates interaction among, the other components
21 of the recording unit 300."

22 Q. Yes.

1 Does Strub teach an actual component
2 that can be used as system controller 301?

3 MR. FISHER: Object to the form.

4 THE WITNESS: So when you say "actual
5 component," are you referring to an electronics
6 component?

7 Is that how am I to understand it?

8 BY MS. CHIPPERSON:

9 Q. Yes.

10 Let's actually just turn to column
11 14, the first paragraph of Strub, which is on
12 page 19, and maybe this will help you.

13 What does Strub teach as a component
14 that could be used as system controller 301?

15 MR. FISHER: Same objection.

16 THE WITNESS: As one example, he
17 teaches a Motorola 68HC11 microcontroller which
18 was a microcontroller chip available at the
19 time. I think that's an example he uses there.

20 BY MS. CHIPPERSON:

21 Q. Are you familiar with the
22 Motorola 68HC11 microcontroller?

1 A. I'm familiar with the Motorola series
2 of microcontrollers. I don't know if this exact
3 part number -- they had other models in that
4 series, but I am familiar with the Motorola
5 68XXX, yes.

6 Q. And in April of 2000, how many bits
7 is a Motorola 68XXX microcontroller?

8 MR. FISHER: Object to the form.

9 BY MS. CHIPPERSON:

10 Q. Are you familiar -- sorry.

11 Go ahead. Answer the question.

12 A. Well, I'm -- I was going to ask when
13 you say "bits," are you talking about -- what
14 kind of bits are you talking about?

15 The processing bits?

16 The --

17 Q. Um-huh.

18 MR. FISHER: Same objection.

19 THE WITNESS: I don't recall.

20 Probably 16, but I'm not sure. It's
21 been a while.

22 BY MS. CHIPPERSON:

1 Q. Okay. Is the Motorola 68XX series of
2 microcontrollers capable of displaying video?

3 MR. FISHER: Same objection.

4 THE WITNESS: The Motorola
5 microcontroller is not a display device, so I'm
6 not sure what that means.

7 BY MS. CHIPPERSON:

8 Q. In Figure 3, does Strub show that the
9 system controller receives video from a video
10 data acquisition device?

11 MR. FISHER: Object to the form.

12 THE WITNESS: Yes.

13 BY MS. CHIPPERSON:

14 Q. Is the Motorola 68XX series, as it
15 existed in April of 2000, capable of receiving
16 video from a video data acquisition device?

17 MR. FISHER: Same objection.

18 THE WITNESS: Of receiving it?

19 Yes. I'm sure it was. I don't
20 recall exactly the performance of it, but if
21 he's listing it as an example, I would think it
22 would be.

1 BY MS. CHIPPERSON:

2 Q. Does the system controller -- does
3 the Motorola 68XX series of microcontrollers, as
4 it existed in April of 2000, have the ability to
5 be wired directly to the video data acquisition
6 device?

7 Actually, scratch that.

8 What does Strub teach as an example
9 of a video data acquisition device?

10 MR. FISHER: Same objection.

11 THE WITNESS: Let me search for that.

12 I'm looking at column 31, at the top.
13 It looks like he's talking about a -- at the
14 time, an NTSC video acquisition -- video data
15 acquisition device.

16 BY MS. CHIPPERSON:

17 Q. Does Strub teach that Super Circuits
18 PC-17YC can act as a video data acquisition
19 device?

20 MR. FISHER: Object to the form.

21 THE WITNESS: Super Circuits.

22 I have to search for these terms

1 because I haven't memorized it. So Super . . .

2 So could you -- you don't have to
3 repeat the model number, but could you repeat
4 the rest of the question?

5 BY MS. CHIPPERSON:

6 Q. Does Strub teach that a
7 Super Circuits PC-17YC video camera can be used
8 for the video data acquisition device 302 of
9 Figure 3?

10 MR. FISHER: Object to the form.

11 THE WITNESS: So he talks about that
12 in -- at the bottom of column 19 and the top of
13 column 20. And as a nonlimiting example, he
14 lists this camera model.

15 So, yes. I think the answer to your
16 question is, yes, he does teach that.

17 BY MS. CHIPPERSON:

18 Q. And are you aware whether a
19 Super Circuits PC-17YC video camera could be
20 connected to a Motorola 68HC11 as shown in
21 Figure 3?

22 MR. FISHER: Same objection.

1 And, Dr. K, could I ask that you
2 maybe slow down and speak a little more loudly
3 to make sure that the reporter can get
4 everything?

5 THE WITNESS: Yes. Sorry.

6 Okay. I'm not familiar with that
7 specific model, but, in general, in order to get
8 video into a processing chip like the Motorola,
9 the right kinds of connectors have to be
10 provided on the board on which the chip resides.

11 And so for him to be showing that as
12 an example, the system controller chip in a real
13 product implementation would be sitting on a PC
14 board that has connectors to outside audio and
15 video data acquisition devices.

16 BY MS. CHIPPERSON:

17 Q. So would the Motorola 68XX system
18 controllers that existed in April of 2000 have
19 the processing speed to handle realtime video
20 acquisition from the video data acquisition
21 device 302?

22 MR. FISHER: Object to form.

1 THE WITNESS: I don't have the
2 specifications in front of me, but I know they
3 were used in such -- in multimedia-type
4 applications, and Strub is telling us this both
5 in the specification and in the diagram.

6 BY MS. CHIPPERSON:

7 Q. Would it be helpful if we pulled up
8 the specifications for the M68HC11?

9 A. Maybe. I don't know. If I can just
10 glance at it. I like to give opinions that I've
11 studied, not just on the fly, so . . .

12 Q. But you consider yourself a person of
13 skill in the art as of April 2000 when Strub was
14 filed, correct?

15 MR. FISHER: Object to the form.

16 THE WITNESS: Yes. I just don't know
17 if I could -- if I memorized every specification
18 of every part that was available at the time.

19 BY MS. CHIPPERSON:

20 Q. And is it your position that somebody
21 of skill in the art could make the invention of
22 Strub by reading the Strub patent?

1 MR. FISHER: Object to the form.

2 THE WITNESS: I think I said that
3 before.

4 Yes. It is my opinion. I don't know
5 if they would use the example of this camera
6 that he says illustratively is a visual data
7 acquisition device. I don't think he limits the
8 use of which camera to use, but the
9 functionality of what Strub uses could
10 definitely be created by following his
11 teachings.

12 BY MS. CHIPPERSON:

13 Q. So could you make the invention of
14 Strub based on what is taught by Strub?

15 MR. FISHER: Same objection.

16 THE WITNESS: Could I make the inven-
17 -- you mean, could I implement it?

18 BY MS. CHIPPERSON:

19 Q. Yes.

20 MR. FISHER: Same objection.

21 THE WITNESS: I could. It's not a
22 single person. It would be a team of engineers

1 doing it, maybe guided by the expert. Somebody
2 has to design the enclosures and place the
3 antennas and design the PC boards, but that's
4 common engineering knowledge that is -- that
5 engineers who are given functional diagrams
6 perform in order to create a device, if that's
7 the tasks they're giving.

8 BY MS. CHIPPERSON:

9 Q. So would you say experimentation
10 would be required to build the product of Strub
11 based on the Strub specification?

12 MR. FISHER: Same objection.

13 THE WITNESS: No. I don't think
14 experimentation would be required. I said -- I
15 think I said implementation. I'm not sure what
16 I said, but not experimentation.

17 BY MS. CHIPPERSON:

18 Q. What would the housing look like?

19 A. That --

20 MR. FISHER: Object to form.

21 THE WITNESS: That's a decision that
22 is often made outside of engineering

1 departments. It's the product management or the
2 product design that designs -- that decides on
3 the shape of housing so --

4 BY MS. CHIPPERSON:

5 Q. Would the electronic components of
6 Strub work without a proper housing?

7 MR. FISHER: Object to the form.

8 THE WITNESS: All electronics require
9 housing. You can't really make a product with
10 just hanging circuit boards, so --

11 BY MS. CHIPPERSON:

12 Q. Does Strub teach that housing?

13 MR. FISHER: Same objection.

14 THE WITNESS: I don't know. I'd have
15 to go look, but that's so obvious that I don't
16 know that it would even be needed. That's
17 common knowledge.

18 BY MS. CHIPPERSON:

19 Q. But experimentation -- would
20 experimentation be required to create the
21 housing?

22 MR. FISHER: Same objection.

1 THE WITNESS: I'm unclear on what
2 kind of experimentation you mean.

3 Does it fit?

4 Does it -- I would think that the
5 dimensioning would be known before the housing
6 is designed because the engineers would tell the
7 product design people: This is the smallest we
8 can make this circuit.

9 And then the product design people
10 would design a housing that is driven by other
11 -- perhaps other needs as well, including
12 aesthetics.

13 BY MS. CHIPPERSON:

14 Q. So where does Strub teach the housing
15 that would be required?

16 MR. FISHER: Same objection.

17 THE WITNESS: I can look for that if
18 you'd like, but I think he may not say it
19 because it's so obvious that you need to house
20 electronics.

21 BY MS. CHIPPERSON:

22 Q. Would the electronics require RF

1 shielding?

2 A. In --

3 MR. FISHER: Same objection.

4 THE WITNESS: In the case of wireless
5 communication components that are part of them,
6 yes.

7 BY MS. CHIPPERSON:

8 Q. And where does Strub teach RF
9 shielding?

10 MR. FISHER: Same objection.

11 THE WITNESS: I don't know if it's in
12 there, but, again, that's obvious wireless
13 communication knowledge. Strub is trying to
14 advance the knowledge by -- with his invention,
15 not talk about basic things.

16 BY MS. CHIPPERSON:

17 Q. What does Strub teach as the data
18 storage device 305?

19 MS. CHIPPERSON: And, Addison, if we
20 can go to page 50, please, of Strub and look at
21 column 76, lines 26 through 30?

22 THE WITNESS: Sorry. I'm scrolling

1 here. It's just easier for me to read it here.

2 Column 76?

3 BY MS. CHIPPERSON:

4 Q. Yes.

5 A. Lines 23 through 30?

6 MR. FISHER: Sorry.

7 What lines were those, Counsel?

8 MS. CHIPPERSON: 26 through 30.

9 THE WITNESS: 26 (sotto voce).

10 Okay. I see it.

11 BY MS. CHIPPERSON:

12 Q. So does Strub teach that flash memory
13 can be used as a data storage device?

14 A. That's one of the examples, yes.

15 Q. Are you familiar with flash drives as
16 they existed in April of 2000?

17 A. Yes.

18 Q. Do you know when flash drives were
19 first introduced?

20 A. I don't know the exact date, but it
21 was probably in the late 1990s.

22 Q. And how do USB flash drives work --

1 scratch that.

2 Do USB flash drives plug into a USB
3 port to operate?

4 A. Yes.

5 Q. Do you know what the largest capacity
6 flash drive that was available in April of 2000?
7 [sic]

8 A. No. I'm sorry. I don't remember
9 that.

10 Q. Would you say it was less than 10
11 megabytes, more than 10 megabytes?

12 MR. FISHER: Object to the form,
13 asked and answered.

14 THE WITNESS: I'd prefer not to guess
15 because I don't -- I didn't look at the history
16 of evolution of drives, so --

17 BY MS. CHIPPERSON:

18 Q. That's fine.

19 Are you familiar with the IBM
20 DiskOnKey flash drive?

21 A. DiskOnKey. No. I don't remember
22 that one.

1 Q. So how much video data could you
2 store on an 8 megabyte flash drive
3 approximately?

4 MR. FISHER: Object to the form.

5 THE WITNESS: That -- it really
6 depends on how it's stored, what the resolution
7 of the video is, how much compression is being
8 used. I don't know.

9 BY MS. CHIPPERSON:

10 Q. What if we compressed the video and
11 the video was low quality?

12 Then how many minutes of video do you
13 think you could store on an 8 megabyte flash
14 drive?

15 MR. FISHER: Same objection.

16 THE WITNESS: Without doing the
17 calculation and knowing the size, I would say a
18 few -- a few minutes, but I -- this is just a
19 total guess.

20 BY MS. CHIPPERSON:

21 Q. Okay. And what does Strub teach as
22 the operational time for a recording unit?

1 A. The operational time.

2 Is that a term that he uses?

3 Q. I can -- let's go to column 13, lines
4 18 through 21.

5 A. "Is it desirable that the power
6 supply" -- that one?

7 Q. Yes, um-huh.

8 A. He gives an example, several hours,
9 e.g., 2 to 5, without recharging.

10 Q. So if you were to record severely
11 compressed, low-quality video for 2 to 5 hours
12 of time using what we're going to say 8 megabyte
13 flash drives, how many flash drives would you
14 need?

15 MR. FISHER: Object to form, assumes
16 facts not in evidence.

17 THE WITNESS: Yeah. I don't know how
18 to answer that. I don't have exact numbers for
19 that.

20 BY MS. CHIPPERSON:

21 Q. So if an 8 megabyte flash drive can
22 record for a few minutes, do you agree that a

1 large quantity of them would be required to
2 record for 2 to 5 hours?

3 MR. FISHER: Same objections.

4 THE WITNESS: So my previous answer,
5 as I said, was a guess. I don't know how many
6 minutes, but . . .

7 And the 2 to 5 hours, I'm not sure he
8 means continuous recording. I think he's saying
9 you're out in the field, and you want your pack
10 to last 2 to 5 hours. But, hey, if -- whatever
11 the drive was could fit on one drive, you'd --
12 you would need more than one to record many
13 hours, yes.

14 BY MS. CHIPPERSON:

15 Q. So if one 8 megabyte flash drive
16 could record a few minutes, then to record one
17 hour would require how many flash drives --

18 MR. FISHER: Same objections.

19 BY MS. CHIPPERSON:

20 Q. -- in your experience?

21 A. This sounds like one of those math
22 problems in high school, but I don't --

1 Q. Well, you are a person of skill in
2 the art.

3 A. I understand. It's just that we're
4 starting with kind of an unknown quantity.

5 Q. No. We're talking about 8 mill- --
6 millibyte flash drives -- sorry, megabyte.

7 MR. FISHER: Object to the form,
8 asked and answered.

9 THE WITNESS: If we were to use my
10 guess of a few minutes, let's say 10 minutes,
11 then you would need 6 for one hour, but I don't
12 know if that's the right number.

13 BY MS. CHIPPERSON:

14 Q. Okay. And it's your position -- is
15 it your position in your declaration that the
16 Strub recording unit shown in Figure 3 could
17 receive data, video data from other recording
18 units?

19 And we can go to paragraph 76 of your
20 declaration, page 39.

21 A. Okay.

22 MR. FISHER: Object to the form.

1 THE WITNESS: Yes. That's right.

2 BY MS. CHIPPERSON:

3 Q. Okay. So if the recording unit of
4 Figure 3 -- strike that.

5 How would the recording unit of
6 Figure 3 receive data from -- for other
7 transmitters?

8 A. Presumably through the receiver 310.

9 Q. Would the receiver 310 receive all
10 four data streams simultaneously?

11 A. I'm sorry.

12 What are the four?

13 Q. In your declaration -- I'm taking
14 number four as an example from the first page of
15 the '443 patent. We can pull that up for
16 reference.

17 But in your declaration, you're
18 talking about how one unit, one Strub recording
19 unit can receive audio and video data wirelessly
20 from other recording units, correct?

21 A. Yes.

22 Q. Okay. I chose the number four

1 because that happens to be what's shown on the
2 front page of the '443 patent.

3 Would you like me to pull that up?

4 It's just an example number, so . . .

5 So in that example that's shown in
6 the Zaxcom patent, how would the Strub recording
7 unit of Figure 3 receive audio and video data
8 from four other units?

9 MR. FISHER: Object to the form --

10 THE WITNESS: Maybe we do have --

11 MR. FISHER: -- hypothetical.

12 THE WITNESS: Sorry.

13 Maybe we do have to look at it
14 because I -- the four devices that I'm thinking
15 of don't have video. I think they're -- in the
16 Zaxcom patent. I think they're just audio
17 transmitters, unless I remember incorrectly.

18 BY MS. CHIPPERSON:

19 Q. Well, in your declaration you state
20 that Strub discloses a plurality of wearable
21 audio/video recording units, each storing
22 locally generated audio and video and wirelessly

1 transmitting the same audio and video to one or
2 more of the other wearable devices. [as read]

3 So that's what we're talking about.

4 And I'm saying with one or more,
5 we're using an example of four as shown in the
6 Zaxcom patent.

7 MS. CHIPPERSON: But let -- let's
8 pull the Zaxcom patent up, '443 again.

9 THE EXHIBIT TECHNICIAN: Which
10 exhibit was that?

11 MS. CHIPPERSON: It's our original
12 Exhibit 2.

13 THE EXHIBIT TECHNICIAN: Okay.

14 One moment. Let me get that pulled
15 up, and I will mark that as Exhibit 4.

16 MS. CHIPPERSON: Thank you.

17 (Deposition Exhibit 4 was marked
18 for identification.)

19 THE EXHIBIT TECHNICIAN: All right.
20 The exhibit is on the screen.

21 MS. CHIPPERSON: Let's go to Figure
22 1, which is the figure that's displayed on the

1 front page.

2 BY MS. CHIPPERSON:

3 Q. So, Dr. K, why don't you tell us
4 what's happening in the Figure 1 of the Zaxcom
5 patents?

6 A. I don't know what everything's
7 happening, but it looks like there are four
8 devices transmitting. I believe, though, that
9 those are audio devices, unless I am incorrectly
10 recalling that. Yeah. Those are local audio
11 devices.

12 So I guess what I'm trying to say is
13 Strub talks about video in addition to audio,
14 and so it's possible that Strub could -- Strub's
15 invention clearly would allow that, the scenario
16 that is graphically depicted in Figure 1 of
17 Strub. I just want it to be clear that the four
18 devices that are shown in '443 Figure 1 are not
19 video devices.

20 Q. And where are those four devices
21 transmitting to in Figure 1?

22 A. To the receiver 106.

1 Q. Okay. So if we go back to your
2 declaration, the first sentence of paragraph
3 76 --

4 A. Um-huh, yes.

5 Q. -- you're stating that the Strub
6 recording units can store locally generated
7 audio and video and wirelessly transmit the same
8 audio and video to one or more of the other
9 wearable devices.

10 Is that correct?

11 A. Yes.

12 Q. Okay. So my question is: When you
13 look at Figure 3 of Strub, if it is transmitting
14 to one or more other wearable devices, how are
15 those other wearable devices -- let me ask a
16 different question. Scratch that.

17 If the unit shown in Figure 3 of
18 Strub is transmitting audio and video to one or
19 more other devices, we can even say two for the
20 sake of argument, how are they transmitting that
21 audio and video?

22 A. Yeah. There's a wireless protocol.

1 I'm just looking for the specification. I don't
2 know if he specifies the wireless protocol. He
3 specifies several wired protocols, but . . .

4 I did just a quick search, but the
5 answer to your question is that they are
6 transmitting through a wireless protocol of
7 which there are several off the shelf. And so
8 as long as the receiver and transmitter are
9 built to comply with that wireless protocol,
10 like an RF one or an IEEE one, then that's how.

11 Q. But how is the device of Figure 3 --
12 what's -- let's back up. Scratch that.

13 MR. FISHER: Counsel, it's actually
14 noon here, and we were thinking of taking a
15 lunch break if we could do that.

16 MS. CHIPPERSON: Sorry.

17 What time is it?

18 MR. FISHER: Noon.

19 MS. CHIPPERSON: Noon for you.

20 Okay. Yeah. I think that's fine.

21 So how long?

22 MR. FISHER: 45 minutes, I guess.

1 MS. CHIPPERSON: Okay.

2 So I think that would put us back at
3 3:45 our time --

4 MR. FISHER: Yeah.

5 MS. CHIPPERSON: -- 12:45 your time?

6 MR. FISHER: Yeah. That's right.

7 THE WITNESS: That's fine.

8 MS. CHIPPERSON: Yeah. That's fine.

9 THE WITNESS: Great. Thank you.

10 (A lunch recess was taken.)

11 BY MS. CHIPPERSON:

12 Q. Okay. Let's see.

13 Where were we at here?

14 MS. CHIPPERSON: Let's go to the 004
15 Exhibit of the '443 patent, please, to Figure 1.

16 THE EXHIBIT TECHNICIAN: Okay. And
17 we'll be marking that as Exhibit 5?

18 MS. CHIPPERSON: No. We've used that
19 one before. That's your Exhibit Number 4.

20 THE EXHIBIT TECHNICIAN: Oh, okay.
21 Thank you.

22 MS. CHIPPERSON: Um-huh.

1 MR. FISHER: Sorry.

2 We're going to the '443 patent, you
3 said?

4 MS. CHIPPERSON: Yes.

5 MR. FISHER: So file number 002?

6 THE EXHIBIT TECHNICIAN: Correct.

7 MS. CHIPPERSON: Yes.

8 THE EXHIBIT TECHNICIAN: It looks
9 like we are on page 2, and I have that up on the
10 screen as well.

11 BY MS. CHIPPERSON:

12 Q. Okay. So, Dr. K, is it your position
13 that Strub teaches the system shown in Figure 1?

14 MR. FISHER: I object to the form.

15 THE WITNESS: Strub teaches the
16 functionality of the system, if that's what
17 you're implying, but I don't know. If -- that's
18 -- Strub teaches the functions that the system
19 performs.

20 BY MS. CHIPPERSON:

21 Q. And what component in Strub performs
22 the function of item 106?

1 MR. FISHER: Same objection.

2 THE WITNESS: Let's do a quick check
3 here.

4 That's the receiver. So it would be
5 310, equivalent to 310 in Figure 3 of Strub.

6 BY MS. CHIPPERSON:

7 Q. 310.

8 A. Yes, of -- page 5 of Strub. It's
9 mentioned elsewhere, but I'm just pointing to
10 the figure.

11 Q. So it's your position that receiver
12 310 shown in Figure 3 of Strub is -- performs
13 the same function as receiver 106 in Figure 1 of
14 the '443 patent?

15 MR. FISHER: Object to the form.

16 THE WITNESS: It performs the
17 function of a receiver. I need to look to go
18 look at the '443 again to see if 106 does other
19 things.

20 Would you like me to do that?

21 BY MS. CHIPPERSON:

22 Q. Yes.

1 A. So what I'm seeing here -- so there's
2 -- the '443 gives detail on the protocols used
3 in the receiver. I don't know that -- so Strub
4 is using an off-the-shelf-type receiver,
5 transmit architecture, so it's hard for me to
6 compare.

7 But at a high level, the receiver is
8 receiving the streams from the transmitters, and
9 that's what's happening in Strub as well.

10 Q. So in Strub, does receiver 310
11 receive audio and video from other recording
12 units?

13 A. Yes.

14 Q. And how many recording units?

15 A. I don't know that Strub specifies a
16 maximum number. It's illustrated in Figure 1.
17 There are a few, but I don't know that he
18 specifies a maximum number.

19 Q. So would you say at least three?

20 A. I'd have to look through Strub. I
21 don't know that he . . .

22 Q. Does Strub show four recording units

1 in Figure 1?

2 A. Strub -- yes.

3 Q. And does the Zaxcom patent show the
4 ability of receiver 106 to receive data from
5 four transmitters?

6 A. In that figure, it does, yes.

7 Q. Do you believe that Strub teaches a
8 system where data could be received at a
9 recording unit from four other recording units?

10 A. I do. I don't see any limitation in
11 Strub.

12 Q. Okay.

13 A. Yeah.

14 Q. Okay. So looking back at Figure 3 of
15 Strub -- do you need us to pull that back up?

16 Okay.

17 A. No. I have it here.

18 MS. CHIPPERSON: You're fast,

19 Addison. So thank you.

20 BY MS. CHIPPERSON:

21 Q. Receiver 310, if this recording unit
22 is receiving audio and video from four other

1 devices, is that data stream coming through
2 receiver 310?

3 A. Yes.

4 Q. Okay. And how does receiver 310
5 receive four different data streams?

6 A. It -- it depends on the
7 implementation on the protocol. The receiver
8 could have multiple channels. The transmission
9 scheme could be one of many types: UHF, VHF.

10 Q. What does Strub teach as far as the
11 receiver being able to receive audio and visual
12 data from multiple other units?

13 A. Again, I don't know that he teaches a
14 number, but based on the scenario that he
15 teaches of -- I can't remember -- all them
16 people singing happy birthday and people being
17 together at a concert and other places. It's
18 certainly multiple, but I'm not sure that he
19 gives a number. I'd really have to go look
20 again.

21 Q. My question's a little different than
22 what you're answering.

1 I'm asking, how does Strub teach a
2 person of skill in the art to use the receiver
3 310 to receive four different data streams?

4 I know you said -- you said there's
5 multiple embodiments.

6 I'm asking you what does Strub teach
7 as a possible embodiment?

8 A. So I -- a POSA looking at this would
9 understand that Strub is assuming that its
10 commodity network is used, like the examples of
11 what I mentioned before. So a person designing
12 a product, they're using the inner workings.
13 They use this block diagram of Strub, would pick
14 the appropriate receiver/transmitter and
15 wireless protocol to support the number of
16 streams that they wanted to support.

17 Q. What does Strub teach as an example
18 for transmitter 309?

19 A. A quick search.

20 It just says it receives and
21 transmits signals, but, again, it's the same --
22 whatever protocol is used by the receiver, the

1 transmitter has to be compliant with it so that
2 the path from one to the other is consistent.

3 Q. Let's take a look at Strub at column
4 38, which is page 31, please.

5 A. Yep.

6 Q. So is that an example of what Strub
7 teaches for transmitter 309?

8 A. You're saying at the top of 38?

9 Q. Yes. You may want to start at the
10 bottom of -- yes. I think the top of 38 is
11 fine.

12 A. Yeah. I think that's -- so he gives
13 one example of 2.4 gigahertz, but then says
14 "other parts of the frequency spectrum can be
15 used."

16 So those are the examples I mentioned
17 before, UHF, VHF, and others.

18 Q. But the type of transmitter, would
19 that be an analog television signal transmitter
20 and receiver?

21 MR. FISHER: Object to the form.

22 THE WITNESS: I think he's just using

1 that as an example. At the time, probably
2 still, analog television receivers were using
3 2.4 gigahertz --

4 THE COURT REPORTER: I'm sorry.

5 You're going to have to slow down,
6 Doctor. You're talking way too fast for me.

7 THE WITNESS: Sorry. Sorry. Sorry.

8 THE COURT REPORTER: Could you repeat
9 that answer?

10 Thank you.

11 THE WITNESS: I think Strub uses this
12 as an example. So 2.4 gigahertz is a frequency
13 that was used, and it probably still is used by
14 analog television, but I don't think he's
15 teaching to use just analog.

16 BY MS. CHIPPERSON:

17 Q. Does Strub teach that one version of
18 transmitter 309 is an analog television signal
19 transmitter?

20 A. To me, this is a nonlimiting example.
21 It's just an example.

22 "Illustratively 2.4 gigahertz (the

1 'nominal' frequency)" --

2 Q. Well, please answer yes or no.

3 MR. FISHER: Object to the form.

4 The witness can answer how he chooses
5 fit -- how he sees fit.

6 THE WITNESS: This example does list
7 that analog is a possibility, analog television
8 signal transmitters are a possibility, but it
9 clearly says after that it could be of many
10 other kinds.

11 BY MS. CHIPPERSON:

12 Q. Well, does it say there are other
13 types of transmitters or other frequencies?

14 MR. FISHER: Object to the form.

15 THE WITNESS: It just says
16 "transmitters and receivers operating at other
17 parts of the frequency spectrum can be used."
18 It doesn't specify if they're analog or digital.

19 Again, this is just one example. I
20 could look for digital transmission. Maybe he
21 talks about that as well.

22 BY MS. CHIPPERSON:

1 Q. No. That's okay.

2 So if we have a situation where
3 trans- -- sorry.

4 Let's go with the receiver 310 is an
5 analog television signal receiver, then how
6 would receiver 310 receive four data streams
7 from four other recording units?

8 MR. FISHER: Object to the form,
9 misleading hypothetical.

10 THE WITNESS: If a POSA was tied to
11 use just that, which is not normally the case,
12 then a multi-channel -- different -- not audio
13 channel, a multi-radio frequency channel
14 receiver/transmitter combination could be used
15 that puts different streams on different
16 channels. So --

17 BY MS. CHIPPERSON:

18 Q. And how many streams were available
19 in April 2000 on a multi-channel RF receiver?

20 MR. FISHER: Object to the form.

21 THE WITNESS: (Witness indicating).

22 I don't recall.

1 BY MS. CHIPPERSON:

2 Q. Approximately?

3 MR. FISHER: Same objection.

4 THE WITNESS: I'm being forced to
5 guess.

6 I don't know. So, yeah. I just --

7 BY MS. CHIPPERSON:

8 Q. You're not aware what a typical
9 multi-chan- -- how many channels would be
10 available in a typical multi-channel RF receiver
11 in April of 2000?

12 MR. FISHER: Same objection.

13 THE WITNESS: I don't, but I do
14 recall that receivers could be cascaded
15 together. So if they were living in different
16 boxes, you could increase the number of
17 channels.

18 I just don't know. I don't remember
19 the number of channels in each receiver.

20 BY MS. CHIPPERSON:

21 Q. And how would that work if you
22 cascade them together?

1 A. You would have some transmitters
2 sending to the channels available in one
3 receiver and others to another, and then somehow
4 multiplexing the signals to send to the rest of
5 the system.

6 Q. So in a cascading-type embodiment,
7 you could have four different transmitters, each
8 receiving a data stream, and then tied to a
9 multiplexer -- sorry -- receivers -- let me --
10 let me restate that.

11 In the example that you just gave, if
12 you were cascading receivers, you would have
13 four different receivers, each receiving a data
14 stream, and they would output to a multiplexer;
15 is that correct?

16 A. If they were single channel
17 receivers, yes, but if they were four-channel
18 receivers, then you would just need one.

19 Q. Okay. And can an analog television
20 signal transmitter connect directly to a
21 Motorola microcontroller 68XX?

22 MR. FISHER: Object to the form.

1 THE WITNESS: I think, as we said
2 before, you don't really connect directly to the
3 microcontroller for anything. It sits on a
4 board with I/O connections and converters as
5 needed to get the signals coming in to be in the
6 form that the processor can understand and
7 handle.

8 BY MS. CHIPPERSON:

9 Q. So would you need an
10 analog-to-digital converter to connect an analog
11 television signal transmitter -- sorry -- analog
12 television receiver to the microcontroller?

13 A. Without -- so some microcontrollers
14 had built in A to D, analog-to-digital
15 converters, so I don't -- if they didn't, you
16 would need to have it on the circuit board, but
17 if it did, you can go directly.

18 Q. Would you need one analog-to-digital
19 converter per data stream?

20 A. Not necessarily. It would depend on
21 the multiplexing scheme. So you could -- I
22 don't know. I'm designing on the fly here, so I

1 don't feel super comfortable about that, but
2 it's -- I think it's technically possible to
3 demultiplex and split the stream into whatever
4 is needed to be picked up by the -- by the
5 microcontroller.

6 Q. But you are a person of skill in the
7 art as of -- you were a person of skill in the
8 art in April of 2000, correct?

9 A. Yes.

10 Q. And a person of skill in the art in
11 April of 2000 would have been able to -- scratch
12 that.

13 In your opinion, would a person of
14 skill in the art in April of 2000 have been able
15 to build this Strub embodiment based on the
16 Strub patent specification?

17 A. Yes. I think I answered that before.

18 Not in 30 seconds, like what we're
19 doing here, but, yes.

20 Q. And do you -- are you familiar with a
21 type of transmitter that could have been used in
22 April of 2000 to perform this function --

1 scratch that. I'm sorry.

2 Are you aware of a type of receiver
3 that was available in April of 2000 that would
4 perform this function?

5 A. I can't name a model number, if
6 that's what you're asking, but there was
7 certainly UHF receivers that could --

8 Q. Can you name a brand of receiver?

9 A. No, not off the top of my head.
10 Sorry.

11 Q. And is it your understanding that the
12 Strub system can record all four data streams
13 that are being received through the receiver
14 310?

15 MR. FISHER: Object to the form and
16 the hypothetical.

17 THE WITNESS: I'd have to look at my
18 report. I'm pretty sure the answer is yes, but
19 to give you a clear answer, can -- I'd like to
20 look through that section of my report, if I can
21 find it.

22 I think it's mentioned in paragraph

1 76 that we were talking about.

2 BY MS. CHIPPERSON:

3 Q. So the answer is yes, you believe
4 that the Strub system would be able to record
5 all four data streams being received by receiver
6 310?

7 MR. FISHER: Same objections.

8 THE WITNESS: Could I take a couple
9 minutes to look?

10 BY MS. CHIPPERSON:

11 Q. Sure. Of course.

12 A. Yes. Yes. My -- it is my opinion
13 that they can be recorded simultaneously.

14 Q. Okay. And would a 4 megahertz
15 processor operating with an 8-bit I/O be capable
16 of receiving audio and visual data from the
17 receiver 310?

18 MR. FISHER: Object to the form, the
19 hypothetical.

20 THE WITNESS: I don't know how to
21 answer that in isolation.

22 Is there somewhere you can point me

1 to so I can read what's said about that?

2 BY MS. CHIPPERSON:

3 Q. Let me ask an easier question.

4 Is a 4 megahertz 8-bit I/O processor
5 capable of processing video in real time?

6 MR. FISHER: Same objections, asked
7 and answered.

8 THE WITNESS: There is resolution of
9 video that can be made small enough for that to
10 happen, but it's really hard to give specifics
11 without knowing more.

12 BY MS. CHIPPERSON:

13 Q. So you believe that a 4 megahertz
14 processor with an 8-bit I/O is capable of
15 processing video in real time?

16 MR. FISHER: Same objections.

17 BY MS. CHIPPERSON:

18 Q. Yes or no?

19 A. If by video we mean all video known
20 to mankind, yes, there's -- I'm sure there's a
21 resolution and bit rate of video that could be
22 recorded with that. So that's what I'm seeing.

1 I don't see any more details around the
2 question.

3 Q. Okay. Okay. How would the Strub
4 device, recording unit store those four data
5 streams?

6 A. Let's go back to Strub.

7 So they would be stored in the data
8 storage device 305.

9 Q. And we had discussed that the data
10 storage device 305 -- scratch that.

11 Did we discuss that Strub teaches a
12 flash memory as a data storage device?

13 MR. FISHER: Object to the form.

14 THE WITNESS: Strub gives several
15 examples. That was one of them.

16 BY MS. CHIPPERSON:

17 Q. Would flash memory be a practical
18 implementation of a data storage device for a
19 Strub recording unit receiving four streams of
20 video?

21 MR. FISHER: Object to the form.

22 THE WITNESS: It depends on the size

1 of the data storage -- of the -- of the --
 2 sorry, of the flash card. It depends on how
 3 many slots the data storage device had and the
 4 -- it depends on the resolution of the videos we
 5 talked about. There is a scenario for which
 6 that's possible.

7 BY MS. CHIPPERSON:

8 Q. Would a high resolution -- scratch
 9 that.

10 Would the recording unit of Strub be
 11 able to record four video streams in an 8
 12 megabyte flash memory card with a reasonable
 13 resolution?

14 MR. FISHER: Same objection.

15 THE WITNESS: Yeah.

16 See, this is where this objective
 17 part comes in because "reasonable" depends on
 18 human perception and the size of the screen
 19 and . . .

20 BY MS. CHIPPERSON:

21 Q. Well, let's say reasonable is to the
 22 same quality as a personal camcorder in April of

1 2000.

2 MR. FISHER: Same objection.

3 THE WITNESS: So NTSC video
4 compressed via MPEG or similar technology would
5 be very small and would be acceptable if viewed
6 on a small screen, even if there are four of
7 them. Sure.

8 BY MS. CHIPPERSON:

9 Q. And does Strub teach a recording unit
10 with four video recording display devices?

11 A. As we said before, I don't think he
12 says four. I think he says multiple, right?

13 So I don't think he limits the
14 number.

15 Q. Does Strub teach a recording unit
16 with multiple video recording display devices?

17 A. Oh, wait. So now, you're asking
18 display devices?

19 I thought -- the reason I ask is I
20 thought we were talking about data storage
21 still.

22 Q. Well, you mentioned screens in your

1 last response.

2 A. Correct. I was just saying that if
3 the resulting stored videos were to be viewed in
4 a small screen, the acceptance quality changes.
5 That's all I was talking about.

6 Q. And you mentioned MPEG technology and
7 compression.

8 A. Um-huh.

9 Q. What type of device would be used for
10 compressing the video?

11 A. Some kind of processor running the
12 MPEG -- an MPEG compression algorithm.

13 Q. Would a Motorola 68HC11 4 megahertz
14 processor have the capability of running an MPEG
15 compression routine?

16 A. So that example that we were using is
17 an example. I don't think that's the only part
18 that a POSA would have to pick to follow Strub.
19 That is a qualifier.

20 I don't know if -- that's why -- I
21 don't know how many operations, CPU operations
22 would be needed for MPEG to run on that chip.

1 It's possible.

2 Q. Do you believe it would be possible
3 for a Motorola 68HC11 running at 4 megahertz to
4 receive four streams of video and simultaneously
5 compress those four screens of video and record
6 them?

7 MR. FISHER: Object to the form and
8 the hypothetical.

9 THE WITNESS: It's very difficult to
10 answer that without looking at programming code
11 and its efficiency specific to those functions.
12 It's not -- it's not a general -- I can't give a
13 general answer without looking at the specific
14 implementation.

15 There are ways to optimize that kind
16 of code to do the functions you mentioned that
17 are very good, but I won't be able to say for
18 sure without doing it or looking at it.

19 BY MS. CHIPPERSON:

20 Q. Does a 4 megahertz processor have the
21 speed to compress four streams of data and store
22 them simultaneously?

1 MR. FISHER: Same objections, asked
2 and answered.

3 THE WITNESS: So when I wrote this
4 report, I didn't look at the algorithm
5 requirements, the CPU requirements for MPEG
6 compression, nor do I -- did I look at the
7 specific architecture of this chip because there
8 are -- there are different ways to do single
9 processing on a chip. So I don't know how I can
10 answer that and give you a useful answer.

11 BY MS. CHIPPERSON:

12 Q. Do you think a person of skill in the
13 art would know the capabilities of a 4 megahertz
14 processor?

15 MR. FISHER: Object to the form,
16 argumentative.

17 THE WITNESS: The capabilities on a
18 spec sheet just give, you know, everything from
19 a temperature tolerance to how many cycles are
20 available, but for a person of skill in the art
21 to -- tasked to put algorithms on that chip,
22 they would have to understand how to optimize

1 those algorithms or take them from optimized
2 libraries, and those existed, but I don't think
3 it's a matter of just looking at the
4 specification and saying, yes, it will fit or
5 not. It takes a little bit of work to figure
6 that out.

7 BY MS. CHIPPERSON:

8 Q. Would a processor having 1 kilobyte
9 of on-chip RAM, 20 kilobytes of on-chip ROM, and
10 2048 bytes of EEPROM be able to receive four
11 visual data screens and simultaneously compress
12 them and store them in storage?

13 MR. FISHER: Object to the form,
14 hypothetical.

15 THE WITNESS: I think my answer is
16 the same as before. I feel that we're saying
17 that Strub is only using this chip when there
18 were many other possibilities. So it would
19 really depend on a POSA designing a system like
20 this to pick the correct chip, not the -- not
21 just the example.

22 To answer your question is I -- I

1 don't know. It depends on how well the
2 compression algorithm and the multiplexing were
3 programmed. The better they are programmed, the
4 lower the memory that's needed.

5 So if I could add one more line. I
6 think this is not -- this is outside of what
7 Strub is talking about.

8 BY MS. CHIPPERSON:

9 Q. Well, you're a person of skill in the
10 art, and a person of skill in the art should be
11 able to build Strub from the Strub
12 specification.

13 So do you believe you could build
14 Strub -- scratch that. I think that was asked
15 and answered.

16 If the -- scratch that.

17 So is it necessary to separate a
18 transmitter and a receiver when they
19 simultaneously transmit and receive?

20 A. How are you defining "separate" here?

21 I'm not sure.

22 Q. Okay. With its given meaning.

1 A. So different geographic locations you
2 mean?

3 Q. Well, do you have to take -- scratch
4 that.

5 Do you have to take into account the
6 location of a transmitter relative to a receiver
7 when both devices will simultaneously transmit
8 and receive?

9 A. I see.

10 So if they're in the same
11 environment, so to speak, or box, then you have
12 to worry about RF interference. I think that's
13 what you're asking about.

14 Q. And how would you deal with RF
15 interference?

16 A. A POSA knows how to -- a wireless
17 POSA would know about RF shielding, which are
18 basically Faraday cages, metal meshes at a high
19 level, isolating the two, using other methods,
20 frequency hopping, different -- slightly
21 different frequencies. There are many different
22 methods of dealing with that.

1 Q. Would you require a duplexer when you
2 have a transmitter and a receiver simultaneously
3 transmitting and receiving?

4 A. I don't know you would require it.
5 That is a method that can allow you to do full
6 duplex or half duplex communication, so that is
7 a method.

8 Q. What does Strub teach as far as a
9 method of avoiding RF interference?

10 A. Let me look.

11 Was there a paragraph that you would
12 want me to look at?

13 Because it's -- I can just skim
14 through this.

15 Q. No. I don't have a paragraph.

16 MR. FISHER: I guess I'll object to
17 the form.

18 THE WITNESS: I'm just looking for
19 interference. It's just very hard to go through
20 56 pages. So let's see.

21 What column is this?

22 Column 42 on page 33. I'm just

1 trying to see. Line 42 maybe or 41 talks about
2 "transmission losses or signal interference." I
3 don't see anything about -- it's recognized it
4 looks like, but there's no discussion of
5 mitigation.

6 Again, this would be -- a wireless
7 expert would know -- building this system would
8 know how to do that.

9 BY MS. CHIPPERSON:

10 Q. And can you tell us what the methods
11 would be for doing that?

12 A. I think that's the answer to my
13 question -- to your question a couple of
14 questions ago. Shielding, Faraday cages, half
15 duplex, full duplex, it depends. So switching
16 devices.

17 Q. And would that require additional
18 hardware than what is shown on Figure 3?

19 A. Not necessarily. So Figure 3 is a
20 functional diagram of the recorder. The
21 transmitter and receiver circuits, electronic
22 components are not shown there. To me -- so a

1 POSA would know that they're in there. That's
2 what makes a transmitter. It's just not the box
3 with the word transmitter in it. It has
4 components.

5 Q. So the question is: Would additional
6 equipment be required beyond what's shown in
7 Figure 3?

8 A. And my answer was Figure 3 is not
9 showing equipment. It's showing functional
10 blocks, each of which requires numerous pieces
11 of equipment to -- that a POSA would know how to
12 build into a circuit board. This is not a
13 circuit-level diagram.

14 Q. Does Strub teach a circuit-level
15 diagram?

16 A. I don't believe that he does because
17 Strub is not a design patent. Strub is a
18 innovation that has to do with how to create
19 these types of systems, but not what box to put
20 them in or what wire to use.

21 Q. So to implement transmitter 309, you
22 would require multiple components -- scratch

1 that.

2 You would -- is it correct that you
3 would require multiple components to implement
4 transmitter 309?

5 A. If I were to build a circuit that
6 performs the function of transmitter 309, that
7 circuit would have a PC board with several
8 components on it, including an antenna. But as
9 I said, that is common knowledge to the wireless
10 expert.

11 Q. And would the receiver 310 also
12 require multiple components to implement?

13 A. Yes. In fact, they would be very
14 similar to the transmitter components.

15 Q. So each of transmitter 309 and
16 receiver 310 would have their own PC board?

17 A. Not necessarily. They could be built
18 on the same PC board and isolated from
19 interference. That becomes an electronic
20 engineering problem, PC board design.

21 Q. And are you familiar with beamforming
22 as it existed in April of 2000?

1 A. Yes. I'm very familiar. That's a
2 problem that I've worked on in the past.

3 Q. So was it possible to do beamforming
4 in a battery-powered device in April of 2000?

5 A. I don't think battery power has
6 anything to do with beamforming. Beamforming is
7 a -- extracting a signal from multiple
8 microphones that is more directional than each
9 individual microphone would be able to provide.
10 The power source could be anything.

11 Q. So you believe that a battery-powered
12 device could perform beamforming in April of
13 2000?

14 A. Yes.

15 Q. And do you think Strub teaches
16 beamforming?

17 A. Yes. I think he talks about it quite
18 a bit.

19 Q. Does Strub teach one of skill in the
20 art how to implement beamforming?

21 A. Let me take a quick look.

22 On page 28, at the bottom of column

1 31 -- well, around line 51 of that column,
2 column 31, he starts talking about beamforming,
3 and says what it does. And then at the bottom,
4 it says: "The implementation of beam forming is
5 known to those skilled in the art."

6 And as with other things that are
7 algorithms that are well known, he doesn't give
8 the method or the algorithm, but just said --
9 just says what it could be used for.

10 Q. So Strub does not teach how to
11 implement beamforming?

12 MR. FISHER: Object to the form.

13 THE WITNESS: He talks about the
14 benefits. I'm just looking through. Sorry.

15 So there are -- there are several
16 algorithms that could be used to make -- to
17 create a beamform out of multiple microphones.
18 Strub doesn't pick one of them because he
19 assumes that it's known in the art, as he says.

20 BY MS. CHIPPERSON:

21 Q. I'll reask the question.

22 Does Strub teach how to implement

1 beamforming?

2 MR. FISHER: Object to the form,
3 asked and answered.

4 THE WITNESS: I think that was my
5 answer. He doesn't teach a specific method,
6 just says that beamforming would be useful, and
7 it's known to people in the art how to implement
8 it.

9 BY MS. CHIPPERSON:

10 Q. Does Strub teach that
11 picture-in-picture could be implemented on video
12 recording display device 306?

13 A. I don't recall.

14 Q. You could look -- I do have a
15 section --

16 A. Oh.

17 Q. -- column 44, lines 55 through 58 I
18 believe is where it's discussed.

19 A. Okay. Let me read it.

20 MR. FISHER: Object to the form.

21 The witness is not limited to just
22 this section you've pointed to, Counsel.

1 THE WITNESS: So, yes. He does talks
2 about "the visual recording display device could
3 be partitioned into windows" for
4 picture-in-picture. I see that.

5 BY MS. CHIPPERSON:

6 Q. And what was the state of the art in
7 April 2000 for picture-in-picture?

8 A. It could be done on televisions. I'm
9 not sure what state of the art.

10 Q. Are you aware whether
11 picture-in-picture was available on a commercial
12 battery-powered device in April of 2000?

13 A. I don't have a model in mind. There
14 might have been camcorders that you -- in the
15 display section of it, you could see a small
16 video, plus the one that you were recording. So
17 it's possible, but I don't remember the dates
18 for those (witness indicating).

19 Q. Does Strub teach power load of its
20 recording unit?

21 A. I'll have to search for that as well.
22 Are you talking about in terms of

1 watts?

2 Q. Yes.

3 A. Is there a section that you have in
4 mind?

5 Q. No. Sorry.

6 A. Yeah. There's -- there are a lot of
7 mentions of power, so it will take me some time
8 to go through here.

9 He talks about various power supplies
10 that can be battery power supplies. He does say
11 that depending on the functional capabilities
12 that are designed into the unit, you could
13 enable a smaller power supply. This is on the
14 bottom of column 70 on page 47.

15 So he definitely talks about power.
16 I don't know if you want me to go through every
17 instance of power supply. There's 23 of them.

18 Q. No.

19 Is there any discussion of watts?

20 A. I didn't see one.

21 Q. Do you recall any discussion of
22 cooling for the recording unit of Strub?

1 A. I do not.

2 Q. How much cooling do you think a unit
3 of Strub where -- in the embodiment where it's
4 receiving four streams of video data, how much
5 cooling do you think such a unit would require
6 roughly?

7 A. Well, so cooling is not measured that
8 way in the sense of how much, but I guess it
9 would be done on the components that get the
10 hottest with heat sinks. Think of them as large
11 pieces of metal that are absorbing the heat. I
12 couldn't give you a size that would be required
13 without knowing kind of how hot it gets at its
14 worst situation.

15 There are many parameters that go
16 into that: Is the box that it's in vented?
17 What is the external temperature? What's the
18 tolerance of the chip to peaks in temperature?

19 So --

20 Q. Do you -- sorry.

21 A. No, no. It's okay.

22 A POSA knows that those are

1 components that you have to deal with, those
2 elements that you have to deal with when you're
3 designing a circuit to implement something that
4 -- what -- like what Strub is talking about.

5 Q. Is the backpack of Strub ventilated?

6 A. If it's anything like a normal
7 backpack, then, yes, but I don't think he talks
8 about that.

9 Q. How is a normal backpack vented?

10 A. Well, anything that's not
11 hermetically sealed is vented because heat can
12 escape.

13 So I'm looking at my backpack here.
14 Even through the zipper, heat can expl- -- can
15 come out and certainly through flaps and other
16 things.

17 So you would have to try to make it
18 hermetically sealed and not -- otherwise, it's
19 -- heat would leak out.

20 Q. Do you believe a cooling fan would be
21 required -- strike that.

22 Do you think any form of physical

1 cooling would be required for the recording unit
2 of Strub receiving four video streams and
3 simultaneously recording those four video
4 streams?

5 MR. FISHER: Object to the form and
6 to the hypothetical.

7 THE WITNESS: It relates to my
8 previous answer. We don't know how much cooling
9 is needed in terms of -- when I say how much, I
10 mean how big of a surface of metal heat sink
11 would be needed, or whether it would be needed
12 at all. And I don't know how hot it would get,
13 but I certainly don't think that a fan would be
14 necessary.

15 BY MS. CHIPPERSON:

16 Q. Have you ever designed a system
17 similar to Strub?

18 A. I have designed -- well, I've
19 designed a wireless speaker with microphones in
20 a sealed enclosure. So it -- without video, but
21 with having to deal with transmission and
22 reception and cooling and heat sinks and other

1 things.

2 Q. Have you ever designed a
3 battery-powered device that was capable of
4 handling video?

5 A. I've -- not video. I have designed a
6 battery-powered device that was a multi-way
7 communicator. So people, for example, that are
8 skiing can latch one onto their arm and
9 communicate within reasonable distance using RF,
10 and I had to deal with everything that we talked
11 about: beamforming, heat sinks, isolation of
12 transmitter, and so on, but not video.

13 Q. Do all of the challenged claims of --
14 do all of the challenged claims require a
15 wearable local audio device?

16 A. I have to look at my report where I
17 summarize them to answer that.

18 Q. Okay.

19 A. Do you want me to do that?

20 Q. Um-huh.

21 A. Okay. So as I'm looking, I'm sorry.
22 You asked if they all require it to

1 be wearable?

2 Q. If they require the local audio
3 device to be wearable.

4 A. Okay. Let me take a quick look.

5 Sorry. I can't seem to -- I don't
6 think I have a list of all the challenged claims
7 in one place, so this might take me a little bit
8 longer.

9 Q. And you can disregard the '902
10 claims.

11 A. Right.

12 I have a printed version of my report
13 here.

14 Would that be okay if I leaf through
15 that?

16 Q. Yeah. Sure.

17 A. Okay. Just a minute.

18 I'm trying to find it. I thought I
19 had a table of all the claims in one place, but
20 I only have a table of the ones that were in the
21 background, so I need to do some searching.

22 Q. No. I think it's okay. We can

1 strike that.

2 A. Okay.

3 Q. Let's just move on.

4 In the Zaxcom patent, is each
5 performer equipped with its own local audio
6 device?

7 MR. FISHER: Object to the form.

8 THE WITNESS: Are we -- in the '443
9 for example?

10 BY MS. CHIPPERSON:

11 Q. Yes.

12 A. I believe that was the intent, but I
13 don't remember the exact passage that says that.

14 Q. That's okay.

15 But that's your understanding of the
16 Zaxcom patent?

17 MR. FISHER: Same objection.

18 THE WITNESS: I don't want to give an
19 answer on my understanding without --

20 BY MS. CHIPPERSON:

21 Q. That's fine.

22 A. -- reading the whole document, or at

1 least searching for that.

2 But at least in the background of the
3 invention, it says the body packs are worn by
4 each performer.

5 Again, I'd have to go -- if you're
6 asking me about the claims, I'd have to go pick
7 out the ones and look at the claims, each one by
8 one, to answer that question for claims.

9 Q. No. I'm not asking about the claims.

10 I'm just asking if the patent itself
11 teaches that each performer has its own local
12 audio device?

13 MR. FISHER: Same objection.

14 THE WITNESS: Yes, it does.

15 BY MS. CHIPPERSON:

16 Q. So in -- in the Zaxcom patents, does
17 it teach that the local audio device of a
18 performer is wired to capture the audio of a
19 person other than the performer?

20 MR. FISHER: Object to the form.

21 Leave it at -- (muffled).

22 THE COURT REPORTER: What was the

1 rest of your objection, Mr. Fisher?

2 Object to the form, what?

3 MR. FISHER: Sorry.

4 I object to the form. Then I said
5 we'll leave it at that.

6 THE COURT REPORTER: Okay. Thank
7 you.

8 THE WITNESS: Again, without reading
9 the whole thing, it just says "each performer is
10 equipped with a local audio device capable of
11 locally recording the respective performer's
12 audio while also transmitting it to a master
13 recorder."

14 So I think that's related to your
15 question.

16 It's hard for me to give general
17 statements without really rereading the patent
18 because I might have missed something today.

19 BY MS. CHIPPERSON:

20 Q. How would you define wearable in the
21 context of the Zaxcom patents?

22 MR. FISHER: Object to the form,

1 calls for a legal conclusion.

2 MS. CHIPPERSON: What was that last
3 part?

4 MR. FISHER: It calls for a legal
5 conclusion.

6 THE WITNESS: A wearable device is a
7 device that can be worn on some part of the body
8 of a human being.

9 BY MS. CHIPPERSON:

10 Q. In your declaration, at page 53, you
11 reference an SK50 transmitter.

12 What did that transmitter weigh
13 approximately?

14 A. Page 53. I don't see that on page
15 53.

16 Q. Sorry. Paragraph 53.

17 A. The SK50. Oh, that's the Sennheiser
18 one. I don't know. A few hundred grams.

19 Q. And what was the average -- scratch
20 that.

21 Would you say that was the average
22 weight of an audio transmitter of that type in

1 May of 2005?

2 A. Well, that -- to say the average
3 would mean I would know the weight of every
4 transmitter.

5 I would say it was typical, but there
6 were others that were heavier or lighter.

7 Q. What was the heaviest transmitter you
8 were aware of in May of 2005?

9 A. I don't have a weight or a model that
10 comes to mind. I'm sure that they were not all
11 exactly the same weight. So there must have
12 been a heavier one, a heaviest and a least
13 heavy. I just don't know what those were.

14 Q. So you're not familiar with the state
15 of audio transmitters in May of 2005?

16 A. Well, I am aware of the state of
17 audio transmitters, but I don't have a scale to
18 weigh them. I'm familiar with their
19 functionality.

20 Q. Were you aware of any transmitter in
21 May of 2005 that weighed over 5 pounds?

22 A. No. I don't think so.

1 Q. And what was the approximate size of
2 the SK50 transmitter?

3 A. 3 by 2 by 1 by half.

4 Q. Would you say that this was --
5 scratch that.

6 What was the largest sized
7 transmitter you were aware of in May of 2005?

8 A. Again, I didn't rank them in order of
9 size. Some of them were considered bulkier than
10 others because they had larger antennas. So
11 it's a question of whether we count the antenna
12 as part of the size or not, but I don't have
13 dimensions or ranking of transmitters by
14 dimensions.

15 Q. Were you aware of any transmitter in
16 May of 2005 that was larger than 5 inches by 5
17 inches by 5 inches, exclusive of any type of
18 antenna?

19 A. So not -- you said of any
20 transmitter?

21 Sure. There are plenty of military
22 transmitters or police transmitters that were

1 larger.

2 Q. Are you aware of any transmitter used
3 in performance audio in May of 2005 that was
4 larger than 5 by 5 by 5, exclusive of the
5 antenna?

6 A. No. I can't think of one.

7 Q. So given the state of the prior art
8 in May 2005, what weight do you believe a person
9 of skill in the art in May of 2005 would have
10 been considered to be suitable and in a
11 condition to be worn for a performance audio
12 transmitter?

13 MR. FISHER: Object to the form.

14 THE WITNESS: Sorry. I lost you a
15 little bit.

16 You were trying to make -- you were
17 defining something.

18 Can you repeat that, please?

19 BY MS. CHIPPERSON:

20 Q. Let's scratch that.

21 Do you believe that a person of skill
22 in the art in May of 2005 would believe that

1 Strub discloses a local audio device that is
2 suitable and in a condition to be worn?

3 A. Yes.

4 Q. Would a person of skill -- scratch
5 that.

6 Do you believe that a 24-pound local
7 audio device is suitable and in a condition to
8 be worn?

9 MR. FISHER: Object to the form.

10 THE WITNESS: It's definitely in a
11 condition to be worn because you -- but I don't
12 think that that's what Strub is teaching.
13 That's just the nonlimiting illustration --
14 illustrative example that's -- what would happen
15 if you tried to build Strub's system by going to
16 a store and buying off-the-shelf equipment is
17 what he says. That's not what a POSA would do.
18 Maybe for a prototype, but certainly not for a
19 product.

20 So it's definitely something that can
21 be worn, but it's not something that he's
22 proposing as being practical.

1 BY MS. CHIPPERSON:

2 Q. And in May 2005, what would a person
3 of skill in the art consider as a weight cutoff
4 for a device to be too heavy to be wearable?

5 MR. FISHER: Object to the form.

6 And also, can I ask the witness to
7 slow down and speak a little louder?

8 THE WITNESS: Okay.

9 Well, the answer to that really
10 depends on what was being designed. There are
11 -- so the tolerance to weight, there's a
12 tradeoff between that and functionality of what
13 you're building.

14 A good example for modern times is
15 the Apple Vision Pro that some people consider
16 to be very heavy, others don't, but it provided
17 new and unusual and new functionality.

18 So I don't think we can answer that
19 there's a cutoff, unless the person is
20 physically unable to carry that and that were
21 nowhere near that category.

22 BY MS. CHIPPERSON:

1 Q. Is a 50-pound local audio device
2 suitable and in a condition to be worn?

3 MR. FISHER: Same objection.

4 THE WITNESS: Without other
5 constraints, I've seen, as I said, military
6 backpacks with radio communication that are
7 that. Obviously, it's desirable to have smaller
8 weight, but I don't think it's in a condition to
9 be worn, yes. Sure.

10 BY MS. CHIPPERSON:

11 Q. Is there any weight at which you
12 would determine that something is not in a
13 condition and suitable to be worn?

14 A. I don't know how to give a number for
15 that. I -- people can walk around with
16 different weights depending on their physical
17 ability. So I don't know how to -- how to put a
18 cutoff.

19 Q. Is there a cutoff?

20 A. I think every person would have a
21 different one.

22 Q. Is a thousand pounds -- a

1 thousand-pound local audio device suitable in a
2 -- in a condition to be worn?

3 A. Okay. Probably not.

4 Q. Is a hundred-pound local audio device
5 suitable and in a condition to be worn?

6 A. Probably not.

7 Q. Is a 75-pound local audio device
8 suitable and in a condition to be worn?

9 A. Probably not.

10 Q. What is the heaviest local audio
11 device that you remember from May of 2005 in use
12 in your recordings?

13 A. I don't know the weight of it, but
14 I've seen field recording engineers with
15 microphones, batteries, and recorders carry many
16 pounds, but I didn't weigh it.

17 Q. Over 10 pounds?

18 A. Yes.

19 Q. Okay. If we look at paragraph 244 on
20 page 139 of your declaration?

21 A. Okay.

22 Q. Okay. So I'm looking at the quote in

1 the middle of the paragraph where you say
2 "highly desirable that the recording unit be
3 adapted to be mounted on (e.g., attached on, or
4 worn by)...the recorder."

5 Do you know what the ellipses is
6 replacing in that quote?

7 A. No. I'd have to go there and look.
8 It's 11 -- 11 through 17.

9 Okay. So the sentence there -- let's
10 see what are the ellipses. Attached on or worn
11 -- okay. It looks like it's rather than held
12 by.

13 Q. Yes.

14 So is this sentence saying that the
15 recording unit of Strub needs to be adapted to
16 be worn by a recorder?

17 MR. FISHER: Object to the form. The
18 document speaks for itself.

19 THE WITNESS: So to a POSA reading
20 this, there's no change needed. It's just --
21 adapted means configured or -- yeah, configured.

22 BY MS. CHIPPERSON:

1 Q. Is -- if something requires
2 adaptation to be worn, would you consider that
3 device not inherently wearable?

4 MR. FISHER: Same objections.

5 THE WITNESS: Yeah. I don't think
6 that's what he's saying. I don't think he's
7 changing anything. I think -- again, without
8 being an attorney, having seen other similar
9 language in patents, adapted usually means --
10 not usually. I think in my mind to a POSA means
11 there's a recording unit that is configured to
12 be mounted on, et cetera.

13 BY MS. CHIPPERSON:

14 Q. So you read "adapted to" to be
15 equivalent to configured?

16 A. Yes.

17 Q. Okay. And then if -- in that same
18 paragraph, you quote 16:49-65.

19 A. Okay.

20 Q. And if we could look at that in
21 Strub?

22 A. 49 through 65 in column 16. Yes.

1 Yes.

2 Q. Okay. Okay. So if we look at this
3 -- let's see where this is -- (sotto voce).

4 Just a second here.

5 Okay. Sorry. Let's change that. 16
6 -- it's further down. It's -- oh, maybe it's
7 not. 49 -- let's look at -- yeah, lines 49 --
8 so column 16, lines 49 -- so this says that the
9 "components of the recording unit are positioned
10 within a backpack that is worn by the recorder."

11 Do you see that?

12 A. I see it, yes.

13 Q. So what is being worn by the recorder
14 in that sentence?

15 MR. FISHER: Object to the form.

16 THE WITNESS: The components of the
17 recording unit. The components are in a
18 backpack, and the whole thing is being worn by
19 the performer -- I'm sorry -- by the recorder,
20 the person recording.

21 BY MS. CHIPPERSON:

22 Q. Just one second here.

1 A. Sure.

2 Q. Do you recall the NAGRA V device that
3 -- it's at issue in this case, but were you
4 familiar with it through your career?

5 MR. FISHER: Object to the form.

6 THE WITNESS: I'm familiar with NAGRA
7 devices, but I don't know if I know them all by
8 model.

9 MS. CHIPPERSON: Addison, let's go to
10 the prosecution history for the '443 patent,
11 which is -- I'm not seeing it in the list.

12 Okay. Well, let's go to Exhibit 21,
13 which is the NAGRA V non-patent literature.

14 MR. FISHER: And what file number is
15 that?

16 MS. CHIPPERSON: 21.

17 MR. FISHER: Oh.

18 THE EXHIBIT TECHNICIAN: Stand by,
19 and I will label this Exhibit 5.

20 MS. CHIPPERSON: Okay. Sounds good.

21 (Deposition Exhibit 5 was marked
22 for identification.)

1 THE EXHIBIT TECHNICIAN: One moment.

2 MR. FISHER: I'm going to object to
3 this exhibit as -- on the basis of lack of
4 authentication, hearsay, relevance.

5 That's it for now. We don't know
6 where this came from even.

7 BY MS. CHIPPERSON:

8 Q. Are you familiar with this product,
9 Dr. K?

10 MR. FISHER: Same objections to the
11 question as well.

12 THE WITNESS: Is there a way to make
13 it a little bigger?

14 Is that already in the folder?

15 Maybe I missed it.

16 Okay. Yes. I believe I've seen this
17 before. I don't remember if that was the same
18 model or if they had similar models, but it was
19 -- it's familiar to me, yes.

20 BY MS. CHIPPERSON:

21 Q. Okay. So you're familiar with this
22 product from your personal experience?

1 A. Like I said, I don't -- I can't say
2 for sure it was the NAGRA V, but something that
3 -- from NAGRA that looked like this I'm familiar
4 with.

5 MR. FISHER: I guess I'm going to say
6 that my objections to the document apply to all
7 questions about the document.

8 BY MS. CHIPPERSON:

9 Q. In your experience, was a product
10 such as the NAGRA V Linear Location Recorder
11 something that you might see people carrying in
12 a bag?

13 MR. FISHER: Object to form.

14 THE WITNESS: Does it give the
15 dimensions further down?

16 BY MS. CHIPPERSON:

17 Q. Yes, it does, if we scroll.

18 A. Actually, I have the document here as
19 well.

20 Q. And actually, we -- let me scratch
21 that last question.

22 A. Okay.

1 Q. Is this type of device the type of
2 device that you might see carried in a bag with
3 a shoulder strap?

4 MR. FISHER: Same objection.

5 THE WITNESS: Without knowing the
6 exact model that I saw, I have seen field
7 recording -- recording engineers or field
8 recordists carrying similar looking devices in a
9 -- in a strap or in a backpack or in a strap
10 around their waist (witness indicating).

11 BY MS. CHIPPERSON:

12 Q. So, in your opinion, would this
13 device be wearable?

14 MR. FISHER: Same objection.

15 THE WITNESS: I believe it would.

16 BY MS. CHIPPERSON:

17 Q. Separate from this particular sheet,
18 would you consider an electronic device with --
19 in the dimensions of 11 inches -- 11.4 inches by
20 8.6 inches by 4.5 inches to be wearable?

21 A. As I said, I've seen people wearing
22 these kinds of devices for field work.

1 Q. And how would you typically see
2 somebody wearing this type of device?

3 A. It would be either in a backpack with
4 a battery box or in a -- I don't know what to
5 call it. It's a belt with suspenders over the
6 shoulder made specifically for carrying around
7 audio equipment and other batteries and other
8 things.

9 Q. And what would make -- how would you
10 define portable?

11 A. It can run on a battery and can be
12 transported from place to place by being -- by
13 -- carried by a human. That's not a scientific
14 enough definition, but, you know, that's kind of
15 my immediate first reaction.

16 Q. So what would be the difference
17 between portable and wearable?

18 MR. FISHER: Object to the form,
19 beyond the scope.

20 THE WITNESS: I would say that it's
21 wearable -- a wearable device -- all wearable
22 devices are portable, but not the other way

1 around. A portable device might be able to be
2 carried from a place -- from place to place, but
3 not necessarily be wearable.

4 BY MS. CHIPPERSON:

5 Q. In May of 2005, would a person of
6 ordinary skill in the art have the understanding
7 that a laptop computer would be wearable?

8 A. Well, in the university system that I
9 mentioned before, the two of them, one of the
10 items that was in the backpack at the time was a
11 laptop. So it's not out of the question.

12 Q. So is anything that could be placed
13 in a backpack wearable?

14 A. I think we probably need to qualify.
15 We're talking about electronic devices or audio
16 or something. Otherwise, I wouldn't say that
17 bananas are wearable.

18 Q. So all audio devices that can be
19 placed in a backpack are wearable?

20 A. As long as they can operate
21 presumably with battery power.

22 Q. What would be the understanding of a

1 person of ordinary skill in the art in audio and
2 wireless communications in May of 2005 of the
3 term "body pack" when used in conjunction with a
4 local audio device?

5 A. A body pack, it would be a --
6 something that could carry a collection of
7 needed gear and be worn by a person.

8 Q. How is a body pack different than a
9 backpack?

10 A. Well, a body pack can be on other
11 parts of the body, other -- just not your -- it
12 doesn't have to be the back. I gave you the
13 example of a -- what looks like something around
14 the waist. There could be straps that are
15 holding something.

16 Q. And is it your position that Strub
17 discloses a local audio device in the form of a
18 backpack -- I'm sorry -- in the form of a body
19 pack?

20 A. I'm hesitating because I'm not sure
21 what "in the form" means.

22 He's -- he's saying that the

1 backpacks that he's showing contained those
2 devices. Therefore, they're worn, and they're
3 body packs under what I just said, but a local
4 audio device in the form of a backpack, I don't
5 know. That seems a little -- that wording seems
6 a little unusual to me.

7 Q. So does Strub disclose a body pack
8 local audio device?

9 A. Yes.

10 Q. And how would you define "body pack"?

11 I think you did define it in your
12 declaration.

13 A. I did. Yeah, I --

14 MR. FISHER: I guess I'll object to
15 the form, and asked and answered.

16 THE WITNESS: Yeah. I think it was
17 two or three questions ago.

18 BY MS. CHIPPERSON:

19 Q. We can scratch that.

20 So I -- how did you define a body
21 pack in your declaration?

22 A. That, I have to go look for.

1 Q. I believe it's paragraph 244, if that
2 helps you.

3 A. Yes. Well, I think I mentioned it in
4 other places, but let me -- let me take a quick
5 look.

6 MR. FISHER: Object to the form,
7 beyond the scope of the direct.

8 THE WITNESS: So in paragraph 244.
9 I'm talking as the -- "For example, Strub
10 illustrates and describes its recording unit as
11 worn on the recorder's body in the form of a
12 backpack or other user-wearable package."

13 So that's what I consider to be
14 Strub's -- one of Strub's places where he talks
15 about it being a body pack.

16 Um --

17 BY MS. CHIPPERSON:

18 Q. So would you consider a hat to be a
19 user-wearable package?

20 A. A hat by itself, or a hat with
21 electronics in it?

22 Q. In --

1 A. Yes to the second, and no to the
2 first.

3 Q. So would it be more accurate to say
4 that you believe a body pack is a user-wearable
5 package including electronics?

6 A. Yes. So I would say in the context
7 of what we're talking about, I guess it would be
8 audio recording electronics, but, yes.

9 Q. Is a purse holding a cell phone a
10 body pack?

11 A. Well, purses are typically carried,
12 not worn. I guess there are some that strap
13 across your front. I'm not sure. It depends on
14 the type of the purse (witness indicating).

15 Q. Do you have any sources for your
16 definition of body pack?

17 MR. FISHER: Object to the form.

18 THE WITNESS: I don't have sources in
19 my declaration, but unrelated -- well, I -- I
20 submitted a more recent declaration on the issue
21 of body pack with references there in response
22 to Zaxcom's expert. This is not in this IPR,

1 but I did -- I do have sources there.

2 MS. CHIPPERSON: If we could look at
3 the '443 patent, Figure 3B?

4 BY MS. CHIPPERSON:

5 Q. Okay. Do you believe that this
6 picture shows a body pack?

7 A. Um --

8 MR. FISHER: Object to the form.

9 THE WITNESS: So this picture shows
10 the Zaxcom transmitter, I believe. And so some
11 people in the industry call the -- these kinds
12 of products body pack, but that's not limiting.
13 There are other kinds of body packs as we talked
14 about.

15 BY MS. CHIPPERSON:

16 Q. Do you believe as a person of skill
17 in the art that Figure 3B shows a body pack?

18 MR. FISHER: Same objection.

19 THE WITNESS: I don't know how to say
20 it again the same -- in a different way.

21 Yeah. This is -- some people in the
22 industry call this a body pack, as do I, but I

1 don't want it to sound like I'm defining this to
2 be the only kind of body pack that's possible.

3 MR. FISHER: Counsel, we've been
4 going for a while.

5 What do you say about taking a break?

6 MS. CHIPPERSON: Sure. That's fine.

7 Ten minutes?

8 MR. FISHER: Yeah. Sure. That's
9 fine.

10 MS. CHIPPERSON: Okay. Sounds good.

11 So we'll be back at -- why don't we
12 just make it 5:40. That's -- wait. No. 5- --

13 MR. FISHER: 2:40 Pacific, 5:40
14 Eastern.

15 MS. CHIPPERSON: Yeah. Sorry.

16 5:40 our time; 2:40 your time.

17 THE WITNESS: Okay.

18 MR. FISHER: That's fine.

19 MS. CHIPPERSON: Okay.

20 So we're going off the record.

21 (A short recess was taken.)

22 BY MS. CHIPPERSON:

1 Q. Okay. So we have proposed a
2 definition of body pack that is a small box
3 housing a transmitter capable of being worn on a
4 belt or in a pocket.

5 Do you agree with that definition?

6 A. No, I don't. I think it's too
7 limiting.

8 Q. In what way?

9 A. Well, a body pack doesn't have to
10 have a transmitter, and it doesn't have to be a
11 box.

12 Can you read it one more time?

13 Q. Sure.

14 And we're talking about the
15 understanding of the definition of a body pack
16 in May 2005.

17 It's a small box housing a
18 transmitter capable of being worn on a belt or
19 in a pocket --

20 MR. FISHER: Objection.

21 BY MS. CHIPPERSON:

22 Q. -- and it would include audio

1 transmission capability.

2 MR. FISHER: Object to the form,
3 asked and answered, beyond the --

4 THE WITNESS: So, yeah. I --

5 MR. FISHER: -- scope.

6 THE WITNESS: I guess I don't -- I
7 think all of those terms are too limiting. It
8 doesn't have been to be in a pocket. It doesn't
9 have to be on a belt. It doesn't have to have a
10 transmitter, and it doesn't have to be in a box.

11 BY MS. CHIPPERSON:

12 Q. How would an audio transmitter in the
13 form of a body pack not include a transmitter?

14 MR. FISHER: Object to the form.

15 THE WITNESS: If the device is an
16 audio transmitter, it does have a transmitter,
17 but I think what I said before was that it
18 doesn't have to be a transmitter.

19 BY MS. CHIPPERSON:

20 Q. So when we talk about the definition
21 of body pack in relation to a local audio device
22 or the Strub recording unit, that's where we're

1 defining it as a small box housing a transmitter
2 capable of being worn on a belt or in a pocket.

3 Does that change your answer?

4 MR. FISHER: Object to the form,
5 asked and answered.

6 THE WITNESS: The -- right. The
7 Strub -- the Strub body pack has many
8 components, and it's not required to have a
9 transmitter, so I -- my general definition of a
10 body pack is that it would not -- it could have
11 a transmitter, but it's not required.

12 BY MS. CHIPPERSON:

13 Q. How would the Strub recording unit
14 transmit data without a transmitter?

15 A. So the Strub recording unit can be
16 used in many different scenarios. So, for
17 example, in the -- the simplified one in Figure
18 2 is a Strub recording unit, and it certainly
19 doesn't have a transmitter. In other
20 applications where a transmitter is required,
21 then it would need a transmitter.

22 So that's my objection I guess is

1 it's not required for something to be worn on
2 the body to have a transmitter. It depends on
3 the application.

4 Q. And it's your position that if
5 something is not capable of being worn on a belt
6 or in a pocket, it can still be considered a
7 body pack for the purposes of a Zaxcom local
8 audio device?

9 MR. FISHER: Object to the form.

10 THE WITNESS: Well, I wasn't thinking
11 of the Zaxcom device when I made my -- when I
12 formed that opinion. We talked about various
13 kinds of possible forms for a body pack,
14 including belts that are hung from the
15 shoulders, backpacks. You mentioned a hat that
16 -- so I think, yes, belt and pocket are a place,
17 but it -- to me, it sounds like it -- it makes
18 it sound like those are the only, and that's not
19 true.

20 BY MS. CHIPPERSON:

21 Q. What do you believe the Zaxcom patent
22 teaches is a body pack?

1 MR. FISHER: Same objection.

2 THE WITNESS: The figures show what
3 you're showing on the screen right now, Figure
4 3B, but I believe even the Zaxcom '443 patent
5 considers that one possible implementation.

6 I was looking here at column 10, page
7 19, I guess. It says local audio devices 102
8 may be body packs such as the local device 102.
9 [as read]

10 So that -- in such an embodiment.
11 So, yeah, it could be that, but apparently it's
12 -- it could be other things, too.

13 BY MS. CHIPPERSON:

14 Q. My question is: How does the Zaxcom
15 patent define a body pack, not whether a local
16 audio device can be something other than a body
17 pack?

18 MR. FISHER: Object to the form.

19 THE WITNESS: I'm trying to see if
20 there's a definition. I don't see it, unless
21 I'm missing it. I don't have a definition. It
22 says wireless transmitters may take the form of

1 body packs, but what is a body pack?

2 I don't see a definition in here.

3 BY MS. CHIPPERSON:

4 Q. Is the Sennheiser SK50, mentioned in
5 your declaration, a body pack transmitter?

6 MR. FISHER: Object to the form.

7 THE WITNESS: I think as I answered
8 earlier, devices that have this form factor
9 similar to what you're showing on the screen are
10 called by people in the industry to be body
11 packs. My point was that that is a kind of body
12 pack, but it's not the only kind. Body packs is
13 a much broader category, and there are other
14 examples that we talked about.

15 BY MS. CHIPPERSON:

16 Q. Does Sennheiser market the SK50 as a
17 body pack transmitter?

18 A. I'm not sure. I haven't seen the --
19 I haven't seen the brochure for it, or maybe I
20 have. I don't remember.

21 Q. One second here.

22 Does an object need to be lightweight

1 to be a body pack?

2 MR. FISHER: Object to the form.

3 THE WITNESS: Well, we talked about
4 the weights before. Obviously, people would
5 prefer lighter weight, but I don't know if it's
6 required. If it's something that provides a
7 unique functionality, somebody might tolerate a
8 higher weight.

9 BY MS. CHIPPERSON:

10 Q. Would you consider an audio
11 transmitter that weighs more than 10 pounds to
12 be a body pack?

13 MR. FISHER: Object to the form.

14 THE WITNESS: It depends on what it
15 did. It's -- is it -- I don't know. I can't
16 answer that. I'd have to see what it looks like
17 and what it does besides audio transmitting.

18 BY MS. CHIPPERSON:

19 Q. Is there any weight over which you
20 would consider something too heavy to be a body
21 pack?

22 A. Well, that was our exercise from

1 before, right?

2 So I didn't have a number. We worked
3 our way down from a hundred pounds. I know
4 that's not practical, but I'm not -- I don't
5 have a specific number to say that one ounce
6 above that will be unacceptable. I don't have a
7 number.

8 Q. Can you name a local audio device in
9 May of 2005 that was marketed as a body pack
10 that was heavier than 10 ounces?

11 A. I don't know the weight of some of
12 those early ones, so I can't name any models,
13 no.

14 Q. But you testified in your declaration
15 to the state of the art in 2005, correct?

16 MR. FISHER: Object to the form.

17 What declaration are you referring
18 to, Counsel?

19 BY MS. CHIPPERSON:

20 Q. Let's look at your declaration,
21 paragraph 51 on page 26.

22 A. Okay.

1 Q. So in this statement, you're
2 testifying to your knowledge in 2005, correct?

3 A. But I'm not talking about weight
4 here.

5 Q. But are you testifying to your memory
6 from 2005?

7 A. To the concepts listed in the
8 paragraphs above: jam synchronizing, local
9 timecode generators, and et cetera.

10 Q. And you testify -- do you have
11 testimony to Claim 19 of the '443 patent?

12 A. I believe so. I'll have to find it.

13 Q. Page 138, if that helps.

14 A. Yes. That does help.

15 So paragraph 242?

16 Is that what you're asking about?

17 Q. 244.

18 A. 244, okay.

19 Okay. Yes.

20 Q. So is this your testimony based upon
21 your knowledge of the art in May of 2005?

22 MR. FISHER: Object to the form.

1 THE WITNESS: My testimony here and
2 elsewhere when we talk about, well, any of the
3 components was to the elements that had to do
4 with the -- with the claims, not the weight.

5 So I -- I was -- I had seen a lot of
6 devices back then, but I couldn't tell you the
7 weight or the color or, you know, things that
8 are outside of the scope.

9 BY MS. CHIPPERSON:

10 Q. So when you analyze the meaning of
11 body pack, you did not factor in weight?

12 MR. FISHER: Same objection.

13 BY MS. CHIPPERSON:

14 Q. Is that correct?

15 MR. FISHER: Same objection.

16 THE WITNESS: I -- going back to what
17 we said before, I guess I factored it in by
18 knowing that it wasn't a hundred pounds.
19 Otherwise, I wouldn't have looked at it, but,
20 no. My -- my opinions were based on whether
21 this is a -- this is something that somebody can
22 wear on their body.

1 BY MS. CHIPPERSON:

2 Q. What is the weight of a Strub body
3 pack?

4 A. I guess in that one embodiment that
5 we -- or in one example that we talked about, he
6 said it could be made approximately the weight
7 of a camcorder. I think he also says that
8 smaller is better. I forget the exact language.
9 It's certainly not 24 pounds because that was
10 just an example of saying this is -- you know,
11 if you went to Best Buy today and bought cameras
12 and transmitters, you might end up with a very
13 heavy thing, but that's not what he's teaching.

14 Q. Did you calculate the weight of a
15 device as shown in Figure 3 that would be
16 capable of receiving four video streams and
17 recording those video streams simultaneously?

18 A. Well, Figure 3 is not a device.
19 Figure 3 is a functional block diagram. So the
20 weight of a device that incorporates that would
21 depend on other factors such as the weight of
22 the box, the weight of the battery needed to

1 power it, whatever else, antennas and things.

2 So Strub is not showing a box. He's
3 showing -- in that -- in that diagram, he's
4 showing the components at a very high level of
5 the functionality.

6 Q. Did you calculate the weight of a
7 Strub device that would render the Zaxcom claims
8 obvious?

9 A. I don't know how my answer --

10 MR. FISHER: Objection, form.

11 THE WITNESS: Sorry.

12 I don't know how my answer would be
13 any different from before. This -- I -- the --
14 Strub doesn't give a weight, a specific weight
15 for a Strub device. Strub lists -- I don't know
16 -- 50 columns of variations of that device that
17 has the functionality of Figure 3 that would be
18 different for every application. The one for
19 skiing would be a different form than the one
20 for recording concerts.

21 BY MS. CHIPPERSON:

22 Q. If a body pack can't be a hundred

1 pounds and you didn't calculate the weight of
2 the Strub embodiment that renders the Zaxcom
3 claims obvious, how do you know the Strub device
4 is a body pack?

5 A. Well, first of all, I don't believe
6 any of the disputed claims mention the word
7 "weight." So I don't think that that matters
8 for -- as far as the claims are concerned.

9 Q. But was it your testimony that a
10 device that's a hundred pounds would not be a
11 body pack?

12 A. My testimony I believe was that it
13 would be impractical.

14 Q. And you also testified earlier that a
15 device that was a hundred pounds could not be
16 wearable?

17 MR. FISHER: Object to the form.

18 BY MS. CHIPPERSON:

19 Q. So how are you making that
20 determination without calculating the weight of
21 the Strub embodiment that would render the
22 Zaxcom claims obvious?

1 MR. FISHER: Same objection.

2 THE WITNESS: Okay. So a couple of
3 things here.

4 The Strub embodiment would consist of
5 a circuit, as we talked about, or circuit
6 components that would be made to have the
7 function shown in Figure 3. Those are well
8 known to a POSA as to what kinds of components
9 and the approximate weight of them, meaning it's
10 a circuit board with components soldered onto
11 it. There might be some heat sinks, and so on.
12 So that's nowhere near a hundred pounds, and
13 it's probably on the order of devices like the
14 one you have on the screen here. So I didn't
15 opine on whether the claims are invalid or not
16 based on weight.

17 BY MS. CHIPPERSON:

18 Q. And what would you estimate the
19 weight of the device shown in Figure 3B to be?

20 A. Just based on experience from other
21 similar looking devices, you know, a few hundred
22 grams. I don't know.

1 Q. So it's your position that the Strub
2 device that would render the Zaxcom claims
3 obvious would weigh a few hundred grams?

4 A. I believe that a POSA would know how
5 to make a device that performs all of the
6 functions that Strub discloses in a form factor
7 that would weigh about that. It could be in
8 this type of form factor or any other form
9 factor that is in a body pack form, form factor.

10 Q. And when you say "all of the
11 functions," do you mean all of the functions
12 included in Zaxcom's challenged claims, or all
13 of the functions taught by the Strub patent?

14 A. Yes to both.

15 Q. So it's your position that a person
16 of skill in the art in April of 2000 could make
17 an electronic device having all of the features
18 taught by Strub, and the weight would be
19 approximately a few hundred grams?

20 A. Yes.

21 Q. Okay.

22 A. I could add one more thing to that as

1 I'm thinking about it. As far as I can
2 remember -- and we could look through them -- so
3 the '443 patent claims don't -- again, don't
4 talk about -- they talk about what the system
5 does, not the weight or the size. So I don't
6 think we were -- the Strub is not limited to
7 that.

8 Q. Would a person of skill in the art in
9 audio and wireless communications in May of 2005
10 consider size of a local audio device to be a
11 characteristic of a body pack?

12 MR. FISHER: Object to the form.

13 THE WITNESS: A characteristic of a
14 body pack.

15 It probably would be listed as one of
16 the many characteristics on a brochure, if
17 that's -- I'm not sure if that's what you're
18 asking.

19 BY MS. CHIPPERSON:

20 Q. I'm asking if a person of skill in
21 the art in audio and wireless communications in
22 May of 2005 would consider size of a local audio

1 device to be a characteristic of a body pack?

2 MR. FISHER: Same objection.

3 THE WITNESS: I think that they would
4 consider -- they would want to know the size.

5 So if that's what you mean by characteristic,
6 then, yes. They would also want to know the
7 battery power needed and how long it lasts and
8 the range. So it -- among a list of
9 characteristics, size would be one of them.

10 BY MS. CHIPPERSON:

11 Q. How large can an object be and still
12 be considered to be a body pack in the opinion
13 of a person of skill in the art in audio and
14 wireless communications in May of 2005?

15 A. I don't know if I can give
16 dimensions. This relates to the weight
17 question. If it can be worn and carried, then a
18 person would consider it a body pack, assuming
19 it has the other stuff that we talked about, the
20 electronics.

21 Q. Would a person of skill in the art in
22 audio and wireless communications in May of 2005

1 consider something greater than 5 inches by 5
2 inches by 5 inches, excluding an antenna, to be
3 a body pack?

4 MR. FISHER: Object to the form.

5 THE WITNESS: It depends on what that
6 device did. Maybe.

7 BY MS. CHIPPERSON:

8 Q. Would a person of skill in the art in
9 audio and wireless communications systems in May
10 of 2005 consider hideability of a local audio
11 device as a characteristic of a body pack?

12 MR. FISHER: Same objection.

13 THE WITNESS: If the application
14 required the device to be hidden, then, yes, but
15 not all applications require that.

16 BY MS. CHIPPERSON:

17 Q. Are most local audio devices used by
18 performers concealed?

19 MR. FISHER: Same objection.

20 THE WITNESS: So now we're limiting
21 to performers. I was -- I was speaking of
22 people in general.

1 BY MS. CHIPPERSON:

2 Q. Yes.

3 MR. FISHER: Same objection.

4 THE WITNESS: It's -- it's possible.

5 If it's a radio performer, no. If it's -- if

6 there are cameras involved, probably, yes.

7 BY MS. CHIPPERSON:

8 Q. When you watch a film, do you
9 typically see the local audio device of the
10 performers?

11 A. In a -- we're talking about film,
12 it's not that common to have local audio
13 devices. The film sound is picked up more
14 commonly with boom microphones lingering and
15 being pointed by boom operators outside of
16 camera view. If there needs to be a body pack
17 that -- with a microphone, then because there
18 are cameras involved, that device would have to
19 be hidden. There are times when it's not, and
20 it's removed through visual effects after the
21 fact.

22 Q. Are you aware of any movies that

1 you've seen where the local audio devices of the
2 performers were visible?

3 A. I've seen plenty of -- when you say
4 "movies," I've seen plenty of productions that
5 may have had smaller budgets where the devices
6 were visible. I've seen them being visible
7 because they needed to be visible as part of the
8 script, so it's hard for me to answer that.

9 Q. What movie required the local audio
10 device to be visible because of the script?

11 A. I don't know if I can give you a
12 title, but movies in which actors are being
13 fitted with devices in the dressing room before
14 they go out, movies of techs where technicians
15 are part of the scene that are wearing body
16 packs. There's all kinds of movies that have
17 been made.

18 Q. Are those local audio devices
19 operational?

20 A. Oh, I don't know.

21 Q. How often have you seen the local
22 audio device used by a news announcer?

1 A. I -- not often. I don't know. I
2 haven't -- I can't give you an example.

3 Q. Can you name a local audio device in
4 May of 2005 that was a body pack, that was
5 marketed as a body pack that was not able to be
6 hidden?

7 A. I don't know all the models from back
8 then. I assume that would be in the brochure,
9 but I -- it's way too many to remember of any
10 examples that didn't say that.

11 Q. In May of 2005, did news announcers
12 typically wear backpacks containing their audio
13 equipment?

14 A. News announcers --

15 MR. FISHER: Sorry.

16 I object to the form.

17 THE WITNESS: News announcers in a
18 studio setting, no, but news announcers
19 reporting with their own microphone, possibly,
20 out in the field.

21 BY MS. CHIPPERSON:

22 Q. So for the purpose of these

1 questions, we're going to distinguish between a
2 news announcer and a news correspondent.

3 So a news announcer, we're talking
4 about someone in a studio, not a correspondent
5 in a field, so just for the context of these
6 next few questions.

7 So in that context, in May of 2005,
8 did news announcers typically wear backpacks
9 containing their audio equipment?

10 MR. FISHER: Okay. I'm going to
11 object to the form and to the artificial
12 definition.

13 MS. CHIPPERSON: Strike it.

14 BY MS. CHIPPERSON:

15 Q. In May of 2005, did news announcers
16 operating in a studio typically wear backpacks
17 containing their audio equipment?

18 MR. FISHER: Same objections.

19 THE WITNESS: They did not, but the
20 recording of their voice was not necessarily
21 done with a local audio device.

22 BY MS. CHIPPERSON:

1 Q. In May of 2005, did news announcers
2 operating in a studio typically wear headbands
3 with audio equipment?

4 MR. FISHER: Same objections.

5 THE WITNESS: No. They had no reason
6 to. The recording was being done by microphones
7 over their head.

8 BY MS. CHIPPERSON:

9 Q. In May of 2005, did news announcers
10 operating in a studio typically wear harnesses
11 with video cameras?

12 MR. FISHER: Same objections.

13 THE WITNESS: I'm not aware of any
14 examples.

15 BY MS. CHIPPERSON:

16 Q. In May of 2005, did news announcers
17 typically hold a user interface in his or her
18 hand to operate a local audio device where the
19 news announcer was operating in a studio?

20 MR. FISHER: Same objections.

21 THE WITNESS: I would say in most
22 cases there was no local audio recording device,

1 so there would be no need for a handheld
2 control.

3 MR. FISHER: Just to clarify it,
4 Counsel, have you -- did you withdraw your
5 definition in distinction between news
6 announcers and news correspondents for purposes
7 of these questions?

8 MS. CHIPPERSON: For the questions
9 where I clarified that the news announcer is
10 operating in a studio, yes.

11 BY MS. CHIPPERSON:

12 Q. Have you worked on the set of a news
13 announcer operating in a studio?

14 A. No, I have not.

15 Q. Is it your testimony that news
16 announcers do not wear local audio devices?

17 MR. FISHER: Object to the form.

18 THE WITNESS: No. I believe I said
19 that it's not required. I have colleagues who
20 work in that field, and we often talk about
21 microphone placement that -- external
22 microphones in the studio that have to be held

1 out of camera view.

2 BY MS. CHIPPERSON:

3 Q. But in some scenarios, news
4 announcers working in a studio are equipped with
5 local audio devices, correct?

6 A. Yes. Some I'm sure are.

7 Q. And in those scenarios -- scratch
8 that.

9 In May of 2005, were local audio
10 devices the size of a personal camcorder
11 typically worn by news announcers operating in a
12 studio?

13 MR. FISHER: Object to the form.

14 THE WITNESS: I'm not aware of any
15 such.

16 BY MS. CHIPPERSON:

17 Q. In May of 2005, were local audio
18 devices that were typically worn by news
19 announcers operating in a studio able to fit in
20 a pocket?

21 MR. FISHER: Same objection.

22 THE WITNESS: I'm sure some were

1 probably.

2 BY MS. CHIPPERSON:

3 Q. Are you aware of any devices that
4 were not able to fit in a pocket that were used
5 by news announcers operating in a studio in May
6 of 2005?

7 MR. FISHER: Same objection.

8 THE WITNESS: I am aware that not all
9 announcers like to have them in a pocket, but
10 I'm not -- I don't know how far that went --
11 their objections went beyond that.

12 BY MS. CHIPPERSON:

13 Q. My question was: Are you aware of
14 any -- as of May of 2005, are you aware of any
15 local audio devices worn by news announcers that
16 are operating in a studio that were not able to
17 fit in a pocket?

18 A. I'm not aware of any.

19 Q. Can you name one program in which you
20 have seen a news announcer's local audio device?

21 A. I don't have --

22 MR. FISHER: I'm going to object --

1 I'm going to object to the form.

2 BY MS. CHIPPERSON:

3 Q. Sorry.

4 Can you state your answer again?

5 A. I -- I don't have an example. I'm
6 just -- I guess I feel obliged to respond that
7 what I opined on in my report had nothing to do
8 with visibility or weight, as none of those are
9 in the claims, so I just . . .

10 Q. Are you aware that the Zaxcom patent
11 discusses body packs as typically being worn by
12 news announcers or performers?

13 MR. FISHER: Same objection.

14 THE WITNESS: I'd have to look. I
15 know they talk about performers. I don't know
16 what other -- I don't remember what other people
17 they talk about. I'm happy to look.

18 BY MS. CHIPPERSON:

19 Q. So when you made your analysis in
20 paragraph 244 of your declaration, were you
21 aware of Zaxcom's teachings related to a body
22 pack?

1 A. I was aware -- well, yes. I was
2 responding to the specific -- to the claim
3 language that this paragraph corresponds to,
4 Claim 19.

5 Q. So is it your position that the
6 definition of body pack as set forth in the
7 Zaxcom patents has no relation to news
8 announcers or performers?

9 MR. FISHER: Object to the form.

10 THE WITNESS: I don't think I've said
11 that anywhere.

12 BY MS. CHIPPERSON:

13 Q. In May of 2005 or earlier, have you
14 ever seen a performer in a motion picture
15 wearing a headband with audio equipment?

16 A. No.

17 Q. In May of 2005, did you ever see a
18 performer in a motion picture wearing a harness
19 with a video camera?

20 A. That's possible. I have to think of
21 my movie history, but some Mission Impossible
22 movies come to mind that that might have been

1 possible, but I'm not certain.

2 Q. So are you familiar with the state of
3 the art of professional video recorders in April
4 2000?

5 A. Yes.

6 Q. And in April of 2000, were
7 professional video recorders capable of
8 wirelessly transmitting video?

9 A. Yes.

10 Q. Did video recorders in April of 2002
11 use an external wireless transmitter to transmit
12 video?

13 A. You mean one that was attached to
14 them externally?

15 Q. Yes. A wireless transmitter external
16 to the video recorder.

17 A. I believe there were products that
18 did that. I don't have a model if you're going
19 to ask me that, but I believe -- yes.

20 Q. For -- for the -- for the video
21 recorders that connected to an external wireless
22 transmitter, were the -- did they communicate

1 wirelessly or via a wired connection?

2 A. I believe there were models that had
3 the capability of both.

4 Q. Are you aware of a video recorder in
5 April 2000 that could transmit video without the
6 need for an external wireless transmitter?

7 A. I can't point you to a model, so I'm
8 not sure. I believe they were available. I
9 just don't know if I could point you to a
10 specific model.

11 Q. And looking back -- I guess we're not
12 on -- let's look back at -- excuse me -- page
13 138, paragraph 244 again of your declaration.

14 A. Okay.

15 Q. Do you read Claim 19 as requiring all
16 of the components of the local audio device to
17 be contained in a single body pack?

18 MR. FISHER: Object to the form.

19 MS. CHIPPERSON: You might want to
20 scroll up a little bit so he can see the --
21 yeah. That would be better, so you can see the
22 claim.

1 MS. CHIPPERSON: You can start at the
2 "xx."

3 THE WITNESS: Right.

4 MS. CHIPPERSON: Yeah. There you go.

5 THE WITNESS: Sorry.

6 Could you repeat your question?

7 BY MS. CHIPPERSON:

8 Q. Do you interpret Claim 19 to require
9 that the local audio device be in one body pack?

10 MR. FISHER: Same objection.

11 THE WITNESS: Um, huh.

12 So now, we have to go back to the
13 definition -- my definition of body pack which
14 might be different than what Zaxcom's definition
15 is.

16 So my definition of a body pack is
17 not the form factor that we saw of that device.
18 So under that -- under my definition of body
19 pack, which is a little broader, I think the
20 local audio device is all contained in the body
21 pack.

22 BY MS. CHIPPERSON:

1 Q. So my question is: Does the local
2 audio device need to be contained in one body
3 pack?

4 MR. FISHER: Same objection.

5 THE WITNESS: If the body pack is not
6 limited to be the form that's in the figure -- I
7 forget the number of the figure that we saw in
8 the '443.

9 If the body pack is the definition
10 that we talked about before that I -- that I
11 used, then I believe that it's all in one body
12 pack.

13 BY MS. CHIPPERSON:

14 Q. If a local audio device is split
15 between two body packs in Strub, would that
16 render Claim 19 obvious?

17 MR. FISHER: Same objection.

18 BY MS. CHIPPERSON:

19 Q. Let me strike that and rephrase it.

20 If -- if the Strub local audio device
21 were contained within two body packs, would that
22 be a reason that Claim 19 would not be rendered

1 obvious?

2 MR. FISHER: Object to the form,
3 beyond the scope of the direct.

4 THE WITNESS: So I'm not trying to
5 analyze this hypothetical. It's -- so a person
6 wearing, let's say, two of Strub's backpacks
7 that are distinct from each other, but somehow
8 form one local audio device?

9 It seems -- is that -- am I
10 rephrasing that correctly?

11 BY MS. CHIPPERSON:

12 Q. Well, let's -- let me give you a
13 different -- let's scratch that.

14 And if a person -- if -- scratch
15 that.

16 If the Strub local audio device
17 includes, for example, a headband and a
18 backpack, would you consider that to be one body
19 pack or two body packs?

20 MR. FISHER: Same objections.

21 THE WITNESS: Well, since it's one
22 device, I would consider it to be one because

1 the headband by itself wouldn't have any
2 functionality. Presumably, it's somehow
3 connected to the -- some electronics in the
4 backpack or something else. So I would consider
5 it to be one local audio device and one body
6 pack because they're connected.

7 MS. CHIPPERSON: If we go to Figure 4
8 of Strub -- that's the Zaxcom patent. Sorry.

9 Strub is -- let's see here. It's
10 original file 006.

11 THE EXHIBIT TECHNICIAN: And do you
12 have a page number for that?

13 MS. CHIPPERSON: You've got the right
14 document there. Figure 4 which -- let's see.

15 THE WITNESS: I think you passed it.
16 There it is.

17 BY MS. CHIPPERSON:

18 Q. So Figure 4, does that -- is that
19 headband in Figure 4 connected to something
20 else?

21 A. That headband is not a local audio
22 recording device. That's a -- one element of

1 Strub's Figure 3. That's the visual -- what
2 does he call it -- video data acquisition
3 device, I believe.

4 Q. So when a Strub recording unit has
5 two physically distinct components, do you
6 consider that to be one body pack?

7 MR. FISHER: Object to the form,
8 asked and answered.

9 THE WITNESS: As I mentioned earlier,
10 so if that -- that's basically a camera, visual
11 data acquisition device. It has to be connected
12 to something in order to be useful and part of
13 Strub's system. So by itself, it's not -- it's
14 not a local audio recording device. If the
15 person's body that we don't see has the backpack
16 that we see on the right, and they're connected,
17 then that's one body pack.

18 BY MS. CHIPPERSON:

19 Q. Does Strub describe wireless
20 connections between the recording unit and the
21 visual data acquisition device or video data
22 acquisition device?

1 A. Possibly. I'd have to look for it,
2 but I wasn't limiting my connection. I wasn't
3 talking about a functional connection. It
4 doesn't have to be a wire.

5 Q. Okay. That's fine.

6 Is it true that a GPS receiver
7 requires a clear view of the sky to receive a
8 signal from the GPS satellite?

9 A. For at least some portion of time,
10 yes.

11 Q. Do you believe that GPS signals would
12 work reliably in environments like a subway
13 station?

14 A. They -- I have two parts to that
15 answer. The -- if they needed to work in a
16 subway station, there could be a -- an antenna
17 that is external that just connects to the
18 receiver and transmits to whoever is wearing a
19 device that needs GPS.

20 And the second part is in a subway or
21 other enclosed space, you -- you will have
22 trouble with any kind of radio communication,

1 including RF.

2 Q. Would a GPS signal work reliably on a
3 sound stage with metal mesh walls?

4 A. It depends on when the -- where the
5 antenna of the receiver is relative to the mesh
6 walls.

7 Q. Well, they receive -- if the receiver
8 is on the sound stage within the metal mesh
9 walls, will you have a problem receiving GPS
10 signals?

11 A. Well, in studio installations such as
12 this, they typically have an antenna that can
13 always see the satellites, and then it's wired
14 from the antenna to the receiver where
15 performances or recordings are happening if
16 they're trying to get the benefit of satellite
17 GPS timecodes, for example.

18 Q. Are you aware of any recordings that
19 use GPS signals as a master timecode?

20 A. Yes, many. Several studios that I've
21 visited. I used to have one in my own lab. I
22 no longer use it, so I don't have it. But, yes,

1 I'm aware of many.

2 Q. Could you give an example of one?

3 A. Again, you're asking about models.

4 Q. No. The name of the studio.

5 A. Oh, oh, oh. I'm sorry. So the --
6 fairly certain that WGBH had it. The production
7 studios in the cinema school at USC. Um, there
8 are a few others that I visited that I'm
9 actually under NDA and can't talk about what
10 they do, but it does exist. The benefit being
11 atomic clocks are the most accurate
12 synchronization, so studios want that for all of
13 their equipment.

14 Q. Let's see.

15 Can we just go back for a second to
16 your experience with multi-channel audio?

17 Is your experience with multi-channel
18 audio related to -- I think you said spatial --
19 spatial positioning of the audio?

20 Let me strike -- strike that.

21 How much of your research is related
22 to spatial positioning of audio?

1 A. I don't know that I could give a
2 percentage, but over the past 25 or -- oh, maybe
3 27 years now, I've looked at all aspects of
4 initially what was called immersive audio, more
5 recently called spatial audio from the capture
6 of it with multiple microphones to the
7 re-creation of audio -- to -- of environments
8 using loudspeakers, using headphones, so it's a
9 big part. I don't know if you're asking for a
10 percentage. I don't think I could give you
11 that.

12 Q. Okay.

13 MS. CHIPPERSON: I think -- I think
14 that's -- that's it. We're -- we're done for --
15 we're done for today's --

16 MR. FISHER: All right.

17 Let's take a short break, and then
18 we'll decide if want to do any redirect. We may
19 not, but I just want to take a few minutes.

20 Can we reconvene in -- do you want to
21 just make it -- I know it's getting kind of late
22 there.

1 Do you want to reconvene at -- in
2 like, you know, 19 minutes?

3 That makes it four o'clock my time,
4 seven o'clock your time. Again, I know it's
5 getting kind of late.

6 MR. FISHER: I have 6:39. So 19
7 minutes would be 6:48, right?

8 Oh, sorry. 6:58. Okay. So 21
9 minutes.

10 MR. FISHER: Okay. Whatever.

11 Do you want to -- fine.

12 Do you want to reconvene in 20
13 minutes?

14 Is that okay?

15 Look, if we can get back -- if I can
16 get you an answer sooner, I will.

17 MS. CHIPPERSON: Yeah.

18 Can -- how about we limit it to 15?

19 Is 15 sufficient?

20 MR. FISHER: That's fine.

21 MS. CHIPPERSON: Okay. All right.

22 Let's do that.

1 MR. FISHER: All right.

2 MS. CHIPPERSON: All right. So we're
3 going off the record.

4 (A short recess was taken.)

5 MR. FISHER: All right. We have no
6 redirect, so I guess the deposition is closed.

7 MS. CHIPPERSON: Okay. Thank you.

8 THE COURT REPORTER: Counsel, can I
9 just understand your orders, what you would like
10 to see and when as far as this deposition
11 transcript, please?

12 MR. FISHER: I think we're going to
13 want it in a week or less, so I guess expedited
14 for us.

15 MS. CHIPPERSON: Yeah.

16 THE COURT REPORTER: Do you have a
17 preference, a 3-day or a 5-day?

18 MR. FISHER: 5-day would be fine for
19 us.

20 THE COURT REPORTER: Okay. Very
21 good.

22 And did you want the rough draft?

1 MR. FISHER: Yes.

2 THE COURT REPORTER: Very good.

3 And how about for you, Ms.

4 Chipperson?

5 MS. CHIPPERSON: I think we already
6 made our indication on the order that we
7 originally put in. I don't remember what that
8 was. It might have been a 3-day.

9 THE COURT REPORTER: Oh, I do see on
10 here a 5-day delivery for you.

11 MS. CHIPPERSON: Oh, okay.

12 We'll go with the 5-day, please.

13 THE COURT REPORTER: Do you also want
14 the rough?

15 MS. CHIPPERSON: Yes, please.

16 THE COURT REPORTER: All right. Very
17 good.

18 Well, thank you, everyone. Have a
19 great evening.

20 (The deposition concluded at 6:49
21 p.m. EDT.)

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DEPOSITION ERRATA SHEET

Our Assignment No. 595246

Case Caption: RØDE MICROPHONES, LLC and
FREEDMAN ELECTRONICS PTY LTD. vs. ZAXCOM, INC.

DECLARATION UNDER PENALTY OF PERJURY

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

Signed on the _____ day of
_____, 20____.

CHRIS KYRIAKAKIS, Ph.D.

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SIGNATURE: _____ DATE: _____

1 CERTIFICATE OF SHORTHAND REPORTER

2 I, REBECCA KLANDERUD, Registered
3 Professional Reporter, Certified Shorthand
4 Reporter within and for the State of California
do hereby certify:

5 That CHRIS KYRIAKAKIS, Ph.D., the
6 witness whose deposition is hereinbefore set
7 forth, was duly sworn by me before the
commencement of such deposition and that such
deposition was taken before me and is a true
record of the testimony given by such witness.

8 I further certify that both
9 parties were represented by counsel at the
deposition.

10 I further certify that the deposition of
11 CHRIS KYRIAKAKIS, Ph.D. was taken via Zoom
videoconference communication on Wednesday,
August 13, 2025, commencing at 11:56 a.m. EDT.

12 I further certify that I am not related
13 to any of the parties to this action by blood or
marriage, I am not employed by or an attorney to
14 any of the parties to this action, and that I am
in no way interested, financially or otherwise,
15 in the outcome of this matter.

16 

17 _____
18 Rebecca Klanderud
19 Registered Professional Reporter
Certified Shorthand Reporter

20 (The foregoing certification of this
21 transcript does not apply to any reproduction of
the same by any means unless under the direct
control and/or supervision of the certifying
22 reporter.)

Transcript of Chris Kyriakakis, Ph.D.
Conducted on August 13, 2025

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