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Transcript of Richard Stern, Ph.D.

Date: December 10, 2025

Case: Amazon, Inc., et al. -v- SoundClear Technologies, LLC (PTAB)

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----

3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4 -----

5 AMAZON.COM, INC.,

6 AMAZON.COM SERVICES LLC, and

7 AMAZON WEB SERVICES, INC.,

8 Petitioners,

9 v.

10 SOUNDCLEAR TECHNOLOGIES LLC,

11 Patent Owner,

12 -----

13 Case IPR2025-00673

14 US Patent No. 11,244,675

15 -----

16
17 REMOTE VIDEOTAPED DEPOSITION OF

18 RICHARD STERN, PH.D.

19 December 10, 2025

20
21 Reported by: Susan S. Klinger, RMR-CRR, CSR

22 Job No. 609329

December 10, 2025

12:08 p.m. EST

REMOTE VIDEOTAPED of RICHARD STERN, PH.D., held
before Susan S. Klinger, a Registered Merit
Reporter and Certified Realtime Reporter of the
State of Texas.

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I N D E X

WITNESS PAGE

RICHARD STERN, PH.D.

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E X H I B I T S

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Publication US 2017/0083281

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Publication US 2017/0337921

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Review

P R O C E E D I N G S

VIDEOGRAPHER: Here begins the videotaped deposition of Dr. Richard Stern in the matter of Amazon, Incorporated, et al. verse SoundClear Technologies, LLC in the United States Patent and Trademark Office, Case Numbers IPR2025-00565 (sic) and IPR2025-00673.

Today is Wednesday, December 10th, 2025. The time on the monitor is 12:08 p.m. Eastern Time. Your remote videographer today is Brendan Case representing Planet Depos. All parties of this video deposition are attending remotely.

Would all counsel present please state their names and identify whom they represent?

MR. SPRENGER: Kevin Sprenger of the law firm of Daignault Iyer, LLP representing SoundClear Technologies, LLC. And I'm joined today by my colleague, Steven Reynolds, and a little bit later during the deposition Erin Hadi, H-a-d-i, of the same law firm.

MR. REEVES: This is Nathan Reeves of Morgan Lewis for petitioners and the witness, and

Transcript of Richard Stern, Ph.D.
Conducted on December 10, 2025

6

1	I'm joined by my colleague, Colin Heideman.	12:08:55
2	VIDEOGRAPHER: Our court reporter of the	12:08:59
3	day is Susan Klinger representing Planet Depos.	12:09:00
4	The witness will now be sworn in.	12:09:02
5	RICHARD STERN, PH.D.,	
6	having been first duly sworn testified as follows:	
7	EXAMINATION	
8	BY MR. SPRENGER:	12:09:14
9	Q Good morning. Please state your -- please	12:09:14
10	state and spell your name for the record.	12:09:18
11	A Complete legal name is Richard Martin	12:09:20
12	Stern, Jr., R-I-C-H-A-R-D M-A-R-T-I-N, Stern,	12:09:25
13	S-T-E-R-N and typically J-R for Junior.	12:09:32
14	Q Nice to meet you, Dr. Stern. Have you had	12:09:35
15	your --	12:09:39
16	MR. REEVES: Before you proceed, I just	12:09:40
17	wanted to clarify for the record that this	12:09:42
18	deposition is just for case IPR2025-00673, thanks.	12:09:44
19	Q Yes, no problem.	12:09:53
20	Dr. Stern, have you had your deposition	12:09:55
21	taken before?	12:09:57
22	A Yes.	12:09:58

1 Q So you're probably familiar with the 12:09:59
2 process, but, you know, just as a reminder 12:10:03
3 throughout the deposition I will ask you a series 12:10:06
4 of questions. Your attorney might object, but 12:10:09
5 unless the attorney specifically instructs you not 12:10:11
6 to answer you must provide an answer to my 12:10:14
7 question. Do you understand that? 12:10:15

8 A I understand. 12:10:16

9 Q If there is any question that you don't 12:10:17
10 understand, I expect that you will ask me and I 12:10:20
11 will try to rephrase it if I can. Otherwise, if 12:10:24
12 you, you know, sort of don't speak up or don't ask 12:10:26
13 I will assume that you do understand the question; 12:10:30
14 is that okay? 12:10:31

15 A Absolutely. 12:10:32

16 Q And at this time, do you have any 12:10:33
17 documents open in front of you either digitally or 12:10:36
18 physically? 12:10:39

19 A I have a copy of my declaration unmarked 12:10:40
20 and that is it. 12:10:43

21 Q Okay. We can just set that aside for now. 12:10:44
22 We will -- of course, we will get back to it 12:10:50

1	very -- very quickly.	12:10:51
2	But also, I expect we will take a break	12:10:53
3	after approximately each hour of testimony. But	12:10:58
4	if at any other time you need a break, just let me	12:11:00
5	know and we will accommodate that. I only ask	12:11:04
6	that if there is a question pending that you	12:11:07
7	provide an answer to the question before we take	12:11:08
8	the break; is that okay?	12:11:11
9	A Yes, of course.	12:11:12
10	Q All right. Do you have any electronic	12:11:13
11	devices in front of you other than the device that	12:11:17
12	is being used for this deposition?	12:11:20
13	A No, I do not.	12:11:21
14	Q Okay. And on the computer device being	12:11:23
15	used for this deposition, do you have any windows	12:11:26
16	open other than this video conference?	12:11:29
17	A No, I do not.	12:11:32
18	Q Okay. Do you understand that unless I	12:11:33
19	introduce a document, you're not to consult or	12:11:37
20	view any other document -- or a document, you are	12:11:40
21	not to consult or view it for reference during	12:11:45
22	your deposition; is that okay?	12:11:48

1	A I understand.	12:11:49
2	Q Is there any reason why you can't give	12:11:50
3	your full and accurate testimony today?	12:11:54
4	A No, there is not.	12:11:55
5	Q Okay. Are you being compensated for your	12:11:58
6	work in this case?	12:12:02
7	A Yes, I am.	12:12:03
8	Q What is your hourly rate for this case?	12:12:04
9	A I think that it is \$575 per hour. I am	12:12:07
10	not 100 percent sure, because the original	12:12:17
11	engagement was some time ago.	12:12:20
12	Q Okay. And approximately how many --	12:12:21
13	approximately how many hours have you billed or	12:12:28
14	how much compensation have you received so far for	12:12:32
15	this case?	12:12:34
16	A I'm not sure. I have -- my guess is that	12:12:36
17	it would be somewhere on the order of \$15,000.	12:12:50
18	Q Okay.	12:12:55
19	A That is for the current case concerning	12:12:58
20	the '675 and the '337 patent. For this case,	12:13:02
21	under \$10,000.	12:13:07
22	Q Okay. And is there any other compensation	12:13:09

1 that you are receiving for your work in this case? 12:13:16

2 A No, other than getting travel expenses 12:13:19
3 reimbursed. 12:13:24

4 Q Okay. And is \$575 an hour your normal 12:13:25
5 consulting rate? 12:13:30

6 A Well, with inflation I've been trying to 12:13:31
7 move it up with new cases, but I have had a 12:13:37
8 long-time interaction with Amazon and so they 12:13:42
9 inherit the grandfathered rate at least for a 12:13:45
10 while. 12:13:49

11 Q Okay. Are you being paid for your time at 12:13:50
12 this deposition today? 12:13:55

13 A You are breaking up. I understood 12:13:56
14 everything after are you being paid. 12:14:04

15 Q I apologize. Are you being paid for your 12:14:06
16 time at this deposition today? 12:14:08

17 A Yes, I am. 12:14:10

18 Q How much time did you spend preparing for 12:14:12
19 this deposition? 12:14:17

20 A Not so much. This is a busy time of year, 12:14:17
21 end of semester, graduate school recommendations 12:14:25
22 for many students. I would say somewhere between 12:14:28

1	10 and 15 hours.	12:14:47
2	Q Did you meet with anyone in preparation	12:14:56
3	for this deposition?	12:14:57
4	A I met with counselor Nathan Reeves	12:14:58
5	yesterday and I have had one or two conversations	12:15:04
6	with Nathan Reeves and Colin Heideman via Zoom.	12:15:08
7	Q Okay. All within the past few days?	12:15:15
8	A Within the past week or two.	12:15:18
9	Q Okay. All right. And approximately how	12:15:19
10	long were these meetings on average?	12:15:32
11	A Well, yesterday I was in the office for	12:15:35
12	about five and a half hours and the Zoom meetings	12:15:41
13	were about an hour or less.	12:15:50
14	Q Okay. Aside from Amazon's counsel for	12:15:53
15	this deposition, did you speak to anyone else in	12:16:05
16	preparation for this deposition?	12:16:08
17	A No.	12:16:09
18	Q And were all the -- were all the people	12:16:10
19	that you met with in preparation for this	12:16:16
20	deposition attorneys for Amazon?	12:16:18
21	A Right, that is specifically Nathan Reeves	12:16:20
22	and Colin Heideman who were here or --	12:16:27

1	Q Okay.	12:16:29
2	A -- almost here.	12:16:29
3	Q Okay. Perfect.	12:16:30
4	And sort of outside of your meetings with	12:16:33
5	these attorneys, did you speak to anyone else that	12:16:40
6	was not an attorney in preparation for your	12:16:43
7	deposition today?	12:16:45
8	A No.	12:16:45
9	MR. REEVES: Objection, asked and	12:16:46
10	answered.	12:16:49
11	Q Okay. Did you review any documents in	12:16:49
12	preparation for this deposition?	12:16:53
13	A Yes.	12:16:55
14	Q Okay. Did you review SoundClear's patent	12:16:56
15	owner response that was filed yesterday in	12:17:02
16	IPR2025-00565?	12:17:07
17	A No, I have not seen it. I was aware that	12:17:09
18	it came in. It arrived in the evening.	12:17:11
19	Q Okay. All right. So in the chat I am	12:17:15
20	providing you with Exhibit 1 to your deposition,	12:17:30
21	which is the notice of deposition that was issued	12:17:35
22	in this case for you.	12:17:40

1	(Exhibit 1 marked.)	12:17:41
2	Q Do you recognize Exhibit 1?	12:17:43
3	A I do.	12:17:46
4	Q And you understand that you are here today	12:17:46
5	to testify in response to this notice?	12:17:51
6	A Yes, I do.	12:17:55
7	Q Stand by one second. So in the chat, it	12:17:56
8	might take a second to upload, but I'm providing	12:18:15
9	you with Exhibit 2 to your deposition, which is	12:18:18
10	Exhibit 1002 of the IPR proceeding and that is the	12:18:23
11	declaration that you provided for this proceeding.	12:18:32
12	(Exhibit 2 marked.)	12:18:34
13	A With permission, I would like to read from	12:18:34
14	a local copy that is not marked.	12:18:36
15	Q Yes, that is fine, uh-huh. But for the	12:18:42
16	record, you did receive the one in the chat	12:18:47
17	window, right?	12:18:50
18	A Now I have it.	12:18:51
19	Q Okay. And do you recognize Exhibit 2 that	12:19:41
20	I provided to you in the chat window?	12:19:48
21	A Now I see it. I have to apologize for the	12:19:51
22	delay. I work on a Mac and this is a PC and I	12:20:33

1	don't know where things are. They go slowly.	12:20:39
2	Q Happens to the best of us.	12:20:43
3	A I do recognize that it is the declaration	12:20:51
4	and it looks like the declaration that I have, but	12:20:54
5	it is still downloading.	12:20:59
6	Q I see. Is there a progress bar or	12:21:00
7	anything like that that you can see?	12:21:14
8	A It is coming over here slowly, I also lost	12:21:16
9	the Zoom window.	12:21:21
10	THE WITNESS: Nathan, do you want to come	12:21:22
11	over here and give me a hand with this?	12:21:23
12	MR. REEVES: Yeah. Can we go off the	12:21:26
13	record for a moment and I will assist Dr. Stern	12:21:27
14	with technical difficulties?	12:21:30
15	MR. SPRENGER: Yes.	12:21:31
16	VIDEOGRAPHER: Please stand by. The time	12:21:32
17	is 12:21 p.m. We're going off the record.	12:21:34
18	(Recess, 12:21 to 12:23 p.m.)	12:23:08
19	VIDEOGRAPHER: The time is 12:23 p.m. We	12:23:21
20	are now back on the record.	12:23:44
21	Q So just to reset here, I've provided you,	12:23:45
22	Dr. Stern, with Exhibit 2, which is -- Exhibit 2	12:23:55

1	to your deposition, which is Exhibit 1002 of the	12:23:58
2	IPR proceeding and that is your declaration that	12:24:03
3	you provided in this proceeding.	12:24:08
4	Do you recognize Exhibit 2?	12:24:10
5	A Yes, I do.	12:24:10
6	Q Okay. Did you draft this entire	12:24:12
7	declaration yourself?	12:24:15
8	A Well, no.	12:24:16
9	Q Okay. Did you have -- did anyone assist	12:24:27
10	you in preparing the declaration?	12:24:29
11	A Yeah, like most of these documents, they	12:24:30
12	emerge from the series of conversations that I had	12:24:39
13	with the attorneys representing Amazon. As I'm	12:24:42
14	sure you know, I'm not an attorney. There are	12:24:47
15	pieces of it, particularly discussing points of	12:24:50
16	law that I have no real expertise in and they've	12:24:53
17	helped me with that. Other issues come up in	12:24:57
18	terms of how best to express the points that we	12:25:02
19	try to make. So I would look on it as a	12:25:06
20	collaborative work product.	12:25:10
21	Q Okay. Would you say that the -- the sort	12:25:13
22	of conclusions reached in the declaration are	12:25:18

1 those that you subscribe to? 12:25:22

2 A Yes, definitely. 12:25:24

3 Q Okay. Approximately how much time did you 12:25:25
4 spend working on this declaration? 12:25:32

5 A I can't really recall. It is -- the 12:25:33
6 declaration was filed last spring in parallel with 12:25:40
7 four -- I think around four other ones. And it 12:25:47
8 was at the very end of the semester, I just don't 12:25:53
9 remember. 12:25:54

10 Q Okay. Would you say it was more than 60 12:25:54
11 hours? 12:25:58

12 A Among all of them, yes. This one in 12:26:00
13 particular, I can't tell, because they were -- a 12:26:05
14 lot of them were similar. For example, this 12:26:12
15 declaration, as I'm sure you know, is very similar 12:26:14
16 to the declaration for the '337 patent. 12:26:17

17 Q Okay. And when you say, "all of them," 12:26:21
18 you are referring to the other IPR proceedings -- 12:26:24
19 or strike that. 12:26:29

20 You are referring to declarations that you 12:26:30
21 submitted in other IPR proceedings on behalf of 12:26:32
22 Amazon against SoundClear, correct? 12:26:37

1 A Yes. I believe there were five plus or 12:26:39
2 minus maybe one or two, at least five submitted 12:26:45
3 somewhat concurrently. 12:26:53

4 Q Okay. Among -- among the set of 12:26:55
5 declarations that is in your mind, would you say 12:27:00
6 that collectively you spent more than 100 hours 12:27:03
7 preparing them? 12:27:06

8 A I would say between perhaps 50 and 100. 12:27:07

9 Q Okay. All right. So turning now to 12:27:14
10 Exhibit 2 of your deposition, which is the 12:27:36
11 declaration. Can we go to page 12 of that? 12:27:39

12 A Yes. 12:27:45

13 Q Okay. So on page 12 Section A states, 12:27:46
14 Classifying users based on proximity. Do you see 12:27:52
15 that? 12:27:56

16 A I do. 12:27:56

17 Q Why did you provide this section in your 12:27:57
18 declaration? 12:28:01

19 A The patent at issue, the '675 patent, is 12:28:03
20 based on classifying voices based on distance 12:28:10
21 between the speaker and the microphone. 12:28:14

22 Q Okay. Did you -- so you provided this 12:28:20

1 section, because you believe it is relevant to the 12:28:25
2 technological background -- strike that. 12:28:28

3 You provided this section because you 12:28:32
4 believe it is relevant in understanding the 12:28:35
5 technical -- technological background of the '675 12:28:37
6 patent, correct? 12:28:40

7 A That's correct. 12:28:41

8 Q Okay. So in paragraph 34 the first 12:28:42
9 sentence there reads, quote, Many devices that 12:28:55
10 classified users based on their proximity to the 12:28:59
11 device were known in the art. 12:29:03

12 Do you see that? 12:29:07

13 A Yes, I do. 12:29:08

14 Q Do you understand the '675 patent to 12:29:10
15 describe classifying users based on proximity 12:29:12
16 between the user and the device? 12:29:16

17 A Yes. 12:29:22

18 Q Later in paragraph 34 you discuss a 12:29:22
19 reference entitled Kim. Do you see where you talk 12:29:30
20 about that? 12:29:35

21 A Yes, I do. 12:29:35

22 Q So Kim, quote, collects context 12:29:37

1	information associated with the user to determine	12:29:42
2	whether a user is a, quote-unquote, first	12:29:45
3	specified user, correct?	12:29:49
4	A That is what is stated in the declaration.	12:29:50
5	I don't have the patent in front of me.	12:29:56
6	Q Okay. But at least a part of what I just	12:29:58
7	said was it looks like you had quoted from the Kim	12:30:15
8	reference; is that correct?	12:30:18
9	A Yes, it is.	12:30:19
10	MR. REEVES: Objection, form.	12:30:20
11	Q Okay. Is it your understanding that the	12:30:22
12	context referred to by Kim may include distance	12:30:28
13	information that is detected by a device?	12:30:32
14	MR. REEVES: Objection, form.	12:30:36
15	A I believe so. Kim is cited, but it is not	12:30:39
16	used in -- directly in the grounds for declaring	12:30:46
17	invalidity and it is not one of the references	12:30:52
18	that I looked at in detail in the last week. I	12:30:57
19	mean, if you want to pass it on to me I would be	12:31:01
20	happy to review it, but now -- and opine from it,	12:31:04
21	but at the moment all that I can go from is the	12:31:09
22	text that I have in the declaration.	12:31:11

1	Q Okay. But at least for the part of your	12:31:13
2	declaration that is quoting Kim, you do believe	12:31:18
3	that those quotes are accurate from the Kim	12:31:22
4	reference, correct?	12:31:25
5	A Oh, yes.	12:31:27
6	Q Okay. Going down to paragraph 35.	12:31:27
7	A Yes.	12:31:47
8	Q You discuss the Aoyama reference, correct?	12:31:48
9	A Yes.	12:31:51
10	Q And at least according to your	12:31:52
11	declaration, Aoyama discloses determining a,	12:32:00
12	quote-unquote, user state such as whether a user	12:32:02
13	is stopped, walking or running; is that correct?	12:32:06
14	A That is correct.	12:32:09
15	Q And you opined in your declaration that a	12:32:10
16	person of ordinary skill in the art would have	12:32:17
17	understood that determining whether a user is	12:32:20
18	stopped, walking or running requires that the	12:32:22
19	device calculate its distance from the user at	12:32:25
20	sequential time intervals; is that correct?	12:32:29
21	A That is correct.	12:32:32
22	Q Do you understand Aoyama's determination	12:32:33

1	of, quote-unquote, user states to be a,	12:32:40
2	quote-unquote, classification as is used and	12:32:43
3	described in the '675 patent?	12:32:46
4	MR. REEVES: Objection, form, calls for a	12:32:49
5	legal conclusion.	12:32:52
6	A Could you repeat the question?	12:32:53
7	Q Sure. Do you understand Aoyama's	12:32:55
8	determination of, quote-unquote, user states to be	12:32:58
9	a, quote-unquote, classification as is used and	12:33:02
10	described in the '675 patent?	12:33:06
11	MR. REEVES: Same objection.	12:33:09
12	A I don't have the patent -- I don't have	12:33:10
13	the Aoyama reference in front of me, but yes.	12:33:14
14	Q Okay. So let's go to the next paragraph	12:33:20
15	and specifically Section B of your declaration.	12:33:41
16	Section B states, quote, tailoring content based	12:33:46
17	on distance. Do you see that?	12:33:50
18	A I do.	12:33:52
19	Q Why did you provide this section?	12:33:53
20	A As we discussed before, that is relevant	12:33:55
21	to one of the elements of the claims of the '675	12:34:04
22	patent.	12:34:09

1 Q So you provided the section, because you 12:34:21
2 believe it is relevant in understanding the 12:34:33
3 technological background of the '675 patent, 12:34:36
4 correct? 12:34:40

5 MR. REEVES: Objection, form, asked and 12:34:40
6 answered. 12:34:41

7 A Yes. 12:34:41

8 Q Okay. In paragraph 36 of your declaration 12:34:44
9 when you stated that, quote, using a proximity 12:34:52
10 sensor to determine a user's distance from a 12:34:55
11 device and then tailoring the information provided 12:34:58
12 based on that distance has been known for decades. 12:35:01

13 Do you see that? 12:35:05

14 A Yes. 12:35:06

15 Q Why did you make that statement? 12:35:12

16 A I'm not sure if decades is the right word. 12:35:18
17 I might have with hindsight said years, but it was 12:35:27
18 important to establish that the technology taught 12:35:34
19 in the '675 patent is not novel. It had been done 12:35:40
20 before by multiple other sources. 12:35:44

21 Q So do you understand the '675 patent to 12:35:54
22 describe using a proximity sensor to determine a 12:35:58

1	user's distance from a device and then tailoring	12:36:01
2	the information provided based on that distance?	12:36:04
3	A Yes.	12:36:07
4	MR. REEVES: Objection, form.	12:36:09
5	A Yes.	12:36:10
6	Q Okay. And in paragraphs 36 through 39 of	12:36:11
7	your declaration you also discuss the Shin and	12:36:26
8	Shimomura references that are part of the grounds	12:36:32
9	of this IPR; is that correct?	12:36:37
10	A That is correct.	12:36:38
11	Q Do you understand the Shimomura and Shin	12:36:40
12	references to disclose using a proximity sensor to	12:36:45
13	determine a user's distance from a device and then	12:36:48
14	tailoring the information provided based on that	12:36:51
15	distance?	12:36:54
16	A Yes. As stated in paragraphs 36 and 37,	12:36:54
17	both the Shin and Shimomura references include	12:37:14
18	devices that calculate distance or estimate	12:37:19
19	distance between the user and the device and use	12:37:24
20	that as the basis for tailoring output.	12:37:29
21	Q So in the chat I'm providing you with	12:37:31
22	Exhibit 3 to your deposition, which is Exhibit	12:37:47

1	1001 of the IPR proceeding, and that is the '675	12:37:52
2	patent. Do you see that?	12:38:01
3	(Exhibit 3 marked.)	12:38:03
4	A Yes, I do. It is downloading right now.	12:38:04
5	Q Okay. I will give it a second. Just let	12:38:07
6	me know when it is complete, please.	12:38:10
7	THE WITNESS: Nathan, can you help me	12:38:52
8	here? Here is the thing, where does it go?	12:38:53
9	A Okay, I have it now and I see it now.	12:39:21
10	Q Okay. So do you recognize this document?	12:39:24
11	A Yes, I do.	12:39:31
12	Q What is the field of technology described	12:39:34
13	in this patent?	12:39:38
14	MR. REEVES: Objection, form, calls for a	12:39:40
15	legal conclusion.	12:39:43
16	A The patent describes a voice -- I'm sorry,	12:39:43
17	a device as stated in the claims that acquire the	12:39:52
18	speech signals, calculates the or estimates the	12:40:00
19	distance between the speaker and the device.	12:40:04
20	Typically the input speech is in the form of a	12:40:14
21	request for information, and the device attempts	12:40:18
22	to answer the query and then present the user with	12:40:23

1 in your testimony you said, again, that the only 12:44:33
2 input speech is in the form of a request for 12:44:36
3 information and the device attempts to answer the 12:44:39
4 query. 12:44:44

5 Is there something -- and I'm looking at 12:44:45
6 your declaration as well where you talk about 12:44:48
7 this, which is paragraphs 44 through 46. Is there 12:44:50
8 anything in those paragraphs that supports your 12:44:58
9 statement that the -- the only input speech is in 12:45:01
10 the form of a request? 12:45:05

11 MR. REEVES: Objection, misstates 12:45:08
12 testimony, form. 12:45:10

13 A Well, I'm looking right now at paragraph 12:45:15
14 44 to 45. And there is -- in paragraph 45 there 12:45:17
15 is -- looking at -- just looking at the text from 12:45:34
16 the declaration what appears to be an abstraction 12:45:36
17 of the patent language itself. And the controller 12:45:39
18 includes several units for acquiring the voice, 12:45:43
19 analyzing it, processing the request and 12:45:47
20 generating the response. 12:45:48

21 Q So is it your understanding that where you 12:45:53
22 have in your declaration, quote-unquote, 12:46:01

1	processing the request, is it your understanding	12:46:03
2	that that -- that that language when spoken is	12:46:06
3	always in the form of a question?	12:46:13
4	MR. REEVES: Objection, form.	12:46:18
5	A Typically, yes.	12:46:19
6	Q So turning to -- let's see what exhibit	12:46:35
7	are we on. So still in the '675 patent, Exhibit 3	12:48:18
8	to your deposition. If we can go to column 20,	12:48:22
9	starting at line 63.	12:48:28
10	A Yes.	12:48:47
11	Q So lines 63 through 67 discuss a,	12:48:47
12	quote-unquote, voice classifying unit. Do you see	12:48:59
13	that?	12:49:02
14	A I do.	12:49:02
15	Q And in that description of the voice	12:49:02
16	classifying unit the claims mention a proximity	12:49:08
17	sensor; is that correct?	12:49:12
18	A That's correct.	12:49:13
19	Q Is it your understanding that the	12:49:14
20	proximity sensor classifies the voices that are	12:49:17
21	described in that claim element?	12:49:23
22	MR. REEVES: Objection, form.	12:49:27

1	A	My understanding is that the proximity	12:49:29
2		sensor estimates the distance between the speaker	12:49:32
3		and the microphone and nothing more.	12:49:35
4	Q	So I'm going to introduce a few more	12:51:15
5		exhibits here. So I'm providing you with Exhibit	12:51:17
6		4 to your deposition, which is Exhibit 1003 of the	12:51:39
7		IPR proceeding. And that is US Patent Publication	12:51:45
8		2017/0083281, which is the Shin reference at issue	12:51:50
9		in this IPR.	12:51:58
10		(Exhibit 4 marked.)	
11	Q	Do you see that?	12:52:03
12	A	I do. I'm working on it.	12:52:03
13	Q	Okay.	12:52:05
14	A	I'm attempting to actually do this myself.	12:52:05
15		Yes, I see it.	12:52:21
16	Q	Perfect. Do you recognize this document?	12:52:22
17	A	Yes, I do.	12:52:24
18	Q	Did you analyze this document in preparing	12:52:25
19		your declaration for this IPR?	12:52:29
20	A	Yes, I did.	12:52:32
21	Q	And did you analyze this document in	12:52:33
22		preparing for your deposition today?	12:52:36

1	A Yes, I did.	12:52:38
2	Q What is the field of technology described	12:52:39
3	in this patent?	12:52:44
4	MR. REEVES: Objection, form, scope, calls	12:52:45
5	for a legal conclusion.	12:52:49
6	A One second. The Shin reference, which	12:52:50
7	appears to be a patent publication, is in a	12:53:07
8	similar form. The -- what is described is a	12:53:14
9	device that interacts with human users. The	12:53:25
10	device is configured to receive the speech and	12:53:29
11	analyze various aspects of what is going on with	12:53:40
12	the user.	12:53:47
13	Looking at the figures, and I have to do	12:53:49
14	this because there are a multiplicity -- a	12:53:53
15	plurality of references that do slightly different	12:53:57
16	things.	12:54:00
17	We see in figure 3 of Shin we have a	12:54:00
18	distance detection module, which you will see in	12:54:05
19	the upper left-hand corner. There is also a	12:54:08
20	number of other things, I believe, they consist of	12:54:14
21	attempts to determine whether the user is	12:54:24
22	stationary or moving, and if so how fast, and a	12:54:26

1 number of other things. 12:54:29

2 But suffice it to say, a number of things 12:54:30

3 are measured including the distance between the 12:54:33

4 speech -- between the speaker and the device. And 12:54:36

5 the output of the device once again is modified 12:54:40

6 according to the results of those measurements. 12:54:45

7 Q All right. You can put that exhibit 12:54:51

8 aside. Let me get the next one in there. 12:55:18

9 So in the chat I'm providing you with 12:55:34

10 Exhibit 5 to your deposition, which is Exhibit 12:55:36

11 1004 of the IPR proceeding. And that is the 12:55:44

12 translation of the Shin reference, I'm sorry, 12:55:48

13 Shimomura reference that is at issue in this IPR. 12:55:53

14 (Exhibit 5 marked.) 12:55:56

15 A Correct. 12:55:56

16 Q Do you see that? 12:55:57

17 A I do. I'm attempting to download it now. 12:55:58

18 Q Okay. 12:56:01

19 A I'm looking at the document that you 12:56:14

20 provided in the chat and it is indeed the 12:56:18

21 Shimomura reference as identified in the 12:56:22

22 declaration. 12:56:24

1	Q Okay. And did you analyze this document	12:56:26
2	in preparing your declaration for this IPR?	12:56:29
3	A Yes, I did.	12:56:33
4	Q Did you analyze this document in preparing	12:56:34
5	for your deposition today?	12:56:38
6	A Yes, I did.	12:56:38
7	Q And could you just -- as you did for the	12:56:39
8	Shin reference, can you just provide sort of a	12:56:45
9	high level summary of what this -- this document	12:56:47
10	discloses?	12:56:51
11	A Sure.	12:56:53
12	MR. REEVES: Objection, form.	12:56:53
13	A Well, as in the case of the Shin	12:56:54
14	reference, the Shimomura reference describes a	12:58:27
15	device that in this case appears to take on the	12:58:32
16	form of a humanoid robot that interacts with the	12:58:35
17	user.	12:58:39
18	And the -- it takes a number of	12:58:46
19	measurements including distance between the user	12:58:50
20	and the device. And based on the device, it will	12:58:55
21	-- based on the distance, it will modify the	12:59:00
22	nature of -- of the response based on distance.	12:59:03

1	These are, of course, discussed in	12:59:23
2	paragraphs 167 to 169 in my -- my declaration, 170	12:59:25
3	as well.	12:59:33
4	Q Okay. All right. You can put that	12:59:33
5	exhibit aside. Another one coming your way.	12:59:41
6	So I'm providing you with Exhibit 6 to	12:59:51
7	your deposition, which is Exhibit 1010 of the IPR	12:59:53
8	proceeding. And that is US Patent Publication	12:59:59
9	2017/0337921, the Aoyama reference in this IPR	13:00:04
10	proceeding.	13:00:12
11	(Exhibit 6 marked.)	13:00:12
12	A Yes, downloading right now.	13:00:14
13	Q Okay. Just let me know whenever that is	13:00:16
14	done.	13:00:22
15	A I'm looking at the reference right now.	13:00:26
16	And it is indeed the Aoyama reference that I had	13:00:28
17	studied in preparation for this discussion.	13:00:33
18	Q Okay. Did you also analyze this document	13:00:41
19	in preparing your declaration?	13:00:41
20	A Yes.	13:00:43
21	Q Is that correct?	
22	A Yes.	13:00:47

1 Q Like you have done for the past two 13:00:47
2 references, can you provide a high level summary 13:00:49
3 about what this reference is about? 13:00:52

4 MR. REEVES: Objection, form. 13:00:53

5 A In the larger sense, the Aoyama reference 13:01:08
6 does the same thing that the '675 patent does as 13:03:27
7 well as the other examples of prior art that we 13:03:31
8 described. The measure -- or the Aoyama reference 13:03:35
9 measure takes a bunch of measurements, which in 13:03:42
10 this case are -- are a little bit different. 13:03:44
11 They're focused on estimating the -- kind of the 13:03:47
12 state in the general sense of the user. And once 13:03:50
13 again based on that information, modifies the 13:03:54
14 response that it makes to the user in responding 13:03:57
15 to queries. 13:04:02

16 Q Okay. Let's see. So going -- well, 13:04:06
17 actually I will wait to do that, hang on one 13:04:21
18 second, I'm sorry. 13:04:25

19 So I'm providing you with Exhibit 7 to 13:05:34
20 your declaration -- sorry, to this deposition, 13:05:36
21 which is Exhibit 1017 of the IPR. And that is US 13:05:40
22 Patent Number 11,183,167 and that is the Iwase 13:05:47

1	reference in this IPR.	13:05:56
2	(Exhibit 7 marked.)	
3	Q Do you see that?	13:05:58
4	A It is coming through.	13:05:58
5	Q Okay.	
6	A Yes, I see that now. That is the Iwase	13:06:07
7	patent and I have it in -- the version that you	13:06:10
8	sent me is the same document that I analyzed in	13:06:15
9	preparing the declaration and preparing for this	13:06:18
10	meeting.	13:06:21
11	Q Okay. And could you provide a high level	13:06:23
12	summary of what is disclosed in this reference?	13:06:26
13	MR. REEVES: Objection, form.	13:06:29
14	A Once again, this patent concerns a device	13:06:31
15	that interacts with human users. The device makes	13:08:20
16	a series of physical measurements, which are a	13:08:28
17	little different from some of the ones in the	13:08:30
18	other references that we've discussed previously.	13:08:33
19	There is a measurement of location,	13:08:36
20	orientation. Some of the measurements are	13:08:40
21	motivated by desiring to -- desiring to estimate	13:08:45
22	the extent to which the user is attentive to the	13:08:50

1 device.

13:08:55

2 But in each case, or in our cases, it
3 modifies the content of the output according to
4 the results of the measurements. And for example,
5 providing simpler or clearer answers if the user
6 is either inattentive or possibly a child. And
7 again, tailors the response according to its
8 understanding of the nature of the user and the
9 physical environment.

13:08:55

13:09:00

13:09:03

13:09:09

13:09:14

13:09:24

13:09:29

13:09:32

10 Q Okay. So I'm providing you now with
11 Exhibit 8 of your deposition, which is Exhibit
12 1016 of the IPR. And that is US Patent Number
13 9,680,983, the Schuster reference at issue in the
14 IPR. Let me know when you have had a chance to
15 download it.

13:09:38

13:09:49

13:09:54

13:10:01

13:10:06

13:10:13

16 (Exhibit 8 marked.)

13:10:16

17 A I have the -- I have the reference now and
18 indeed it is the reference that I had analyzed
19 previously.

13:10:34

13:10:36

13:10:41

20 Q Okay. And you analyzed that reference
21 both for in preparing your declaration as well as
22 for preparing for this deposition?

13:10:43

13:10:46

13:10:51

1	A Yes, that is correct.	13:10:52
2	Q Okay. And what does this reference	13:10:57
3	disclose?	13:10:59
4	MR. REEVES: Objection, form, scope.	13:11:03
5	A Once again, as in all of the other	13:11:09
6	references, we're looking at a reference that	13:11:11
7	describes a device that is intended to interact	13:11:16
8	with -- with humans by voice. It takes	13:11:20
9	measurements. And it also -- one of the	13:11:26
10	measurements is the user proximity to the device	13:11:32
11	as in the case of the '675 patent.	13:11:36
12	It also has specific components to attempt	13:11:39
13	to identify whether the user is whispering or not.	13:11:44
14	And based both on any distance between the user	13:11:49
15	and the device and presence or absence of	13:11:54
16	whispered speech, the device will tailor the	13:12:01
17	nature of the presentation of its output to most	13:12:05
18	appropriately suit its understanding of the	13:12:08
19	situation at hand.	13:12:12
20	Q Okay. So I'm providing you now with	13:12:31
21	Exhibit 9 to your deposition, which is Exhibit	13:12:41
22	1013 of the IPR. And that is US Patent Number	13:12:47

1	10,147,439, the Kristjansson reference.	13:12:52
2	Do you see that?	13:13:03
3	A I do, downloading it now.	13:13:03
4	(Exhibit 9 marked.)	13:13:06
5	A I have it and indeed it is the same	13:13:14
6	reference that I had analyzed in the context of	13:13:17
7	preparing for the document -- preparing the	13:13:20
8	declaration rather and also preparing for the	13:13:23
9	deposition today.	13:13:29
10	Q Okay, great. What is disclosed in the	13:13:31
11	Kristjansson reference?	13:13:39
12	MR. REEVES: Objection, form, scope.	13:13:41
13	A Well, as described in the abstract to --	13:13:47
14	to the Kristjansson patent, the -- we have, again,	13:13:53
15	a device that interacts with humans by voice,	13:13:58
16	modulates its output based on the environmental	13:14:05
17	sound conditions. It detects sound pressure and	13:14:09
18	determines the distance between the user and the	13:14:15
19	device almost from the abstract of the patent.	13:14:18
20	And once again, modulates or modifies, tailors the	13:14:22
21	response of the queries to the user based on the	13:14:28
22	results of those measurements.	13:14:32

1 Q All right. And I've just provided you 13:14:36
2 with Exhibit 10 to your deposition, which is the 13:14:48
3 petition for the IPR2025-00673 proceeding. Do you 13:14:52
4 see that? 13:15:04

5 (Exhibit 10 marked.) 13:15:06

6 A It is coming. 13:15:06

7 Q Okay. Yeah, no worries. 13:15:07

8 A Downloading. 13:15:08

9 Yes, and again, to anticipate what might 13:15:31
10 be your next question, in the document being 13:15:35
11 passed to me it is indeed the IPR petition. And I 13:15:39
12 have looked it over casually, not studied it in as 13:15:45
13 great detail as some of the other references that 13:15:51
14 we've been discussing today. 13:15:54

15 Q Okay. Did you -- did you review this 13:15:55
16 document in preparing your declaration for this 13:16:03
17 proceeding? 13:16:06

18 A Well, as -- as you have noted in the 13:16:06
19 patent owner's preliminary response, the petition 13:16:12
20 itself shares much of the same language as the 13:16:17
21 declaration, so I didn't feel it was necessary to 13:16:23
22 read -- read it twice. 13:16:26

1 Q And you might have answered this a second 13:16:31
2 ago, but just to be clear for the record, did you 13:16:47
3 analyze this document in preparation for this 13:16:50
4 deposition? 13:16:53

5 MR. REEVES: Objection, form. To the 13:16:55
6 extent it misstates testimony, asked and answered. 13:16:57

7 A I looked over the IPR petition 13:17:01
8 superficially. Observed that it was in some ways 13:17:04
9 similar to the declaration and chose to focus on 13:17:10
10 the declaration, which was my statement. 13:17:14

11 Q Okay. Great. We've been going a little 13:17:18
12 bit more than an hour, hour and 15 minutes, shall 13:17:26
13 we take a 10 minute break? 13:17:28

14 A Sure, I was about to suggest something 13:17:31
15 along those lines. 13:17:34

16 MR. SPRENGER: Let's go off the record. 13:17:35

17 VIDEOGRAPHER: The time is 1:17 p.m. We 13:17:37
18 are going off the record. 13:17:39

19 (Recess, 1:17 to 1:26 p.m.) 13:17:40

20 VIDEOGRAPHER: The time is 1:26 p.m. We 13:26:08
21 are now back on the record. 13:26:10

22 Q Dr. Stern, are you aware that the '675 13:26:11

1 patent, which is at issue in this IPR, is involved
2 in an infringement proceeding against Amazon?

13:26:14

13:26:18

3 MR. REEVES: Objection, scope, form.

13:26:22

4 A I -- I had assumed that, because that is
5 typically what motivates the IPR, but I don't have
6 any detailed knowledge of that proceeding.

13:26:29

13:26:37

13:26:40

7 Q Okay. So you have not reviewed or seen
8 any of the materials that have been filed or
9 circulated in that case?

13:26:46

13:26:50

13:26:56

10 A I have not. Maybe a long time ago I might
11 have looked up the complaint, but I didn't really
12 read it very carefully and have no knowledge of
13 any of the subsequent proceedings in that
14 litigation.

13:26:57

13:27:01

13:27:04

13:27:07

13:27:10

15 Q Okay. Are you aware that the '675 patent
16 is involved in an infringement proceeding against
17 Google?

13:27:11

13:27:15

13:27:18

18 MR. REEVES: Objection, scope, form.

13:27:20

19 A No, I'm not, but multiple litigations
20 against multiple defendants are common. Sometimes
21 I get contacted by attorneys or search firms
22 representing multiple defendants all for the same

13:27:22

13:27:29

13:27:35

13:27:38

1	cases, so I'm not surprised.	13:27:44
2	Q Okay. Are you aware that Google filed an	13:27:47
3	IPR petition against the '675 patent?	13:27:50
4	MR. REEVES: Objection, outside the scope.	13:27:55
5	A No, I was not aware.	13:27:57
6	Q And are you aware that Google in that IPR	13:27:59
7	petition relied on your declaration that you	13:28:05
8	submitted in this case in this IPR?	13:28:10
9	MR. REEVES: Objection, outside the scope.	13:28:13
10	A No, I was not aware.	13:28:15
11	Q Okay. All right. So let's turn to	13:28:17
12	Exhibit 10 of the deposition, which is the	13:28:25
13	petition. And specifically let's go to page 12	13:28:27
14	and that is PDF page 20 if that helps.	13:28:52
15	A So I'm looking at page 12 as it is -- I'm	13:28:55
16	working from a local printed copy that is	13:28:58
17	unmarked.	13:29:02
18	Q Okay.	13:29:02
19	A It is just page 12 to me.	13:29:03
20	Q Okay. So you see at the top of page 12	13:29:05
21	there is a subsection B entitled Classifies Voice	13:29:09
22	Based on Distance?	13:29:14

1	A Yes.	13:29:18
2	Q Okay. So in the second paragraph on that	13:29:18
3	page the petition states that, quote, Shin's	13:29:22
4	processor analyzes the voice to classify it as	13:29:26
5	either a first or second voice based on the	13:29:31
6	user-to-device distance.	13:29:34
7	Do you see that?	13:29:36
8	A I do.	13:29:37
9	Q And that sentence only cites to paragraph	13:29:38
10	60 of your declaration, correct?	13:29:44
11	A That is what -- what it says.	13:29:47
12	Q Okay. So now if we can go to your	13:29:58
13	declaration, Exhibit 2 of the deposition.	13:30:03
14	A Yes.	13:30:09
15	Q To paragraph 60.	13:30:09
16	A Uh-huh.	13:30:12
17	Q Okay. And paragraph 60 of your	13:30:13
18	declaration is the same as the second paragraph on	13:30:27
19	page 12 of the petition, correct?	13:30:31
20	MR. REEVES: Objection, form.	13:30:38
21	A We're talking about -- we're talking about	13:30:42
22	paragraph -- paragraph 60 in the declaration --	13:30:47

1	Q Correct.	13:30:51
2	A -- compared to the second paragraph on	13:30:51
3	page 12?	13:30:53
4	Q Correct.	13:30:59
5	A Yeah, there are some differences in	13:30:59
6	wording. It is not completely the same.	13:31:22
7	Q Okay. Would you say it is substantively	13:31:24
8	the same though?	13:31:27
9	MR. REEVES: Objection, form.	13:31:32
10	A Yes.	13:31:33
11	Q Okay. So looking at paragraph 60 of your	13:31:40
12	declaration, paragraph 60 also includes the	13:31:46
13	sentence, Shin's processor analyzes the voice to	13:31:50
14	classify it as either a first or second voice	13:31:52
15	based on the user-to-device distance; is that	13:31:54
16	correct?	13:32:00
17	A Yes.	13:32:00
18	Q Okay. And is it correct that in the	13:32:01
19	petition, meaning the second paragraph on page 12	13:32:10
20	as well as your declaration in paragraph 60 of	13:32:14
21	your declaration, nothing is cited from Shin to	13:32:19
22	support that particular statement, correct?	13:32:22

1 MR. REEVES: Objection, scope, form, 13:32:26
2 misstates the declaration. 13:32:30

3 A I have to look at the Shin reference. 13:32:33

4 Q I can clarify my question. I'm just 13:32:43
5 referring to the language as written in the 13:32:45
6 declaration just trying to establish that there is 13:32:49
7 nothing cited after the, like, immediately after 13:32:52
8 the first sentence in that paragraph? 13:32:55

9 MR. REEVES: Objection, form. 13:33:00

10 A Well, so paragraph 60 refers to the four 13:33:01
11 paragraphs of Shin and I'm reviewing those right 13:33:07
12 now. 13:33:10

13 Q Okay. Do any of those four paragraphs 13:33:17
14 directly indicate that Shin classifies the voice 13:33:27
15 based on the user-to-device distance? 13:33:30

16 MR. REEVES: Objection, form. 13:33:35

17 A None of those paragraphs talk about 13:33:51
18 distance, however, if you look at claim 5 in the 13:35:24
19 application there is some -- a citation. The 13:35:30
20 electronic device of claim 2 further comprising a 13:35:37
21 distance detection module configured to compute a 13:35:40
22 distance between the user and the electronic 13:35:43

1 device among other things. And that is used as 13:35:45
2 the basis for modifying the output. 13:35:49

3 I apologize for not having the paragraphs 13:35:53
4 correct in the declaration. 13:35:54

5 Q And you are -- you are referring to claim 13:36:01
6 5 of Shin -- of the Shin reference? 13:36:05

7 A Yes. 13:36:06

8 Q Okay. Hold on a second to pull that up. 13:36:07

9 A There is also -- in figure 3 of Shin, as I 13:36:32
10 think I may have noted previously, there is a 13:36:44
11 distance detection module. And in -- I had it a 13:36:47
12 second ago. Yeah, in paragraph 66 the Shin 13:36:57
13 reference there is further description to make 13:37:01
14 sure the distance detection module and how it 13:37:06
15 works. And somewhere in the specification I -- I 13:37:10
16 imagine there would be some discussion about how 13:37:17
17 that is used to modify the output. I can look for 13:37:19
18 that if you wish, but the distance detection 13:37:24
19 module is there, if not among the places I noted. 13:37:27

20 Q Give me one second to note those. 13:37:35

21 So it is your position that claim 5 of 13:38:18
22 Shin discloses that Shin's processor analyzes the 13:38:23

1	voice to classify it as either a first or second	13:38:30
2	voice based on the user-to -- user-to-device	13:38:33
3	distance?	13:38:38
4	MR. REEVES: Objection, form, to the	13:38:38
5	extent it misstates testimony.	13:38:40
6	A No, claim 5 only states that distance	13:38:42
7	detection module is present as part of the system.	13:38:47
8	Q Sorry about that, I misunderstood you.	13:39:13
9	Is it your position that claim 2 of Shin	13:39:33
10	discloses that Shin's processor analyzes the voice	13:39:36
11	-- the voice to classify as either a first or	13:39:41
12	second voice based on the user's device distance?	13:39:45
13	MR. REEVES: Objection, form to the extent	13:39:48
14	it misstates testimony.	13:39:49
15	A I don't think I said that. In looking at	13:39:50
16	the claims, the claims that deal with distance and	13:39:59
17	again without looking at the claims exhaustively	13:40:09
18	but the most obvious ones are claims 6 through 9,	13:40:12
19	which are all in -- well, in different ways, talk	13:40:15
20	about determining the distance and modifying the	13:40:22
21	output based on the measured distance from the	13:40:26
22	estimated distance.	13:40:32

1	Q Okay. So moving to -- going back to your	13:40:36
2	declaration moving to paragraph 61 and comparing	13:40:49
3	paragraph 61 to the third paragraph on page 12 of	13:41:04
4	the petition that extends to page 13 as well, is	13:41:11
5	paragraph 61 or your declaration substantively the	13:41:19
6	same as the third paragraph on -- starting on page	13:41:23
7	12 of the petition?	13:41:25
8	A I'm looking at the tables first.	13:41:29
9	MR. REEVES: Objection, form.	13:41:32
10	A Yes.	13:41:54
11	Q Okay. And so referring to paragraph 61 of	13:41:54
12	your petition.	13:42:02
13	A You mean the declaration?	13:42:05
14	Q I'm sorry, say that again?	13:42:07
15	A Paragraph 61 of the declaration I think	13:42:08
16	you meant to say.	13:42:09
17	Q I'm sorry, yes, apologize, I misspoke.	13:42:10
18	Paragraph 61 of the declaration.	13:42:13
19	Referring to that paragraph, only Table 3	13:42:14
20	in paragraphs 51, 86 and 87 of Shin are cited in	13:42:20
21	that paragraph, correct?	13:42:26
22	A Well, it is correct that in paragraph 61	13:42:37

1 of my declaration the only paragraphs of Shin that 13:42:39
2 are cited are 51, 86 and 87. 13:42:42

3 Q Okay. Now, referring to Table 3 of Shin, 13:42:49
4 as it appears in paragraph 61 of your declaration, 13:42:55
5 Table 3 classifies the distances between a user 13:43:00
6 and the electronic device, correct? 13:43:03

7 A Yes. 13:43:05

8 Q Okay. Do you agree that Table 3 of Shin 13:43:07
9 includes a list of various distance ranges in a 13:43:20
10 different output scheme corresponding to each 13:43:23
11 distance range? 13:43:25

12 MR. REEVES: Objection, form. 13:43:28

13 A Table 3 in Shin does have a plurality of 13:43:29
14 distance ranges and an output that is dependent on 13:43:35
15 which distance range is relevant for a particular 13:43:43
16 utterance or for a particular -- yeah, a 13:43:52
17 particular utterance. 13:43:54

18 Q And how are the distances in Table 3 of 13:43:55
19 Shin determined? 13:44:26

20 MR. REEVES: Objection, form. 13:44:32

21 A I don't know exactly. I believe, and I 13:44:32
22 will review the specification right now if you 13:44:47

1	wish, but I believe that Shin proposes a plurality	13:44:50
2	of methods by which distance could be estimated.	13:44:54
3	And then I believe -- and further, I believe that	13:44:58
4	Table 3 is just presented as an exemplary	13:45:04
5	embodiment rather than a strict necessity for the	13:45:09
6	-- for the patent.	13:45:15
7	Q Okay. Table 3 does not mention voices at	13:45:19
8	all, correct?	13:45:26
9	MR. REEVES: Objection, form.	13:45:31
10	A The table itself indeed only talks about	13:45:31
11	the distance. The independent variable is the	13:45:45
12	distance between the user and the device, but I	13:45:48
13	would have to review the specification to opine on	13:45:52
14	the context, but it is correct that Table 3 does	13:45:58
15	not refer to voices explicitly.	13:46:03
16	Q Is it your understanding that Table 3	13:46:07
17	could -- could refer to a distance between a user	13:46:19
18	that is not speaking and the electronic device?	13:46:26
19	MR. REEVES: Objection, scope, form, calls	13:46:32
20	for speculation.	13:46:37
21	A Just to confirm that I have the correct	13:46:42
22	context, I'm looking for the description of Table	13:46:57

1	3 within the specification. Would you like to	13:47:04
2	point out where it is?	13:47:07
3	Q Let me find it, one second. It is	13:47:10
4	probably in one of those paragraphs.	13:47:13
5	A I see it now.	13:47:15
6	Q Okay. You can tell me where it is.	13:47:17
7	A Pages 6 and 7 in the document, around	13:47:20
8	paragraphs 86 and 87.	13:47:25
9	Q Okay. Give me one second to get there,	13:47:28
10	all right. So you can review those paragraphs if	13:47:33
11	you like.	13:47:42
12	A Yeah, I'm at 86 through 88.	13:47:42
13	Q Okay. Just let me know whenever you are	13:47:45
14	finished and I can tee up the question again just	13:48:19
15	to make the record clear.	13:48:22
16	A You can repeat the question or if you	13:48:23
17	prefer you can ask a different question.	13:48:25
18	Q Okay. So is it your understanding that	13:48:26
19	Table 3 of Shin can refer to a distance between a	13:48:28
20	user that is not speaking and the electronic	13:48:30
21	device?	13:48:32
22	MR. REEVES: Objection, form, calls for	13:48:34

1	speculation.	13:48:39
2	A The language of paragraphs 86 through 88	13:48:42
3	discusses the distance between the user and the	13:48:52
4	device. It does not -- and it talks about the	13:48:55
5	vocal interaction between the user and the device.	13:49:03
6	I'm not sure that it specifies whether the user is	13:49:07
7	actually speaking when the distance -- when the	13:49:10
8	distance estimation is performed.	13:49:13
9	Q Okay. And when you say that it is	13:49:21
10	referring to the vocal interaction between the --	13:49:24
11	between the user and the device, are you referring	13:49:32
12	specifically to claim -- to paragraph 88?	13:49:36
13	MR. REEVES: Objection, form.	13:49:39
14	A Well, I was actually looking at paragraph	13:49:40
15	87, but 88 follows from 87 and it is presumably	13:49:43
16	the same user and the same device.	13:49:47
17	Q Could you identify the specific part of	13:50:01
18	paragraph 87 that you're relying on to -- as the	13:50:02
19	vocal interaction?	13:50:06
20	A The first sentence, for example, when a	13:50:07
21	distance between the values of the electronic	13:50:12
22	device is less than 1 meter, then it continues.	13:50:15

1	Q So your -- your understanding is that,	13:50:17
2	quote-unquote, "the user" that is recited in the	13:50:24
3	first sentence of paragraph 87 is specifically	13:50:27
4	referring to a user that is speaking?	13:50:30
5	MR. REEVES: Objection, form.	13:50:38
6	A That is my inference, but there is no	13:50:38
7	other user that is discussed in that section of	13:50:40
8	the patent application.	13:50:43
9	Q So still referring to paragraph 87, the	13:50:49
10	second sentence of paragraph '87 says, for	13:52:03
11	example, the content that has the greatest output	13:52:06
12	amount of information may correspond to the most	13:52:10
13	detailed original content corresponding to a voice	13:52:13
14	input.	13:52:16
15	Is it your -- do you understand the voice	13:52:17
16	input to correspond with the user that is referred	13:52:20
17	to in the first sentence of that paragraph?	13:52:26
18	A Yes.	13:52:29
19	MR. REEVES: Objection, form.	13:52:29
20	A Yes.	13:52:31
21	Q And what makes you say that those two	13:52:32
22	things are -- excuse me, strike that.	13:52:36

1 What makes you say that those two -- that 13:52:40
2 those two things are related? 13:52:45

3 A Well, throughout the specification of the 13:52:48
4 patent, the description is always expressed in 13:52:52
5 terms of one single user and the device. 13:52:57

6 Q And just for clarity you are referring to 13:53:05
7 the Shin reference, right, not the -- not the 13:53:11
8 patent-in-suit or the patent at issue? 13:53:16

9 A No, I am referring to the Shin reference 13:53:18
10 right now. 13:53:21

11 Q Okay. Just making sure. 13:53:22

12 So it is your -- is it your opinion that 13:53:34
13 paragraph 87 cannot contemplate a scenario where 13:53:40
14 the voice input that is referred to by that 13:53:50
15 paragraph is coming from some other location than 13:53:53
16 that user that is referred to in the first 13:53:58
17 sentence of that paragraph? 13:54:00

18 MR. REEVES: Objection, form, scope, calls 13:54:03
19 for speculation. 13:54:06

20 A I don't know. The only thing that I can 13:54:06
21 say is that what it does refer to is the 13:54:14
22 interaction between the putative single user and 13:54:16

1	the system.	13:54:20
2	Q And -- and under your interpretation is it	13:54:22
3	correct -- or sorry, strike that.	13:54:30
4	Under your interpretation, the putative	13:54:31
5	single user, as you just recited, is always the	13:54:35
6	user that is speaking; is that correct?	13:54:38
7	MR. REEVES: Objection, form, scope, asked	13:54:42
8	and answered.	13:54:45
9	A Yes.	13:54:45
10	Q In Shin is there a difference between	13:54:46
11	classifying a voice and classifying a distance?	13:55:44
12	MR. REEVES: Objection, form, scope.	13:55:50
13	A In the section of Shin that we're	13:55:54
14	discussing right now, classification is only based	13:55:56
15	on distance. I believe that the Shin patent	13:56:00
16	application refers to other measurements.	13:56:06
17	Q So when you say the -- the classification	13:56:14
18	is only based on distance, the classification of	13:56:17
19	what? What exactly are you referring to?	13:56:23
20	A I'm talking about the -- specifically the	13:56:25
21	operations or the -- on some level of operations	13:56:31
22	that lead to the development of Table 3, which I	13:56:35

1 believe are relevant to the claims in the 13:56:45

2 application that I cited previously. I think it 13:56:47

3 was 6 through 9. 13:56:50

4 There are other -- other measurements that 13:56:52

5 are taken, but they're less relevant to this 13:56:57

6 discussion because they don't bring to bear on -- 13:57:02

7 they're not as relevant as the '675 patent. 13:57:06

8 Q And why are those not as -- why are those 13:57:10

9 other measurements less relevant? 13:57:27

10 MR. REEVES: Objection, form, scope. 13:57:32

11 A In general, all of the devices that have 13:57:54

12 -- all of the prior art that we looked at are 13:57:57

13 concerned with physical measurements that are made 13:58:00

14 about the user, the environment, various other 13:58:03

15 things. And the output of the system is modified 13:58:10

16 based on the results of those measurements. 13:58:16

17 In this particular case, multiple 13:58:20

18 measurements are made, but the ones that are 13:58:22

19 closest to the measurement that is disclosed in 13:58:28

20 the '675 patent is the distance measurement, so 13:58:33

21 I'm restricting my discussion to -- to that 13:58:39

22 measurement. 13:58:43

1 Q Is the output of Shin made based on all of 13:58:54
2 those multiple measurements? 13:59:27

3 MR. REEVES: Objection, form, scope. 13:59:31

4 A I would have to review more carefully to 13:59:37
5 have a definitive answer, but what I can say is 14:00:00
6 that Shin is concerned with making physical 14:00:03
7 measurements, modifying -- modifying the output of 14:00:12
8 the -- the vocal output of the system according to 14:00:16
9 those measurements. And it describes a number of 14:00:19
10 measurements and a number of capabilities. 14:00:22

11 I don't believe that it says that in a 14:00:26
12 particular use case all of those measurements and 14:00:29
13 all of those capabilities are invoked at once, so 14:00:32
14 it could be any of those. 14:00:37

15 Q So how would we know from Shin if all of 14:00:42
16 those inputs could work together or if they do 14:01:00
17 work together at all? 14:01:03

18 MR. REEVES: Objection, form, asked and 14:01:07
19 answered, calls for speculation. 14:01:09

20 A I don't know and I don't see the need to 14:01:19
21 speculate on that. I had been asked to opine on 14:01:23
22 the extent to which the elements of the '675 14:01:30

1	patent are disclosed in prior art. And my finding	14:01:32
2	is that these elements are disclosed by the	14:01:39
3	elements of Shin. What -- the various other	14:01:44
4	capabilities of the invention of Shin don't really	14:01:49
5	impact on that question.	14:01:56
6	Q Okay. And so is there a difference	14:02:01
7	between classifying a voice versus classifying a	14:02:06
8	distance?	14:02:10
9	MR. REEVES: Objection, scope, form, asked	14:02:12
10	and answered.	14:02:16
11	A We're not -- we're actually measuring a	14:02:16
12	distance to classify a voice. We're not actually	14:02:27
13	classifying a distance.	14:02:32
14	Q Okay. So referring back to paragraph --	14:02:35
15	where were we, paragraph 61 of your declaration.	14:03:09
16	A Yes.	14:03:18
17	Q One second, there we go.	14:03:19
18	That paragraph also includes an annotated	14:03:24
19	version of Table 3. Do you see that?	14:03:28
20	A I do.	14:03:30
21	Q Where did these annotations come from?	14:03:31
22	A Well, I added them.	14:03:35

1 Q And why did you add them? 14:03:43

2 A Just to demonstrate that distance 14:03:47

3 measurements like these could be used to classify 14:03:54

4 voices as in the '675 patent as first voices or 14:04:00

5 second voices. 14:04:06

6 Q But it is true that these annotations are 14:04:21

7 not part of the Shin reference and disclosure, 14:04:24

8 correct? 14:04:30

9 A That is -- sorry, go ahead. 14:04:30

10 MR. REEVES: Objection, asked and 14:04:32

11 answered. 14:04:33

12 A That is correct. 14:04:33

13 Q And you mentioned a second ago that you 14:04:35

14 made these annotations to demonstrate that 14:04:57

15 distance measurements like these could be used to 14:04:59

16 classify voices as in the '675 patent. Could you 14:05:01

17 explain a little bit more about what these 14:05:05

18 annotations represent? 14:05:08

19 MR. REEVES: Objection, form. 14:05:10

20 A Well, it is actually very simple. All 14:05:14

21 that I'm saying is that one could, for example, as 14:05:20

22 an exemplary auto man call the second voice all 14:05:23

1	distances less than 1 meter and the first voice	14:05:28
2	distances greater than 1 meter, less than two	14:05:33
3	meters.	14:05:37
4	Q Okay. Also in paragraph 61 you cite	14:05:42
5	paragraph 51 of Shin and say that content may be,	14:06:02
6	quote-unquote, classified dichotomously.	14:06:10
7	Do you see that?	14:06:13
8	A Yes, I do.	14:06:14
9	Q What do you mean by -- like, why did you	14:06:40
10	cite that in the context of this paragraph?	14:06:47
11	A Well --	14:06:51
12	MR. REEVES: Objection, form.	14:06:52
13	A My apologies, counselor.	14:06:57
14	First, I believe that what Shin means is	14:07:01
15	dichotomously is that the classification is	14:07:07
16	divided into two categories. I would call that	14:07:09
17	simply a binary classification, but that is --	14:07:13
18	that has got some terms of art of a lot of local	14:07:16
19	variations especially when going across national	14:07:20
20	and linguistic boundaries.	14:07:24
21	But we frequently divide things into --	14:07:29
22	classify into two categories. And with 20/20	14:07:35

1	hindsight, in annotating Table 1, it probably	14:07:40
2	would have been better to have just led with the	14:07:44
3	first voice being any distance greater than 1	14:07:47
4	meter as, in fact, I do suggest at the tail end of	14:07:51
5	paragraph 61. I think the question was what does	14:07:54
6	he mean by that, was that the question?	14:07:59
7	Q Yeah, I was just trying to understand sort	14:08:04
8	of, you know, why -- for what purpose were you	14:08:08
9	relying on it in this paragraph like that -- that	14:08:09
10	quote?	14:08:13
11	A Yeah. Again, I think dichotomously means	14:08:14
12	two decision classes.	14:08:19
13	Q Okay. Is there a difference between	14:08:22
14	classifying content and classifying a distance?	14:08:26
15	MR. REEVES: Objection, form, calls for	14:08:33
16	speculation.	14:08:35
17	A Those are two different operations. You	14:08:39
18	could -- in this particular discussion we're	14:08:41
19	talking about taking all the speech coming in and	14:08:43
20	dividing it into shall we say two bins based on	14:08:48
21	the distance between the speaker and -- and the	14:08:51
22	microphone.	14:08:56

1 One could, in parallel, take speech coming
2 in and put it in two different buckets based on
3 what was said or any of a number of other things,
4 but in this case it is based on distance.

5 Q Okay. Is there a -- is there a difference
6 between classifying content and classifying a
7 voice?

8 MR. REEVES: Objection, form, calls for
9 speculation.

10 A What do you mean by "classifying a voice"?

11 Q So in your paragraph 61 in between Tables
12 3 -- well, in between the original Table 3 and the
13 annotated Table 3, you state that Shin discloses
14 classifying the voice as a first voice.

15 A I can answer that, thank you.

16 This was very specifically in the
17 discussion around Table 3 of Shin and more
18 generally the -- I think it is Claim Element 1B in
19 the '675 patent in which case we talk about
20 classifying speech or if you prefer classifying a
21 voice based on the distance between the speaker
22 and the microphone.

1	And having said that, I forgot what the	14:10:28
2	question was. Could you just repeat it?	14:10:30
3	Q That is okay. So my question was is there	14:10:33
4	a difference between classifying content and	14:10:35
5	classifying a voice?	14:10:38
6	MR. REEVES: Same objections.	14:10:40
7	A I think there was a previous question, but	14:10:41
8	I can answer it again. The answer is yes.	14:10:43
9	I'm sorry, classifying content versus	14:10:46
10	classifying a voice?	14:10:49
11	Q Correct.	14:10:52
12	A I can't address classifying a voice	14:10:53
13	without knowing more about the classification. I	14:10:57
14	believe in this discussion, and I'm assuming in	14:11:02
15	this discussion, that we're talking about the	14:11:04
16	phrase classifying a voice based on difference --	14:11:07
17	based on distance, between the speaker and the	14:11:12
18	microphone. And there, yes indeed, that is a	14:11:17
19	different classification from classifying	14:11:19
20	according to the content of the voice.	14:11:21
21	Q Okay. So going to -- and again, I'm	14:11:25
22	referring to paragraph 61 still of the declaration	14:11:32

1 where you are relying on paragraph 51 of Shin, so 14:11:38
2 this comes back to the dichotomously quote that 14:11:43
3 you relied on. 14:11:46

4 So if we go to paragraph 51 of Shin. 14:11:48
5 Let's see. 14:12:00

6 Isn't it true that paragraph 51 of Shin 14:12:06
7 only discloses classifying content dichotomously? 14:12:08

8 A It is -- it is indeed the case that 14:12:13
9 paragraph 51 in Shin talks about classifying 14:12:45
10 content dichotomous -- in a binary fashion with 14:12:50
11 one of two alternatives. 14:12:58

12 But the relevance here is that we're 14:13:00
13 talking about making a classification based on 14:13:01
14 distance and then tailoring the output based on 14:13:04
15 that distance measurement. And in this case the 14:13:09
16 nature of the modified output is whether to 14:13:13
17 present the simplified explanation and the 14:13:16
18 original explanation as disclosed in paragraph 51. 14:13:20

19 Q Right. So it is not an -- again, I might 14:13:37
20 be getting -- getting confused again, by sort of 14:14:05
21 how you have laid things out in paragraph 61, but 14:14:10
22 it seems to me that -- or strike that. 14:14:15

1 So you're not relying on that quote, that
2 content may be classified dichotomously to support
3 the position that a voice can be classified
4 dichotomously; is that correct?

5 MR. REEVES: Objection, form, to the
6 extent it misstates testimony.

7 A I certainly didn't say anything like that
8 and I apologize for any confusion or ambiguity in
9 text such as in paragraph 61, but really what
10 we're talking about is quite simple.

11 We're talking about measuring the distance
12 between the speaker and the microphone, modifying
13 the content. And the simplest example, which
14 doesn't have to be the only example within the
15 teachings of the patent or the -- or the prior
16 art, but in the simplest example you have only two
17 categories, is the speaker near or is the speaker
18 far.

19 In that case, if you are presenting
20 different content, you would present content for
21 which -- that you would invoke if the speaker is
22 near, and other content if the speaker is far.

1 That would be a dichot -- a dichotomous division
2 of the content of the speech that is presented.

3 And in paragraph 51, the specific split is
4 according to the amount of information in the
5 result, but it is very, very simple.

6 Q So just going along with that, for what
7 you just said, you had said that it is a
8 dichotomous division of the content of the speech
9 that is presented.

10 So again, I'm just trying to make -- to be
11 clear. Are you saying that the speech like the
12 incoming speech is dichotomously classified or are
13 you saying that the resulting output from the --
14 that -- that is sort of provided based on the
15 input speech is classified dichotomously?

16 MR. REEVES: Objection, form, asked and
17 answered.

18 A Here we're talking about the resulting
19 output is presented in one of two forms. But the
20 decision about which form to present it in is not
21 based on the incoming speech. It is based on the
22 distance between the user of the device.

14:15:39

14:15:45

14:15:49

14:15:55

14:15:57

14:16:04

14:16:08

14:16:11

14:16:14

14:16:16

14:16:20

14:16:23

14:16:28

14:16:32

14:16:36

14:16:40

14:16:42

14:16:42

14:16:45

14:16:51

14:16:55

14:16:58

1	Q Okay.	14:17:04
2	A So you get partial credit.	14:17:05
3	Q Okay. Let's see. So going back again to	14:17:06
4	paragraph 61 at the -- of your declaration, at the	14:17:55
5	bottom of page 29 there is a sentence that starts	14:18:00
6	with "any of." Do you see that.	14:18:03
7	A I do.	14:18:06
8	Q Could you please read that sentence --	14:18:08
9	A Any of --	14:18:11
10	Q -- out loud.	14:18:12
11	A Yeah, we're talking about the -- the	14:18:13
12	sentence that begins on the bottom page 29 in the	14:18:17
13	declaration.	14:18:20
14	Q Correct.	14:18:20
15	A Any of the distance ranges beyond 1 meter	14:18:23
16	would satisfy the claimed "first voice." For	14:18:28
17	example, a voice between 3 and 4 meters away could	14:18:31
18	be recited -- could be the recited "first voice."	14:18:34
19	Alternatively, all distances greater than 1 meter	14:18:39
20	could collectively be a first voice.	14:18:42
21	That is what it says.	14:18:44
22	Q Okay. And what -- what do you mean by	14:18:49

1	that statement?	14:18:50
2	A Well --	14:18:52
3	MR. REEVES: Sorry, objection, form.	14:18:54
4	A Sorry.	14:18:55
5	Q Sorry, let me -- let me strike and reask	14:18:56
6	the question again, sorry.	14:18:58
7	Referring to the first statement, let's	14:19:00
8	sort of step through this. Starting with the "any	14:19:03
9	of," what do you mean by that statement?	14:19:05
10	MR. REEVES: Objection, form.	14:19:08
11	A What I'm trying to state here, and again,	14:19:08
12	the annotations that I imposed on Table 3 on page	14:19:21
13	29 may be unfortunate. I would have, with 20/20	14:19:25
14	hindsight, preferred to have just had the first	14:19:29
15	voice be everything greater than 1 meter.	14:19:30
16	But what I'm really saying here is that	14:19:32
17	the exact classification boundaries in terms of	14:19:35
18	the distance that is measured are arbitrary.	14:19:42
19	They're not specified in the '675 patent. So I	14:19:45
20	cite the Shin reference to indicate that Shin also	14:19:51
21	measures the distance between the speaker and the	14:19:58
22	device and modifies the output according to the	14:20:01

1 distance.

14:20:06

2 It obviously is the case that in the
3 original Table 3 there there are multiple ranges,
4 but for me that is just an implementation detail.

14:20:10

14:20:11

14:20:14

5 There is nothing fundamental in the difference
6 between the four categories and two categories.

14:20:19

14:20:22

7 And of course, if anything, the four categories --

14:20:26

8 is it four or -- two, three, four, five -- five

14:20:32

9 categories of Table 3. That is a bit inconsistent

14:20:33

10 with the teachings of paragraph 51, which applies

14:20:37

11 on the two categories. But the nature and the

14:20:42

12 quantitative specification of the number and

14:20:50

13 locations of those boundaries is unimportant for

14:20:53

14 the teachings of the patent.

14:20:57

15 The issue, in my opinion, is simply that

14:21:01

16 you do that measurement and you make decisions on

14:21:07

17 the basis of that and probably how many categories

14:21:09

18 you have and where the boundaries are will depend

14:21:14

19 on the application.

14:21:18

20 Q Okay. And so that -- that statement that

14:21:20

21 starts with "any of," just for clarity again, any

14:21:32

22 of the -- quote, any of the distance ranges beyond

14:21:35

1 1 meter would satisfy the claimed first voice. 14:21:39

2 Aside from -- well, aside from the 1 meter 14:21:47
3 designation, there is nothing in Shin that 14:21:52
4 directly supports that statement, correct? 14:21:57

5 MR. REEVES: Objection, form, to the 14:22:03
6 extent it misstates testimony. 14:22:04

7 A Let me take a look at the context of Table 14:22:07
8 3 in the Shin reference. 14:22:10

9 Q Okay. 14:22:13

10 A Your question as phrased was very 14:22:14
11 absolute. I'm looking at paragraphs 86 and 87 of 14:22:16
12 the reference. And paragraph 86, of course, 14:22:52
13 begins, furthermore, according to an embodiment of 14:22:55
14 the present disclosure. And we have all seen 14:23:00
15 reasonably language in patents like this only an 14:23:04
16 example embodiment of there is a possible. That 14:23:07
17 is my interpretation of that phrase. 14:23:12

18 And then going on to paragraph 87 it says, 14:23:13
19 for example, as shown in Table 3, when a distance 14:23:17
20 between the user and the electronic device is less 14:23:20
21 than 1 meter, the amount of information may be set 14:23:22
22 higher. And then when it decreases beyond 1 14:23:25

1 meter, the amount of information would decrease.

14:23:32

2 There is obviously more specificity in the
3 actual layout of Table 3 that isn't even addressed
4 in the specification. So my inference from all of
5 that is that the Shin patent is intended to cover
6 any classification system based on distance
7 without careful specification or limitation to the
8 number of decision categories and where those
9 categories are. I'm sorry, where the -- how many
10 categories there are and what distances delineate
11 the boundaries between those categories.

14:23:36

14:23:44

14:23:48

14:23:52

14:24:00

14:24:04

14:24:09

14:24:12

14:24:15

14:24:19

12 Q Okay.

14:24:21

13 MR. REEVES: Counsel, would now be a good
14 time for a break or are we nearing --

14:24:27

14:24:28

15 MR. SPRENGER: Yeah, we can take a break.
16 I have a few more questions on that point, but we
17 can do it when we come back.

14:24:31

14:24:32

14:24:34

18 MR. REEVES: Okay.

19 MR. SPRENGER: Let's go off the record.

14:24:37

20 VIDEOGRAPHER: The time is 2:24 p.m.

14:24:37

21 We're going off the record.

14:24:39

22 (Recess, 2:24 to 2:33 p.m.)

14:24:40

1	VIDEOGRAPHER: The time is 2:33 p.m.	14:33:35
2	We're now back on the record.	14:33:37
3	Q So picking up where we left off, Dr.	14:33:38
4	Stern, we are still at paragraph 61?	14:33:50
5	A Yes.	14:33:53
6	Q So referring to the sentence starting with	14:33:53
7	"any of," again, that we were talking about before	14:34:02
8	the break.	14:34:04
9	A Uh-huh.	14:34:05
10	Q There is nothing in Shin that links the 1	14:34:05
11	meter designation that is in the chart to the	14:34:14
12	first voice, correct?	14:34:20
13	MR. REEVES: Objection --	14:34:23
14	Q Or -- sorry, go ahead.	14:34:24
15	MR. REEVES: I just said objection, form.	14:34:28
16	A Well, there is paragraph 51, which talks	14:34:30
17	about dividing things into lots of information and	14:34:51
18	more limited information.	14:34:59
19	Q Okay.	14:35:12
20	A There is also -- I'm looking for the	14:35:13
21	paragraph in the spec in Shin that links the	14:35:15
22	distance to the amount of information. I can	14:35:20

1	continue looking or we can go on to the next	14:35:24
2	question.	14:35:26
3	Q You can continue looking if you would	14:35:26
4	like.	14:35:28
5	A Well, the question is what would you like?	14:35:31
6	Q I am mostly trying to, you know, establish	14:35:36
7	the exact support for -- for this statement of the	14:35:42
8	"any of."	14:35:45
9	I see that in your declaration there is --	14:35:48
10	there is not a cite to anything specific to Shin	14:35:51
11	at the end of this sentence. And I see obviously,	14:35:54
12	you know, we already talked about the annotations	14:36:00
13	in the tables that -- that you added that were	14:36:03
14	referring to the first and second voice.	14:36:08
15	So to me the sentence of "any of" links	14:36:09
16	it, you know -- the 1 meter designation that is	14:36:14
17	actually in Shin in Table 3 to the first voice	14:36:18
18	label, let's call it, that you had added?	14:36:24
19	So I'm just trying to clarify and sort of,	14:36:27
20	for the record, that Shin -- Shin is not the one	14:36:31
21	that is linking those two things, that is really	14:36:33
22	from you?	14:36:37

1	MR. REEVES: Objection, form.	14:36:37
2	A Fair enough. Yeah. What I had already	14:36:38
3	stated was that I considered to be the exact -- I	14:36:40
4	considered the exact boundaries to be arbitrary	14:36:43
5	within the teachings of the patent that, as you	14:36:47
6	know, the whole section starting around 79, my	14:36:51
7	interpretation and especially paragraph 86, for	14:37:02
8	example, according to an embodiment of the present	14:37:07
9	disclosure, the process in paragraph 86 the amount	14:37:15
10	of information decreases as the distance	14:37:20
11	increases. That is the linkage between the	14:37:23
12	distance measurement and the nature of the output.	14:37:25
13	And paragraph 87 begins, for example, as	14:37:29
14	shown in Table 3 when a distance between the users	14:37:37
15	is that.	14:37:40
16	So my interpretation is that what the	14:37:40
17	teachings in the patent are are that, you know,	14:37:45
18	the farther away you get the better it is to	14:37:49
19	decrease the amount of information so that it can	14:37:53
20	be processed adequately by the user, and this	14:37:55
21	could be done in many different ways, one of which	14:38:00
22	is exemplified in Table 3.	14:38:02

1	Q Okay.	14:38:09
2	A But I interpret that as an exemplary	14:38:09
3	embodiment especially, for example, as shown.	14:38:12
4	Q Okay.	14:38:19
5	A And again, the linkage between the	14:38:19
6	distance and complexities and the previous	14:38:24
7	paragraph 87 in the Shin reference.	14:38:27
8	Q Okay. And I think I know the answer to	14:38:30
9	this, but I will still ask for these other	14:39:07
10	sentences at the end of the -- of paragraph 61.	14:39:10
11	So it reads, for example, a voice between	14:39:15
12	3 and 4 meters away could be the recited "first	14:39:19
13	voice," and then alternatively all distances	14:39:23
14	greater than 1 meter could collectively be a first	14:39:25
15	voice.	14:39:28
16	Again, I'm just trying to clarify, is	14:39:30
17	that, you know, that -- that inference is coming	14:39:34
18	from you, not necessarily from Shin directly; is	14:39:37
19	that correct?	14:39:43
20	MR. REEVES: Objection, form, to the	14:39:43
21	extent it misstates testimony.	14:39:45
22	A Well, Shin doesn't infer, I infer. Shin	14:39:46

1 implies. And the implication in Shin once again,
2 I believe, is in the context of the way the
3 specification is written. For example, we could
4 do it this way.

5 In the previous paragraph or somewhere
6 before I think they refer to -- beginning of 86,
7 according to an embodiment, not the embodiment of
8 the present disclosure.

9 So Shin has substantial flexibility in the
10 implementation of how these decisions are made
11 although obviously the system designer will make
12 some hard decisions about that, but Shin doesn't
13 teach only a single embodiment. It teaches a more
14 general idea.

15 Q Okay. That is helpful.

16 So moving to paragraph 106 of your
17 declaration.

18 A Yes.

19 Q In this paragraph is it correct that you
20 suggest that Shin discloses the claimed, quote,
21 second output sentence, which includes all of the
22 intention information and the content information?

14:39:50

14:39:54

14:39:56

14:40:01

14:40:06

14:40:09

14:40:11

14:40:16

14:40:17

14:40:24

14:40:26

14:40:30

14:40:35

14:40:39

14:40:41

14:40:53

14:40:59

14:41:12

14:41:12

14:41:22

14:41:25

14:41:28

1 A Shin -- the Shin reference itself is loose 14:41:33
2 and a little bit internally inconsistent. As 14:41:51
3 we've already discussed, dichotomous decisions are 14:41:57
4 expressed in one place, more decision categories 14:42:01
5 are in some of the examples. That to me indicates 14:42:04
6 the flexibility of interpreting what Shin actually 14:42:06
7 teaches at least in its detailed form. 14:42:11

8 Shin does not -- Shin does say that as you 14:42:13
9 get closer, you want to express more information. 14:42:19
10 I'm not promising that Shin is going to say when 14:42:26
11 you get closer than 1 meter that is the point at 14:42:29
12 which it is always appropriate to express all of 14:42:32
13 the information. I can look for that, but I'm not 14:42:35
14 promising that I will find it. And but Shin does 14:42:38
15 say that as you get closer that you have more 14:42:46
16 stuff decided. And I say once again in paragraph 14:42:50
17 86, and but perhaps in paragraph 51. 14:42:56

18 Does that answer your question. 14:43:01

19 Q It does, yes. Thank you. 14:43:02

20 So referring to -- we're sticking with 14:43:12
21 paragraph 106 now of your declaration, which also 14:43:15
22 has an annotated version of Table 3 of Shin. 14:43:16

1	A Yes.	14:43:22
2	Q Table 3 describes something called,	14:43:22
3	quote-unquote, original content, correct?	14:43:24
4	A Yes.	14:43:29
5	Q What does Shin mean by original content?	14:43:29
6	A Well, if we refer to paragraph 88 in Shin,	14:43:34
7	original content basically talks about presenting	14:43:48
8	or providing the whole 9 yards, the response and	14:43:52
9	all of its complexity.	14:43:56
10	Q So is it your position that the original	14:44:26
11	content that is referred to in Table 3, paragraph	14:44:38
12	87 and paragraph 88 of Shin, includes what claim	14:44:44
13	-- what the claims of the '675 patent would call,	14:44:55
14	quote-unquote, intention information and content	14:45:00
15	information?	14:45:03
16	A No. I think that those are two different	14:45:07
17	things. Turning to the '675 patent for a moment	14:45:12
18	looking at the claims -- a claim element -- I	14:45:32
19	might have this slightly wrong, 1, 2, 3, top of	14:45:40
20	column 21 of the '675 patent, this isn't	14:45:44
21	annotated, but -- of course, but the intention	14:45:50
22	analyzing unit configured to analyze the voice	14:45:53

1 acquired by the -- indicating what kind of 14:45:57

2 information is wished to be acquired by the user. 14:45:59

3 My interpretation of this claim element, 14:46:03

4 which I believe is correct, is that these systems 14:46:07

5 such as other spoken language systems like Siri or 14:46:14

6 its hand along, or Google, Microsoft, even Amazon, 14:46:18

7 can deliver a variety of information. 14:46:28

8 I mean, I might ask the smart speaker in 14:46:32

9 my system, in my kitchen rather, to play my 14:46:34

10 local -- my local news station or classical news 14:46:39

11 station, most common request or I might ask what 14:46:42

12 time is it or what is the weather going to be 14:46:45

13 tonight. And the information or the intention 14:46:48

14 analyzing unit is a piece of code that figures out 14:46:53

15 what am I really asking about. 14:46:55

16 And then the query is directed to a bunch 14:46:58

17 of other subusers -- submodules rather in the 14:47:02

18 system that are knowledgeable or know how to 14:47:06

19 respond to that. 14:47:09

20 That is a long enough answer that I have 14:47:14

21 forgotten the tail end of the original question, 14:47:16

22 so if you would repeat it I would be grateful. 14:47:19

1	Q Yes, no problem.	14:47:20
2	So my question is is it your position that	14:47:21
3	the, quote-unquote, original content that is	14:47:25
4	referred to in Shin, specifically Table 3 in	14:47:28
5	paragraphs 87 to 88, is it your position that that	14:47:33
6	original content of Shin includes what the '675	14:47:38
7	patent claims would call intention information and	14:47:44
8	content information?	14:47:49
9	MR. REEVES: Objection, form.	14:47:51
10	A So the -- no, I believe that those are two	14:47:52
11	different things. The -- the original content	14:48:01
12	referred to in the Shin patent application is the	14:48:07
13	answer in all of its original complexity as	14:48:12
14	described in some detail in paragraph 88 of the	14:48:15
15	Shin application.	14:48:18
16	On the '675 patent, we talk about, again,	14:48:20
17	the module that is discussed in -- I believe it is	14:48:25
18	element 1C, the intention analyzing unit, which	14:48:29
19	figures out what the user is talking about. And	14:48:34
20	then in the next -- the next subparagraph, a	14:48:37
21	notification information acquiring unit, that is	14:48:42
22	getting the answer to the question.	14:48:44

1 And then farther down, the output-content 14:48:46
2 generated unit has to do with the input form to 14:48:52
3 present that information, so they're not the same 14:48:56
4 thing. 14:48:58

5 Q Okay. And I guess to add some -- some 14:48:59
6 additional, you know, color to my -- to my 14:49:04
7 inquiry, paragraph 106 of your declaration is 14:49:10
8 talking about the second output. I think it is 14:49:15
9 sort of referring to -- 14:49:20

10 A Yes. 14:49:21

11 Q -- claim limitation talking about the 14:49:22
12 second output sentence, and the second voice. So 14:49:23
13 I'm looking at the tail end of claim 1 of the '675 14:49:28
14 patent which says quote, a second output sentence 14:49:34
15 which includes all of the intention information 14:49:38
16 and the content information. 14:49:42

17 So I'm comparing that to paragraph 106. 14:49:46
18 And I think what you are trying to say in 14:49:51
19 paragraph 106 is that that original content, 14:49:55
20 quote-unquote, that is in Table 3, that that is 14:49:58
21 what you are mapping to all of the intention 14:50:01
22 information and the content information according 14:50:06

1	to the claim; is that correct?	14:50:08
2	A Yeah, that is a long question.	14:50:13
3	Q Yes, sorry.	14:50:18
4	A My breaking it down would be that the --	14:50:19
5	well, the distance is assessed to be small between	14:50:26
6	the speaker and the device and this is what to my	14:50:29
7	is mind counterintuitively labeled the second	14:50:34
8	speaker. Then you can present all the	14:50:38
9	information, because all the information will be	14:50:41
10	easily understood. And that is all the	14:50:44
11	information is labeled the original output in the	14:50:48
12	Shin reference.	14:50:52
13	Q Okay.	14:50:57
14	A Does that cover all the grounds of the	14:50:58
15	question?	14:51:01
16	Q Almost, but I will -- I will hopefully get	14:51:01
17	it here with the next shot.	14:51:04
18	So where claim 1 of the '675 is referring	14:51:06
19	to the second output sentence that includes all of	14:51:11
20	the intention information and the content	14:51:15
21	information, what in Shin are you identifying to	14:51:17
22	disclose all of the intention information and the	14:51:24

1 content information? 14:51:29

2 A Well, the intention information is already 14:51:29
3 implicitly in there because the intention 14:51:35
4 information has to do with what question you are 14:51:37
5 asking, which knowledge source or Amazon legal, 14:51:39
6 which skill gets applied to answer that question. 14:51:43

7 So given that you are already at the stage 14:51:48
8 where an output is being generated, the intention 14:51:50
9 has already been deduced and responded to. The 14:51:54
10 rest of that is that when you are close, the 14:52:00
11 original output means the most verbose output as 14:52:03
12 in paragraph 85 where you have all of the 14:52:08
13 components included in the response by the system. 14:52:12
14 Not 85, 88, where you have all of the components 14:52:15
15 included in the output response. 14:52:20

16 Q Okay. So shifting gears a little bit can 14:52:33
17 we go to paragraph 132 of your declaration? 14:53:26

18 A Yes. 14:53:41

19 Q And excuse me, paragraph 132 is referring 14:53:42
20 to claim 5 of the '675 patent, correct? And let 14:53:47
21 me -- let me ask the question. 14:54:01

22 A We are in the section that labeled claim 14:54:02

1	5.	14:54:05
2	Q Yes, it is in the context of claim 5.	14:54:05
3	A Yes.	14:54:06
4	Q Okay.	14:54:07
5	A I was just checking. That is what I	14:54:07
6	thought. 132, yes, claim 5.	14:54:10
7	Q Okay. Could you please read the sentence	14:54:14
8	starting with, "Shin discloses"?	14:54:17
9	A Shin discloses that its device detects a	14:54:20
10	range of speech volumes and rates. Accordingly, a	14:54:24
11	person of ordinary skill in the art would have	14:54:27
12	understood Shin's disclosure to encompass	14:54:29
13	receiving and processing as wide a range of speech	14:54:31
14	as possible including whispered speech.	14:54:35
15	Q Okay. What do you mean by those two	14:54:38
16	sentences?	14:54:41
17	MR. REEVES: Objection, form.	14:54:43
18	A Well, let's look at claim 5.	14:54:47
19	Q Uh-huh.	14:54:56
20	A The first element of claim 5 in the first	14:54:57
21	part of claim 5 is a voice classifying unit is	14:55:01
22	further configured to determine the voice to be	14:55:05

1 the determined voice when the voice spoken by the 14:55:07
2 user is a whisper. 14:55:10

3 And my parse of that is that the system 14:55:14
4 should function well even when the speech coming 14:55:18
5 in is whispered speech. And that the discussion 14:55:21
6 in the paragraph that you referred to is that that 14:55:29
7 is also consistent with the Shin reference, which 14:55:34
8 states that the device includes a wide -- a wide 14:55:45
9 range of speech volumes and speech rates. 14:55:53

10 And in fact, you know, I have to look, but 14:55:56
11 I believe that Shin actually detects those things 14:56:03
12 as part of its front end. 14:56:05

13 Q Okay. So would a person -- excuse me. 14:56:09

14 Would a person of ordinary skill in the 14:56:29
15 art understand a range of speech to include a 14:56:34
16 whisper? 14:56:36

17 A Yes. 14:56:40

18 Q Okay. And why is that? 14:56:41

19 A Well, there is nothing really special or 14:56:49
20 non speech like about whispered speech aside from 14:56:59
21 the fact that the vocal cords are disabled by the 14:57:04
22 speaker. And typically the motivation for doing 14:57:11

1 that is to have speech at low volume to not to 14:57:13
2 disturb people and also to maintain a degree of 14:57:19
3 confidentiality of the conversation. But it is 14:57:22
4 part of the normal range of speaking, speech acts. 14:57:27
5 We don't go into a different mode of listening 14:57:30
6 when the person talking to us is whispering. 14:57:32
7 Q Okay. And is the same -- is the same to 14:57:38
8 be said for, like, if a device when it is -- when 14:57:43
9 it is listening. So what -- I think what you were 14:57:46
10 saying just now is kind of in the context of when 14:57:50
11 humans are listening to another human. But does a 14:57:53
12 device, you know, function in the same way in 14:57:58
13 terms of its ability to detect, let's say -- 14:58:00
14 A Yes. 14:58:07
15 Q -- language from a whisper versus a -- 14:58:07
16 versus normal speech? 14:58:10
17 A In general, and you may know that my 14:58:11
18 primary experience is in speech recognition and 14:58:17
19 related technologies. When we build speech 14:58:19
20 recognition systems, we -- they're designed to 14:58:22
21 work as well as possible and they don't do 14:58:25
22 anything special when the speech coming in is 14:58:28

1 whispered and the processing is the same as it had 14:58:31
2 been. They may not work as well, but the 14:58:35
3 processing is the same. 14:58:37

4 Q Okay. So as an example, is it that when 14:58:41
5 the volume changes, for example, from a -- from, 14:59:19
6 let's say, quote-unquote, a normal speech to 14:59:22
7 extremely quiet speech, does that indicate when it 14:59:27
8 changes from a whisper to -- from normal speech? 14:59:32

9 MR. REEVES: Objection, form, outside the 14:59:39
10 scope. 14:59:40

11 A No. Shifting into whisper mode is 14:59:40
12 something other than simply reducing the vocal 14:59:46
13 volume. 14:59:52

14 Q Okay. And could you elaborate on that 14:59:52
15 sort of what -- what makes that something other 14:59:58
16 than reducing the vocal volume? 15:00:01

17 MR. REEVES: Objection, form, outside the 15:00:04
18 scope. 15:00:05

19 A When we produce speech, we're -- send 15:00:09
20 either a train of pressure pulses through the 15:00:18
21 throat or turbulent air. So the difference 15:00:21
22 between some phonemes, for example, ba versus pa, 15:00:29

1 ga versus ka, da versus ta, I don't know if you 15:00:35
2 can hear that over the airwaves, but try saying 15:00:39
3 those yourselves and you will find that you do the 15:00:42
4 same thing. 15:00:43

5 And the difference of what you perceive is 15:00:45
6 based on, one, the voice turning on. The first of 15:00:49
7 each of those pairs was earlier than the latter. 15:00:54
8 When we whisper, we deliberately turn off the 15:00:57
9 pulses. 15:01:00

10 Q So sort of in this context of speech 15:01:09
11 recognition and audio processing, how would a 15:01:36
12 POSITA understand a whisper meaning, like, what is 15:01:41
13 meant by a whisper in terms of describing a voice? 15:01:46

14 MR. REEVES: Objection, form, scope. 15:01:51

15 A I would be delighted to have a detailed 15:01:53
16 conversation with you about how we produce and 15:02:00
17 receive speech off the record, but I think we're 15:02:05
18 wandering away from the teachings of the patent 15:02:07
19 and the comparison of the patent to the prior art. 15:02:09

20 Claim 5 of the patent, the '675 patent, 15:02:13
21 talks about the fact that the system should work 15:02:18
22 well even when whispered speech is coming in. And 15:02:20

1 neither the patent nor any of the references go to 15:02:24
2 the mechanics of what is going on in the kitchen 15:02:27
3 when we're actually producing that whispered 15:02:30
4 speech. 15:02:32

5 So unless there is a compelling reason to 15:02:32
6 get into those details, I think we're better off 15:02:35
7 sticking to the main patent. 15:02:38

8 Q So I think, you know, based on what you 15:02:41
9 were saying a second ago, you -- I think you had 15:02:45
10 said that the processing in terms of the digital 15:02:48
11 -- the audio processing for these type of devices 15:02:52
12 is the same for a whisper and total speech; is 15:02:56
13 that correct? 15:03:03

14 A What I said was that the ways in which 15:03:03
15 machines perceive whispered speech are typically 15:03:08
16 the same as they perceive normal vocalized speech. 15:03:12
17 And the ways in which we produce whispered speech 15:03:16
18 are the same as the way we produced normal 15:03:19
19 vocalized speech except when -- except when we 15:03:24
20 deliberately disable vocal -- vocal pulses, cordal 15:03:28
21 pulses they're called in trade. 15:03:35

22 Q Okay. So would a person of ordinary skill 15:03:36

1	in the art, you know, when Shin -- sorry, when	15:03:38
2	Shin is referring to whispered speech, would a	15:03:43
3	person of ordinary skill in the art understand	15:03:49
4	that as a scenario where the speaker is	15:03:50
5	deliberately disabling their vocal pulses?	15:03:55
6	A Before I spend a lot of time on that, let	15:04:03
7	me -- where do we talk about that. I don't think	15:04:06
8	that -- well, let me quickly look at the Shin	15:04:23
9	reference again.	15:04:30
10	Q You know what, I think I might have messed	15:04:31
11	up the question. Let me -- let me ask it one more	15:04:33
12	time. So in paragraph 32 --	15:04:35
13	A 132.	15:04:39
14	Q 132, yes, I apologize.	15:04:41
15	Paragraph 132 of your declaration, which	15:04:43
16	is only in the context of the Shin reference, at	15:04:46
17	the very end you say that a person of ordinary	15:04:50
18	skill in the art would have understood Shin's	15:04:54
19	disclosure to encompass receiving and processing	15:04:57
20	as wide a range of speech as possible including	15:05:01
21	whispered speech.	15:05:04
22	So in that context, I guess, of your	15:05:06

1 paragraph 132 where you refer to whispered speech,
2 is that -- would a person of ordinary skill in the
3 art understand your reference to whispered speech
4 as the scenario where a speaker is deliberately
5 disabling their vocal pulses?

15:05:11

15:05:15

15:05:18

15:05:22

15:05:27

6 A Well, a person of ordinary skill in the
7 art who by definition is presumed to be skilled in
8 the art of understanding would understand that.

15:05:30

15:05:34

15:05:39

9 I was balking on answering the question,
10 because I was not remembering whether Shin
11 specifically had a module that detected whispered
12 speech or not. Some of the prior art did, others
13 didn't. I believe that Shin does not.

15:05:42

15:05:46

15:05:49

15:05:53

15:05:57

14 But what I'm saying here is merely that
15 Shin interprets whispered speech in the same way
16 that the '675 patent interprets whispered speech,
17 in the same way I -- in my day-to-day -- my day
18 job, build systems that interpret whispered
19 speech. We basically do the same thing we do for
20 any other speech.

15:05:59

15:06:04

15:06:09

15:06:14

15:06:17

15:06:20

15:06:23

21 And in the '675 patent claim 5, it is
22 asserted that the system will continue to work

15:06:24

15:06:29

1 well even though the speech is whispered. And 15:06:31

2 Shin's device as described is configured to work 15:06:36

3 over a wide range of conditions, volumes, et 15:06:41

4 cetera, et cetera, which means that it handles 15:06:46

5 whispered speech as well. 15:06:48

6 Q Okay. On that point again, the last 15:06:51

7 sentence of paragraph 132. So your position seems 15:06:59

8 to be that Shin encompasses receiving and 15:07:03

9 processing whispered speech in addition to other 15:07:09

10 forms of speech. 15:07:14

11 How does Shin determine whispered speech? 15:07:16

12 MR. REEVES: Objection, form. 15:07:21

13 A What I just stated was that you don't have 15:07:22

14 to identify the -- you don't have to detect the 15:07:28

15 presence of whispering in order to process 15:07:31

16 whispered speech. You just do the same thing you 15:07:35

17 do for any other speech, and again, that is what 15:07:37

18 is done normally. 15:07:41

19 Q Okay. Referring now to the '675 patent 15:07:44

20 specifically, claim 5 again. In your view, is 15:08:19

21 claim 5 narrower than claim 1? 15:08:23

22 MR. REEVES: Objection, form, scope, calls 15:08:30

1	for a legal conclusion.	15:08:33
2	A No. This is -- I think it is no more	15:08:47
3	narrow than it was without it. It is more of	15:08:56
4	reminding the reader the many conditions and many	15:09:05
5	configurations on which the system could operate.	15:09:09
6	Q Okay. In your view, is there any	15:09:13
7	difference between claim 5 referring to	15:09:22
8	determining a whisper and claim 1 referring to	15:09:27
9	classifying a voice?	15:09:31
10	MR. REEVES: Objection, form to the extent	15:09:35
11	it misstates testimony, calls for a legal	15:09:39
12	conclusion.	15:09:41
13	A I believe that mischaracterizing the claim	15:09:41
14	-- could you repeat the question now, so that I	15:09:47
15	can --	15:09:49
16	Q Sure. I can -- let's see.	15:09:50
17	So do you agree that claim 1 refers to	15:09:55
18	classifying --	15:09:59
19	A You mean claim 5?	15:10:01
20	Q No, claim 1.	15:10:03
21	Do you agree that claim 1 refers to	15:10:05
22	classifying a voice?	15:10:07

1	Iwase reference, correct?	15:12:19
2	A I believe so, yes. I see Iwase's name --	15:12:24
3	Iwase's named in the paragraph.	15:12:27
4	Q Okay. And could you just read paragraph	15:12:30
5	150 for the record?	15:12:37
6	A Sure. Seventh, the similarity of the	15:12:39
7	devices would have motivated a person of ordinary	15:12:44
8	skill in the art to implement Iwase's word	15:12:48
9	replacement feature as Iwase (like Shin)	15:12:53
10	determines the user-to-device distance and alters	15:12:57
11	the output based on that distance.	15:13:01
12	Q Okay. What -- what do you -- what do you	15:13:06
13	mean by this sentence?	15:13:12
14	MR. REEVES: Objection, form.	15:13:14
15	A Well, this has to do with the claim --	15:13:15
16	claim 1 of the '675 patent. There is verbiage	15:13:39
17	toward the end of that, I'm looking around line 15	15:13:49
18	plus or minus a few lines talking about the	15:13:53
19	content modification that we've been discussing	15:13:56
20	all day involving a certain amount of word	15:13:58
21	replacement.	15:14:00
22	Now, I believe that that kind of content	15:14:02

1 modification is disclosed by Shin, but I wasn't 15:14:07
2 sure that Shin actually used the phrase "word 15:14:12
3 replacement" in the same way. So I provided the 15:14:17
4 additional reference to Iwase, which is more 15:14:22
5 explicit in word replacement based on measurements 15:14:25
6 of the environmental conditions. 15:14:31

7 Q Okay. So in this combination of Shin with 15:14:38
8 Iwase, do you -- is it your position that Iwase 15:15:04
9 classifies voices based on -- based on distance? 15:15:12

10 MR. REEVES: Objection, form, outside the 15:15:17
11 scope. 15:15:19

12 A As I noted when we reviewed all of these 15:15:21
13 references very briefly at the beginning of this 15:16:40
14 discussion, that all of the prior art citations 15:16:43
15 involved a certain amount of measuring what was 15:16:49
16 going on in the environment and using that to 15:16:52
17 modify content. 15:16:55

18 In this particular case, and I didn't 15:16:59
19 review this quickly -- I mean, right now as we 15:17:01
20 speak I did review it certainly in preparation, 15:17:03
21 but there are certainly a bunch of prior art 15:17:06
22 sources they all do different things. And as you 15:17:08

1 know the ground rules are that I don't bring any 15:17:12
2 notes in so everything is from memory. 15:17:14

3 And in this case, the measurements are 15:17:16
4 things like configuration, you know, where the 15:17:22
5 speaker was -- whether he or she was, if I 15:17:26
6 remember correctly, facing -- facing the camera, 15:17:32
7 facing the microphone, et cetera. 15:17:35

8 So there wasn't necessarily a distance 15:17:37
9 measurement here, but my opinion is that this is 15:17:42
10 the classic example of a person of ordinary skill 15:17:48
11 in the art being able to say, okay, we can take a 15:17:49
12 combination of the distance measurements that 15:17:57
13 we've looked at in the Shin or Shimomura reference 15:17:58
14 or possibly some of the secondary references and 15:18:04
15 combine that with the more explicit word 15:18:06
16 substitution, content modification that is 15:18:10
17 disclosed explicitly by -- by Iwase. 15:18:16

18 Again, I believe that all of this is in 15:18:20
19 Shin or for that matter Shimomura, certainly Shin. 15:18:25
20 But if you need that, you can make that 15:18:29
21 combination for the explicit substitution. 15:18:34

22 Q Okay. So in paragraph 150, I guess, is 15:18:41

1	what I'm trying to clarify. In paragraph 150 you	15:18:52
2	say about halfway through the paragraph, as Iwase	15:18:58
3	(like Shin) determines the user-to --	15:19:03
4	user-to-device distance and alters the output	15:19:07
5	based on that distance.	15:19:11
6	A Yes.	15:19:13
7	Q So --	15:19:13
8	A That was a mistake.	15:19:14
9	Q What is that?	15:19:17
10	A I need to read the report and not look at	15:19:17
11	the sources. Give me a second to look at the	15:19:20
12	places that are cited in the report 959 to 10, 9,	15:19:23
13	this is completely on me. It is getting hard.	15:19:30
14	Q No problem, and I can -- I can make it a	15:19:38
15	little bit more efficient. Basically what I'm	15:19:41
16	just trying to figure out is whether you're --	15:19:43
17	you're saying in paragraph 150 that Iwase also	15:19:49
18	does or that Iwase also discloses voice	15:19:52
19	classification based on distances or if you are	15:19:57
20	saying that Iwase does the device-to-user distance	15:20:00
21	calculation and then the adjustment of the output,	15:20:10
22	but you're not relying on Iwase to disclose the	15:20:12

1	classification of the voices in the context of	15:20:16
2	claim 1?	15:20:18
3	A Yeah, give me a second.	15:20:18
4	MR. REEVES: Objection, form.	15:20:20
5	Q No problem.	15:20:21
6	A So I do see beginning in column 10 they --	15:20:43
7	they, meaning Iwase, et al., discuss estimating	15:20:47
8	distance based on the size of the images best	15:20:51
9	shown in the camera. So there is a way of	15:20:54
10	inferring distance, 1132, 1139. 1132 talks about	15:20:59
11	distance once again from the image analysis. And	15:21:13
12	1249 also talks about the distance.	15:21:28
13	Okay. Now I'm ready to answer the	15:21:44
14	question. But so there is distances -- distance	15:21:46
15	estimation at least that is disclosed in the Iwase	15:21:51
16	patent. This actually is a patent. Could you	15:21:55
17	repeat the question?	15:22:01
18	Q Sure. Is it your position that Iwase	15:22:01
19	discloses the classification of voices based on	15:22:07
20	distance?	15:22:11
21	MR. REEVES: Objection, form.	15:22:16
22	A Iwase, as I understand it, is concerned	15:22:17

1 primarily with classifying the voices based on the 15:22:32
2 putative amount of user attention to what is going 15:22:37
3 on, but one of the components for that is 15:22:41
4 distance. As you see in the one, little simple 15:22:48
5 equation in the beginning of column 11, they 15:22:51
6 implied taking linear combination of various type 15:22:54
7 of measurements. One of which is -- one of which 15:22:57
8 would be distance as implied by the fact that it 15:23:03
9 is measured or disclosed repeatedly in columns 10 15:23:09
10 and 11 -- 11 and 12 rather. 15:23:12

11 I would say based on my interpretation of 15:23:14
12 the specification that the classification is not 15:23:21
13 made solely on distance, but in part based on 15:23:26
14 distance. 15:23:29

15 Q Okay. So to kind of step through that a 15:23:37
16 little bit. You -- it is your position that Iwase 15:23:41
17 does disclose voice classification, and I will 15:23:47
18 pause there, correct? 15:23:53

19 MR. REEVES: Objection, form, asked and 15:23:57
20 answered. 15:23:58

21 A Does disclose voice classification, is 15:23:58
22 that what you asked? 15:24:11

1 Q Yes. 15:24:12

2 A All right. Again, I try to draw you back 15:24:12

3 to the same distinction that we've been discussing 15:24:15

4 pretty much all day, all afternoon at this point. 15:24:20

5 And that has been that the classification is based 15:24:25

6 on physical measurements that vary from reference 15:24:30

7 to reference, but that generally are something 15:24:34

8 other than voice, per se. In this case they're 15:24:37

9 not voice, per se. But that the result of those 15:24:42

10 classifications is used to modify what is 15:24:45

11 presented back to the user by the system. 15:24:51

12 And that is a common thread in all of the 15:24:55

13 prior art references that we cite, that I cite 15:24:58

14 and, of course, the '675 patent. 15:25:01

15 Q Okay. The -- I think we're -- I think 15:25:06

16 we're getting there, but it is still not quite 15:25:12

17 clear for me, so I will add some more color. 15:25:15

18 In the ground, in -- let's see, paragraphs 15:25:19

19 142 through 152 of your -- of your declaration. 15:25:25

20 So here you are -- you are describing the 15:25:35

21 combination of Shin, Shin and Iwase, correct? 15:25:39

22 A Yes. 15:25:49

1	Q Okay. So what is not clear to me from --	15:25:50
2	from your -- from these paragraphs of your	15:25:56
3	declaration is whether, in this combination	15:25:58
4	whether you are relying on Shin to disclose the	15:26:03
5	voice classification elements of the claim or	15:26:07
6	whether you are relying on Iwase to disclose it.	15:26:10
7	So the -- of these paragraphs in your	15:26:18
8	declaration, there is nothing that explicitly says	15:26:21
9	that you are relying on Iwase to disclose that.	15:26:25
10	But for paragraph 150, where -- as I said, where	15:26:30
11	it refers to as Iwase like Shin determines the	15:26:38
12	user-to-device distance and alters the output	15:26:41
13	based on that distance, it is just not clear to me	15:26:45
14	whether you are referring to voice classification	15:26:47
15	in making that statement or not. So I'm just	15:26:51
16	trying to clarify what -- what the mapping is	15:26:55
17	exactly.	15:27:00
18	A Yes.	15:27:01
19	MR. REEVES: Objection, form.	15:27:01
20	A Okay. First, again, I want to remind you	15:27:02
21	that I wrote this a while ago and I've written	15:27:07
22	other ones since then. And after -- the way these	15:27:10

1 things are is that there is months of inactivity, 15:27:14
2 six or seven months in this case and then all of a 15:27:17
3 sudden a lot of attention is focused on it, so I 15:27:21
4 have to actually look at the text for the details. 15:27:24

5 It looks like what I'm saying here, 15:27:26
6 especially in paragraphs 144, 145, is these 15:27:28
7 paragraphs refer to the distance calculations in 15:27:34
8 Shin combining them with the word replacement of 15:27:41
9 Iwase. But I want to call your attention, it 15:27:45
10 doesn't have to be that way, because Iwase also 15:27:49
11 discloses calculating distance between the user 15:27:52
12 and the device and using that as the basis or at 15:27:57
13 least partially using that as the basis for the 15:28:00
14 decision of how to present the output back to the 15:28:03
15 user. 15:28:06

16 Q Right. Right. So I think what you are 15:28:09
17 saying is, you know, because these paragraphs are, 15:28:21
18 you know, referring more to the, like, the word 15:28:27
19 replacement aspects of Iwase, I think what you are 15:28:34
20 saying is that in this ground, like in these 15:28:40
21 paragraphs, you know, when you are trying to sort 15:28:44
22 of identify and map a disclosure from the prior 15:28:48

1	art reference to each and every claim element, I	15:28:51
2	think you are saying that for the voice	15:28:53
3	classification element of the claim in this	15:28:55
4	ground, that you are still relying on Shin to	15:29:01
5	disclose that?	15:29:03
6	A That is the way I wrote the declaration.	15:29:05
7	But again, I'm only calling to your attention the	15:29:08
8	fact that it doesn't have to be that way. That	15:29:12
9	Iwase -- it could have been distance detection	15:29:15
10	from Iwase --	15:29:17
11	Q Okay.	15:29:19
12	A -- rather than Shin. It is in there.	15:29:22
13	Q Okay.	15:29:25
14	A And always there are multiple ways that	15:29:27
15	the prior art could be combined and it is foolish	15:29:29
16	to try to deal with every permutation.	15:29:35
17	Q All right. So it is 3:30 or 3:30 Eastern,	15:29:38
18	I think 12:30 where you all are; is that correct?	15:29:58
19	A No. We're -- we're in -- we're in	15:30:02
20	Pittsburgh.	15:30:03
21	Q I see, okay, got it.	15:30:04
22	A I'm curious by the way, where are you?	15:30:06

1	Q I'm in Washington D.C. area.	15:30:09
2	A Okay.	15:30:11
3	MR. REEVES: I would like to take a break	15:30:15
4	if you don't mind.	15:30:16
5	MR. SPRENGER: Let's go off the record	15:30:17
6	real quick.	
7	VIDEOGRAPHER: The time is 3:30 p.m.	15:30:22
8	We're going off the record.	15:30:23
9	(Recess, 3:30 to 4:01 p.m.)	15:30:24
10	VIDEOGRAPHER: The time is 4:01 p.m. We	16:00:42
11	are now back on the record.	16:01:27
12	Q All right. So Dr. Stern, if we could go	16:01:28
13	to paragraph 227 of your declaration.	16:01:31
14	A Yes.	16:01:48
15	Q And paragraph 227 is talking about the	16:01:48
16	Schuster reference, correct?	16:01:52
17	A That's correct.	16:01:57
18	Q And more specifically it is talking about	16:01:57
19	the Schuster reference in the context of claim 5	16:01:59
20	of the '675 patent; is that correct?	16:02:02
21	A Yes.	16:02:05
22	Q Okay. So in paragraph 227 in the middle	16:02:06

1	-- sorry, strike that.	16:02:30
2	In paragraph 227, the second sentence	16:02:31
3	starting with Schuster's device. Could you read	16:02:36
4	that for the record, please?	16:02:39
5	A Of course. Schuster's device enters a	16:02:41
6	private communication mode with the user when the	16:02:44
7	user's preceding voice interactions with the	16:02:47
8	device is whispered.	16:02:50
9	Q Okay. How does Schuster determine whether	16:02:52
10	the voice interaction is whispered?	16:02:55
11	A I'm not sure, let me check. It may not	16:02:58
12	say, but it may.	16:03:05
13	Q Okay.	16:03:07
14	A So column 6, line 34 simply states, Thus	16:03:27
15	at stage 303 the device evaluates whether a	16:03:31
16	whisper input has been received from the user.	16:03:34
17	Q Could you give -- could you give me that	16:03:41
18	column and line number one more time? I'm sorry.	16:03:43
19	A Column 6, I'm starting on line -- I'm	16:03:45
20	starting on line somewhere, but the most important	16:03:55
21	thing is if we go down in column 6 to line 38, the	16:04:01
22	device may detect that spoken input is whispered	16:04:08

1 by using cepstral analysis or other suitable 16:04:13
2 method with respect to the incoming microphone. 16:04:14

3 So that is a method that a person of 16:04:17
4 ordinary skill in the art including myself would 16:04:20
5 know what they mean. I could describe it if you 16:04:22
6 wish, but it refers to a particular way of 16:04:25
7 detecting whispers. 16:04:28

8 Q Okay. Yeah, if you could just describe it 16:04:29
9 for me at a high level that would be great. 16:04:34

10 A Okay. Well, very briefly, cepstral 16:04:36
11 coefficients are obtained by taking a short 16:04:40
12 segment of speech, computing the Fourier 16:04:45
13 Transform, computing the log of the magnitude of 16:04:50
14 the Fourier Transform and then taking the inverse 16:04:53
15 Fourier Transform. 16:04:56

16 And the motivation for all of this is that 16:04:57
17 it separates the effect of the excitation which 16:04:59
18 are those pitch pulses that I referred to 16:05:05
19 previously from the vocal track function, which 16:05:07
20 determines what consonant or vowel is being 16:05:10
21 spoken. 16:05:16

22 The pitch shows up as a pulse on a display 16:05:16

1	along something called a quefreny axis as the	16:05:23
2	permutation of the forming a frequency. And the	16:05:27
3	presence or absence of a pulse at a time that is	16:05:31
4	roughly around 1 over 100 hertz for men, what is	16:05:37
5	that about 100th of a second, 10 milliseconds,	16:05:43
6	indicates whether -- whether or not you have	16:05:50
7	voicing. In the absence of that, it would	16:05:51
8	indicate whispered speech.	16:05:56
9	Q Okay. All right. And your position is	16:05:57
10	that Schuster can be combined with Shin and --	16:07:31
11	and/or Shimomura in part because Shin and	16:07:41
12	Shimomura disclose, you know, the ability to	16:07:48
13	receive and process a wide range of voice signals	16:07:56
14	including whispers; is that correct?	16:08:01
15	A No. My --	16:08:03
16	MR. REEVES: Objection, form.	16:08:06
17	A I'm sorry. No, that is not correct. My	16:08:07
18	position is that Shin and Shimomura by themselves	16:08:12
19	are completely adequate for processing whispers,	16:08:19
20	because whisper is just another form of speech.	16:08:24
21	There is in -- again, my parsing of claim 5 of the	16:08:31
22	'675 patent is that the voice classifying unit is	16:08:41

1 further configured to determine the voice to be 16:08:47
2 the predetermined voice, then I put an, even when 16:08:49
3 the voice spoken by the user is a whisper, but 16:08:54
4 certainly including when the voice spoken by the 16:08:58
5 user is that. 16:09:01

6 Now, an alternate reading of that, which I 16:09:03
7 don't agree with, may imply that you can detect a 16:09:20
8 predetermined voice by detecting the presence or 16:09:26
9 absence of a whisper. And if that were the case, 16:09:28
10 then you would -- then we would say that that 16:09:33
11 is -- that is rendered obvious by the teachings of 16:09:37
12 Schuster. But as far as I'm concerned, you don't 16:09:42
13 really need Schuster for anything. 16:09:45

14 Q Okay. Was -- was there some reason, then, 16:09:49
15 that you relied on Schuster? 16:09:54

16 MR. REEVES: Objection, form. 16:09:57

17 A We don't rely on it. We say that as an 16:09:58
18 alternative, if -- if that argument that we make 16:10:03
19 based on Shin is not accepted, then that is a 16:10:06
20 backup. 16:10:12

21 Q Okay. 16:10:13

22 A But, you know, it is -- it is an alternate 16:10:14

1	ground.	16:10:17
2	Q Okay. So let's go back in your	16:10:26
3	declaration to paragraph 167.	16:10:32
4	Did you have a chance to get there?	16:11:04
5	A I'm there. Yeah, I'm sorry, I should have	16:11:05
6	told you.	16:11:08
7	Q That is okay.	16:11:08
8	So paragraph 167 is describing Shimomura	16:11:09
9	in the context of claim 1 of the '675 patent,	16:11:16
10	correct?	16:11:21
11	A Yes.	16:11:21
12	Q And in paragraph 167, I believe it is the	16:11:23
13	second sentence starting with Shimomura's control,	16:11:40
14	could you please read that sentence for the	16:11:44
15	record?	16:11:46
16	A Shimomura's control unit includes an image	16:11:46
17	recognition unit. The image recognition unit may	16:11:50
18	detect and calculate a distance to the user based	16:11:54
19	on the image signal S1 from the CCD camera 20.	16:11:58
20	Q Is it your -- based on those sentences	16:12:03
21	from your declaration, is it your understanding	16:12:08
22	that Shimomura only uses an image recognition unit	16:12:11

1	to calculate distance?	16:12:14
2	MR. REEVES: Objection, form.	16:12:18
3	A That's my recollection, but let me check.	16:12:23
4	So I looked at the initial discussion of	16:15:14
5	the distance estimation, which is in paragraph 39	16:15:17
6	as indicated in the declaration. And my text	16:15:22
7	makes reference to a distance sensor around	16:15:29
8	paragraph 59 and it goes beyond that. So I looked	16:15:33
9	at the text between paragraph 39 and paragraph 59	16:15:43
10	and did not see any other form of distance	16:15:47
11	estimation explicitly disclosed.	16:15:54
12	Now, 39 does refer to the size and	16:15:57
13	orientation and that is presumably the way in	16:16:02
14	which the distance is estimated. They very	16:16:06
15	clearly rely on the distance, because it is --	16:16:15
16	distance is cited multiple times in the text that	16:16:18
17	follows.	16:16:21
18	Q Okay. And I see that in your -- in	16:16:25
19	paragraph 168 of your declaration that you	16:16:29
20	identified both the CCV cameras and the distance	16:16:35
21	sensor of Shimomura to disclose the --	16:16:40
22	A Well, it references the proximity sensor.	16:16:44

1 And, you know, if I were sitting in my home or
2 office, I would search the PDF for proximity and
3 see what they have in mind, but I didn't see that
4 in the document.

5 The proximity sensor could be the distance
6 estimation within the CCD display or it could be
7 something else, but I didn't find it in the short
8 time that I looked for it. It could be there, but
9 it would be somewhere else in the document.

10 Q Okay.

11 A In any case, to me it doesn't matter,
12 because it is disclosed that you do distance
13 estimation.

14 Q Okay. And so your understanding is that
15 at least of these two particular elements meaning
16 the CCD cameras and the distance sensor of
17 Shimomura, is your -- is your understanding that
18 each of those things individually can calculate a
19 distance or do they have to work together to
20 calculate the distance?

21 MR. REEVES: Objection, form.

22 A I'm assuming that each could work

1 separately. The way it is described in the 16:17:59
2 patent, that simply happens. So the implication 16:18:03
3 is that they work on a stand-alone basis, but I 16:18:08
4 would have to have more information to assess that 16:18:11
5 professionally. The reference simply teaches that 16:18:14
6 distance -- distance is calculated and that 16:18:29
7 impacts on something else that happens in terms of 16:18:31
8 the output. 16:18:34
9 Q Okay. Okay. So let's go to page 49 of 16:18:34
10 the petition. 16:18:54
11 A Yes. 16:19:19
12 Q At page 49 is referring to -- well, it is 16:19:19
13 describing Shimomura in the context of claim 1 of 16:19:29
14 the '675 patent, correct? 16:19:33
15 A Yes. 16:19:34
16 Q Okay. And in the last paragraph on that 16:19:38
17 page the petition reads, Shimomura's -- 16:19:41
18 Shimomura's processor, quote, analyzes the voice 16:19:50
19 to classify it as either a first or second voice 16:19:56
20 based on the user-to-device distance. That is 16:20:00
21 towards the bottom of page 49. Do you see that? 16:20:04
22 A Yes, I see that, I do. 16:20:07

1	Q And that sentence only cites to paragraphs	16:20:08
2	169 through 171 of your declaration; is that	16:20:16
3	correct?	16:20:21
4	MR. REEVES: Objection, outside the scope.	16:20:21
5	A Well, I wasn't asked to opine on the -- on	16:20:23
6	the petition, but I will state the obvious that	16:20:41
7	that is what it says.	16:20:44
8	Q Okay. So let's go to paragraphs 169	16:20:45
9	through 171 of your declaration. Do you agree	16:20:54
10	that paragraphs 169 through 171 of your	16:21:05
11	declaration are substantively the same as the	16:21:08
12	paragraphs on pages -- on pages 49 through 50 of	16:21:13
13	the petition, specifically the paragraph at the	16:21:18
14	bottom of page 49?	16:21:24
15	MR. REEVES: Objection, form.	16:21:27
16	A It looks that way.	16:21:32
17	Q Okay. So do you agree that -- well,	16:21:34
18	paragraph 169 then also includes the sentence that	16:21:39
19	Shimomura's processor, quote, analyzes the voice	16:21:44
20	to classify it as either a first or second voice	16:21:47
21	based on the user-to-device distance; is that	16:21:49
22	correct?	16:21:52

1	A That is, I believe, give me a second.	16:21:52
2	Q Uh-huh.	16:22:01
3	A I'm looking at the Shimomura reference,	16:22:02
4	which is hard to read because the type is very	16:22:04
5	small.	16:22:08
6	Q And I can clarify it. My question is just	16:22:09
7	asking about basically what the first sentence in	16:22:12
8	the -- at that paragraph in your declaration is?	16:22:14
9	A 169?	16:22:18
10	Q Yes.	16:22:20
11	A Well, what I'm looking at here is	16:22:20
12	paragraph 70 in the Shimomura reference says	16:22:27
13	specifically, when the distance to the	16:22:33
14	conversation partner given as distance information	16:22:36
15	is, for example, less than 50 centimeters, the	16:22:39
16	speech synthesis unit determines the reference	16:22:43
17	volume read from the reference volume memory unit	16:22:45
18	at the current speech volume and/or the distances	16:22:48
19	in the range of 50 to 80 centimeters determines a	16:22:50
20	volume that is predetermined specified value	16:22:54
21	higher than the reference volume as the current	16:22:57
22	speech volume. And similarly for various larger	16:22:59

1 distances, it goes to successively higher output 16:23:03
2 volume. 16:23:09

3 So again, as we've seen throughout the 16:23:10
4 course of the day, we have a plurality of prior 16:23:12
5 art references that take physical measurements and 16:23:14
6 modify the output of the device based on the 16:23:17
7 findings of those measurements. 16:23:20

8 Q Okay. Right. So do you agree that that 16:23:23
9 first sentence of paragraph 169 in your 16:23:41
10 declaration, there is nothing cited, like, 16:23:43
11 directly after that sentence, correct? 16:23:47

12 MR. REEVES: Objection, form. 16:23:51

13 A There is nothing between the period at the 16:23:53
14 end of the sentence and the beginning of the next 16:23:57
15 sentence, that is correct. 16:23:59

16 Q Okay. So of the cites that come after 16:23:59
17 that sentence later in the paragraph, what exactly 16:24:08
18 from those citations are you relying on to support 16:24:13
19 that Shin discloses classifying the voice as 16:24:16
20 either first or second voice based on distance? 16:24:24

21 MR. REEVES: Objection, form. Counsel, do 16:24:28
22 you mean Shimomura? You said Shin. 16:24:30

1	MR. SPRENGER: I apologize, yes,	16:24:33
2	Shimomura, apologies.	16:24:34
3	A I didn't even hear that. I must have said	16:24:36
4	Shimomura in my mind.	16:24:42
5	So there are a couple of things. One is	16:24:43
6	that we have already discussed the fact that the	16:24:47
7	first voice, second voice may be rendered obvious	16:24:51
8	by other prior art that may separate or classify	16:24:59
9	speech based on distance between the source and	16:25:07
10	the speaker in a way that might have more than	16:25:11
11	just simply two decision categories. This is an	16:25:14
12	example of that.	16:25:18
13	There probably are multiple places in	16:25:20
14	Shimomura in -- in which -- in which this kind of	16:25:23
15	operation is disclosed, but paragraph 70 seems to	16:25:30
16	be as good as any. It talks about measuring --	16:25:34
17	measuring the distance between the speaker and the	16:25:38
18	device, and modifying, in this case, the volume of	16:25:41
19	the output that is returned to the user.	16:25:45
20	Q Okay. So let's go to paragraph 170, the	16:26:14
21	next paragraph of your declaration.	16:26:18
22	A Already there.	16:26:21

1 Q All right. And is it -- it is true that 16:26:25
2 that paragraph only cites to figure 7 in 16:26:29
3 paragraphs 60 through 64 of Shimomura; is that 16:26:34
4 correct? 16:26:37

5 A Yes. 16:26:37

6 Q Okay. And figure 7 of Shimomura 16:26:42
7 illustrates the classification of the distance 16:26:50
8 between a user and the electronic device, correct? 16:26:53

9 MR. REEVES: Objection, form. 16:26:57

10 A I believe it does. As you know, these 16:26:57
11 Japanese patent applications all have the figures 16:27:03
12 at the end and somehow they're -- and compounded 16:27:06
13 by the fact that figure 7 is on a different page, 16:27:18
14 yes, page 17. 16:27:23

15 And again, I've forgotten the question, 16:27:26
16 but could you repeat it? 16:27:31

17 Q Yeah, that is okay. 16:27:32

18 The question was figure 7 of Shimomura 16:27:34
19 illustrates the classification of a distance 16:27:36
20 between a user and the electronic device, correct? 16:27:39

21 A That's correct. 16:27:41

22 MR. REEVES: Objection, form. 16:27:42

1	A That's correct, sorry.	16:27:44
2	Q Okay. Do you agree that figure 7 of	16:27:46
3	Shimomura includes various distance ranges and	16:27:50
4	different output scheme corresponding to each	16:27:54
5	distance range?	16:27:57
6	A We're talking about figure 7 of Shimomura?	16:27:58
7	Q Correct. Did I say Shin again? I	16:28:01
8	apologize.	16:28:03
9	A No, no, no, I just wanted to make sure. I	16:28:03
10	think it was Shimomura.	16:28:06
11	Q Yes.	16:28:06
12	A There are two distance ranges and, you	16:28:08
13	know, two separate output schemes.	16:28:19
14	Q Okay. And what is meant in figure 7 by	16:28:22
15	implementation versus none?	16:28:28
16	A I believe that implementation refers to	16:28:33
17	the modified output, whatever that might be. I	16:28:37
18	think in this case possibly inserting the syllable	16:28:40
19	ma between various different phrases of the	16:28:45
20	output. That is one thing that is cited.	16:28:49
21	Q Okay. And is it your understanding that	16:28:51
22	the distances included in figure 7 are calculated	16:29:09

1	by the -- well, calculated by, I believe it was	16:29:16
2	the CCD camera and the distance sensor of	16:29:29
3	Shimomura?	16:29:39
4	A Yes, I don't think anything else was	16:29:41
5	disclosed.	16:29:42
6	Q Okay. And figure 7 does not mention the	16:29:44
7	word "voice" at all, correct?	16:29:52
8	A No. But once again, as we've been doing	16:29:53
9	all day, we have been talking about	16:30:00
10	classifications based on physical measurements	16:30:03
11	almost always other than voice, and then using	16:30:05
12	that to modify the output of what is returned.	16:30:08
13	Q In the context of Shimomura, is there a	16:30:13
14	difference between classifying a voice versus	16:30:32
15	classifying a distance?	16:30:35
16	MR. REEVES: Objection, form.	16:30:37
17	A Well, it is hard for me to answer that,	16:30:38
18	because we never talk about classifying a voice.	16:30:46
19	We talk about classifying based on distance. The	16:30:49
20	input is always the physical measurement. The	16:30:54
21	output is the presentation of voice, but the	16:30:56
22	classification is based on the input.	16:31:01

1 Q Okay. So I am looking -- actually, yeah, 16:31:03
2 all good. 16:31:18

3 So referring again to paragraph 170, the 16:31:18
4 -- it includes, figure 7 includes some additional 16:31:38
5 annotations, correct? 16:31:42

6 A It does. 16:31:43

7 Q And where do these annotations come from? 16:31:45

8 A I put them in. 16:31:48

9 Q And what do they represent? 16:31:52

10 A Well, it was the attempt to establish a 16:31:54
11 correspondence between the classifications 16:31:58
12 performed by the Shimomura device and the '675 16:32:03
13 invention, putative invention. 16:32:09

14 Q And referring to paragraphs 60 to 64 of 16:32:12
15 Shimomura, which you cite in paragraph 170, what 16:32:40
16 exactly from those paragraphs are you relying on 16:32:49
17 to support your position that Shimomura discloses 16:32:54
18 classifying speech into two categories? 16:32:57

19 MR. REEVES: Objection, form. 16:33:03

20 A Well, just starting at the beginning and I 16:33:03
21 haven't even looked over the entire section, but 16:33:29
22 paragraph 60, when the speech character string 16:33:32

1	transformation unit transformation unit 51 is	16:33:36
2	given character string and distance information	16:33:39
3	from the behavior selection control unit 45, it	16:33:43
4	judges whether or not to transform the character	16:33:47
5	string based on the character string information	16:33:51
6	according to the character string information --	16:33:54
7	character string transformation processing	16:33:58
8	procedure RT2 shown in figure 8 based on the	16:34:02
9	distance information and the character string	16:34:04
10	transformation determination table 50, and	16:34:08
11	transforms the characteristic string table -- the	16:34:10
12	character -- and transforms the character string	16:34:13
13	if necessary. Apologize for the sentences.	16:34:18
14	Q So a lot of jargon there. Are you able	16:34:23
15	to --	16:35:00
16	A It is not the best writing.	16:35:01
17	Q Are you able to identify a little bit more	16:35:04
18	precisely sort of what -- what from that, like,	16:35:06
19	what language or wording you are relying on to	16:35:09
20	support the voice classification?	16:35:12
21	MR. REEVES: Objection, form, asked and	16:35:14
22	answered.	16:35:19

1 A Just repeat the answer that I previously
2 disclosed. It is a long sentence, but what I'm
3 relying on is on the fourth line shown in figure 8
4 based on the distance information. It says, based
5 on -- you have a character string coming in, you
6 have distance information. Based on that, if the
7 distance is far away, then you go through this
8 transformation determination table and transform,
9 if necessary, to the character string.

16:35:19
16:35:21
16:35:25
16:35:32
16:35:35
16:35:38
16:35:41
16:35:44
16:35:49

10 Q Okay. That is helpful. Thank you for
11 that explanation.

16:35:51
16:35:57

12 In contrast to Shin, which disclosed the
13 dichotomous classification, we talked about that
14 earlier, would you agree that there is no such
15 disclosure in Shimomura which is why, you know,
16 you haven't cited to anything, you know, to that
17 effect?

16:36:14
16:36:20
16:36:22
16:36:26
16:36:32
16:36:37

18 MR. REEVES: Objection, form.

16:36:37

19 A I wouldn't say that. For example, right
20 on the page we're on, figure 7 from Shimomura,
21 shows two categories. But keep in mind what I've
22 been saying throughout the day has been the

16:36:38
16:36:42
16:36:45
16:36:51

1 decision to use two categories of the binary or 16:36:53
2 dichotomous classification or a greater number of 16:36:59
3 categories really is going to vary from 16:37:03
4 application to application. 16:37:09

5 And I don't believe that any of the 16:37:12
6 inventors of any of the pieces of even the '675 16:37:14
7 patent or the prior art would envision that the 16:37:18
8 applicability of their invention is limited only 16:37:25
9 to the number of decision categories and decision 16:37:29
10 boundaries that are explicitly disclosed in the 16:37:34
11 specification. 16:37:38

12 Q Okay. So let's go to paragraph 192 of 16:37:38
13 your declaration. 16:38:13

14 A Yes, I'm there. 16:38:25

15 Q Okay. So here you suggest that Shimomura 16:38:26
16 discloses the claimed, quote-unquote, second 16:38:31
17 output sentence which includes all of the 16:38:36
18 intention information and the content information, 16:38:38
19 correct? 16:38:44

20 A That's correct. 16:38:44

21 Q Referring to paragraph 193 -- strike that, 16:38:44
22 one second. 16:39:07

1 Referring to paragraph 193, could you read 16:39:12
2 the second to last sentence or I guess it is the 16:39:15
3 second sentence in the paragraph starting with 16:39:21
4 "thus"? 16:39:22

5 A Thus, when the voice is classified as a 16:39:22
6 second voice, that is closer than or, for example, 16:39:27
7 closer than 350 centimeters, the device generates 16:39:32
8 a second output sentence comprising the original 16:39:36
9 content without adjustment. 16:39:39

10 Q Okay. What is your understanding of what 16:39:43
11 original, quote-unquote, content without 16:39:51
12 adjustment means? 16:39:54

13 A In the references that we have been 16:39:55
14 looking at, and it is not only Shimomura -- 16:39:57
15 Shimomura, it is Shin and quite probably some of 16:39:59
16 the others as well, the original content is the 16:40:02
17 complete answer without any simplification, 16:40:06
18 modification, dumbing down, anything like that. 16:40:11
19 The answer in all of its detail. 16:40:17

20 Q Okay. And paragraph 193 is in the context 16:40:20
21 of the explanation, let's say, in your declaration 16:40:27
22 about the claimed second output sentence, correct? 16:40:33

1	A That's right.	16:40:36
2	Q So are you relying on, quote-unquote,	16:40:38
3	original content without adjustment to disclose	16:40:43
4	the claimed all intention information and the	16:40:47
5	content information?	16:40:56
6	A Let's take a look here. First off, going	16:40:58
7	to I guess I'm looking at paragraph 62 in	16:41:01
8	Shimomura. The transformation unit 49 judges that	16:41:04
9	the character string should not be transformed if	16:41:11
10	the distance to the conversation partner	16:41:15
11	recognized by the image recognition unit is less	16:41:17
12	than 350 centimeters according to the table. So	16:41:20
13	you leave it alone if you are speaking closely.	16:41:24
14	Now, in the 975 patent, and I'm looking	16:41:29
15	for that in this large pile of documents in front	16:41:35
16	of me.	16:41:39
17	Q Just for clarity, do you mean the '675	16:41:40
18	patent?	16:41:45
19	A The '675 patent, thank you.	16:41:45
20	Q I know it is getting late.	16:41:48
21	A We always talk about the late afternoon	16:41:54
22	fatigue after lunch and I speculated earlier	16:42:01

1 whether that holds even if you are not eating your 16:42:04
2 own lunch, but I still find myself looking forward 16:42:08
3 to going home. 16:42:13

4 Anyway, in the '675 patent, at the very 16:42:15
5 end of claim 1, and to generate when the voice is 16:42:23
6 not determined to be the second voice, a second 16:42:27
7 output sentence which includes all of the 16:42:30
8 intention information and the content information. 16:42:32
9 So that is the correspondence. 16:42:34

10 Q Okay. So going to paragraphs 197 through 16:42:37
11 203 of your declaration. 16:44:11

12 A Yes. 16:44:14

13 Q These paragraphs are talking about the 16:44:15
14 Shimomura reference in the context of claim 5, 16:44:23
15 correct? 16:44:27

16 A That's correct. 16:44:27

17 Q So simply talking about paragraph 198? 16:44:28

18 A Uh-huh. 16:44:54

19 Q Could you just read that for the record? 16:44:55

20 A Shimomura discloses that its device 16:44:57
21 receives and processes speech input from a user. 16:45:01
22 The whisper is a form of speech, therefore, 16:45:04

1 Shimomura discloses classifying a whispered voice. 16:45:07

2 Q So is it your position that the processing 16:45:12
3 that Shimomura conducts in order to detect regular 16:45:19
4 speech is the same as the process that it uses to 16:45:24
5 detect a whispered voice? 16:45:30

6 MR. REEVES: Objection, form. 16:45:32

7 A I want to be very careful here. I'm not 16:45:34
8 talking to you about detecting either whispered 16:45:37
9 speech or normally spoken speech. It is just 16:45:41
10 speech is taken in. There is nothing in the claim 16:45:45
11 language of the '675 patent or the disclosures in 16:45:49
12 anything other than Schuster that suggests that 16:45:55
13 there is anything special going on to detect the 16:45:58
14 presence of whispers. 16:46:01

15 Again, we're saying that whispered speech 16:46:03
16 comes in. Distance calculations are obtained, and 16:46:05
17 we process the speech possibly modifying the 16:46:10
18 output based on the distance calculation and it 16:46:13
19 should still work even when the speech is 16:46:17
20 whispered. 16:46:19

21 MR. SPRENGER: Okay. Could I go off the 16:47:13
22 record really quickly? 16:47:17

Transcript of Richard Stern, Ph.D.
Conducted on December 10, 2025

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1	MR. REEVES: Sure.	16:47:19
2	VIDEOGRAPHER: The time is 4:47 p.m.	16:47:20
3	We're going off the record.	16:47:23
4	(Recess, 4:47 to 4:55 p.m.)	16:47:24
5	VIDEOGRAPHER: The time is 4:55 p.m. We	16:54:58
6	are now back on the record.	16:55:11
7	Q All right. So Dr. Stern, I just have a	16:55:13
8	couple more questions, but possibly just one but	16:55:17
9	we will see how it goes.	16:55:20
10	So I'm referring back to something you	16:55:21
11	said earlier towards the beginning of the	16:55:23
12	deposition when you were describing the Schuster	16:55:27
13	reference just at a high level. You said that	16:55:29
14	Schuster has specific components to determine	16:55:32
15	whether the user is whispering or not.	16:55:35
16	Do you recall that statement?	16:55:39
17	A Not specifically, but I believe you.	16:55:40
18	Q Okay. So I just wanted to follow-up on	16:55:44
19	that about, you know, what were these specific	16:55:48
20	components that were in your mind that you were	16:55:50
21	thinking about?	16:55:52
22	A Sure. We actually did talk about that.	16:55:53

1	You asked me how the whisper was detected, and I	16:55:57
2	looked quickly through the Schuster reference.	16:56:03
3	And typically not a lot of specificity, but it did	16:56:06
4	mention cepstral processing and that was that	16:56:12
5	detecting the presence or absence of the pulse in	16:56:14
6	the quefrency axis. By the way that is, cepstral	16:56:18
7	was C-E-P-S-T-R-A-L and quefrency is	16:56:21
8	Q-U-E-F-R-E-N-C-Y. That might save me writing it	16:56:27
9	on the proofreading.	16:56:31
10	You detect the presence or absence of a	16:56:32
11	pulse along the quefrency axis that would	16:56:36
12	indicate voicing the presence or absence of voices	16:56:41
13	in turn and the absence of voice would be taken to	16:56:44
14	indicate the status of whispering.	16:56:48
15	Q Okay. Perfect. I have no further	16:56:50
16	questions at this time. As you may know with	16:56:54
17	IPRs, you know, we might call you again for a	16:57:00
18	deposition after receiving your reply declaration,	16:57:03
19	to the extent that you file one. But for now, I'm	16:57:07
20	happy to turn it over to you, Nathan.	16:57:10
21	MR. REEVES: Could we take 10 or 15	16:57:12
22	minutes and I will come back?	16:57:14

Transcript of Richard Stern, Ph.D.
Conducted on December 10, 2025

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1	MR. SPRENGER: Sure.	16:57:16
2	VIDEOGRAPHER: Please stand by. The time	16:57:18
3	is 4:57 p.m. We are going off the record.	16:57:19
4	(Recess, 4:56 to 5:06 p.m.)	16:57:21
5	VIDEOGRAPHER: The time is 5:06 p.m.	17:06:21
6	We're now back on the record.	17:06:25
7	EXAMINATION	
8	BY MR. REEVES:	17:06:26
9	Q Dr. Stern, I have a couple of questions	17:06:26
10	for you on redirect.	17:06:29
11	A Okay.	17:06:30
12	Q Could you turn to paragraphs 106 and 107	17:06:31
13	of your declaration?	17:06:34
14	A Yes, I'm there.	17:06:35
15	Q So in paragraph 106 you state that Shin	17:06:38
16	discloses that for a second voice the system	17:06:44
17	outputs the content without abbreviation, correct?	17:06:48
18	A Yes.	17:06:51
19	Q Do you recall discussing with Mr.	17:06:51
20	Sprenger today whether Shin's unabbreviated	17:06:57
21	content includes both the intention information	17:07:00
22	and the content information?	17:07:03

1	A Yes, I do.	17:07:05
2	Q And the intention information is, for	17:07:06
3	example, the fact that the user's request relates	17:07:10
4	to the weather, right?	17:07:14
5	A That's correct.	17:07:15
6	MR. SPRENGER: Objection, form.	17:07:15
7	Q And the content information is the	17:07:16
8	information the user was seeking, for example, the	17:07:21
9	temperature, right?	17:07:23
10	A Yes.	17:07:24
11	Q And in paragraph 107, you state that	17:07:25
12	Shin's output of unabbreviated content with the	17:07:31
13	output sentence at the current time is nine ten AM	17:07:35
14	You say, in this example the word "time" conveys	17:07:39
15	all intention information and derived from the	17:07:41
16	user statement, "Let me know what time is it now."	17:07:44
17	The words "nine ten" represent all content	17:07:47
18	information determined for that user statement.	17:07:50
19	Do you understand that?	17:07:54
20	MR. SPRENGER: Objection, form.	17:07:56
21	A Yes, I do.	17:07:56
22	Q Did anything that Mr. Sprenger ask you	17:07:57

1	today change that opinion?	17:07:59
2	A No, not at all.	17:08:01
3	MR. REEVES: I have no further questions.	17:08:04
4	MR. SPRENGER: I have no further questions	17:08:09
5	either, so I think we can go off the record.	17:08:11
6	VIDEOGRAPHER: The time is 5:08 p.m. we're	17:08:13
7	going off the record. This completes today's	17:08:15
8	deposition.	17:08:17
9	(Deposition adjourned at 5:08 p.m.)	
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CERTIFICATE OF SHORTHAND REPORTER

I, Susan S. Klinger, Certified Reporter
before whom the foregoing deposition was taken, do
hereby certify:

That RICHARD STERN, PH.D., the witness
whose deposition is hereinbefore set 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, that said testimony was
taken by me stenographically and thereafter
reduced to typewriting under my direction.

I further certify that the adverse party,
Amazon.com, et al, was represented by counsel at
the deposition.

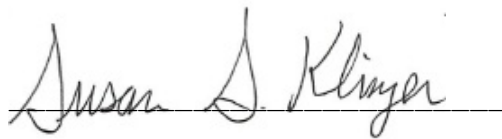
I further certify that the deposition of
RICHARD STERN, PH.D., occurred remotely on
December 10, 2025, commencing at 12:08 to 5:08.

I further certify that reading and signing
was not discussed.

I further certify that I am not related to

1 any of the parties to this action by blood or
2 marriage, I am not employed by or an attorney to
3 any of the parties to this action, and that I am
4 in no way interested, financially or otherwise, in
5 the outcome of this matter.

6 IN WITNESS WHEREOF, I have herunto set my
7 hand on the 14th of December, 2025.

8
9 
10

11 Susan S. Klinger, RMR-CRR, CSR

12 Texas CSR 6531, Exp: 10/31/27

13 California CSR 14487, Exp: 11/30/26
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