

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

- - -

3 AMAZON.COM SERVICES LLC,)
4 Petitioner,)Inter Partes
5 vs.)Review Nos.
6 SMART SPEAKER LLC,)IPR2026-00145
7 Patent Owner.)IPR2026-00276
8 Patent No. 11,128,710)
9 - - -

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12 The deposition of DR. MICHAEL SHAMOS, called as
13 a witness by the petitioner, pursuant to notice and
14 the Federal Rules of Civil Procedure pertaining to the
15 taking of depositions, taken before me, the
16 undersigned, Lance E. Hannaford, Notary Public in and
17 for the Commonwealth of Pennsylvania, at the Oaklander
18 Hotel, 5130 Bigelow Boulevard, Pittsburgh,
19 Pennsylvania 15213, commencing at 10:00 o'clock a.m.,
20 Wednesday, September 30, 2026.

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Job No. 8479048

Page 1

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2
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EXAMINATION BY:

PAGE:

Mr. Arjomand

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DEPOSITION EXHIBITS

(none)

Page 3

1 DR. MICHAEL SHAMOS
2 called as a witness by the petitioner, having been
3 first duly sworn, as hereinafter certified, was
4 deposed and said as follows:

5 EXAMINATION

6 BY MR. ARJOMAND:

7 Q Please state your name for the record.

8 A Michael Shamos, S-H-A-M-O-S.

9 Q Dr. Shamos, do you understand that you have
10 taken an oath to tell the truth today?

11 A Yes. I just did.

12 Q Is there any reason you cannot give
13 complete and accurate testimony today?

14 A No.

15 Q Dr. Shamos, have you served as an expert on
16 any prior patent cases?

17 A Yes.

18 Q How many?

19 A Patent cases, I think the number is around
20 330.

21 Q To your knowledge, has a court ever
22 excluded an opinion that you offered in a patent case?

23 A In a patent case? No. Not to my
24 knowledge.

25 Q In any other type of case?

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1 A Yes.

2 Q Can you explain those exclusions briefly to
3 me?

4 A Sure.

5 So I think it is case number 31 on my CV.
6 FedEx Ground case.

7 It was a copyright case. It was being
8 handled by a general purpose law firm that did not
9 have an intellectual property department. They did
10 not know what they were doing. They negotiated a
11 source code examination for me at FedEx Ground
12 headquarters which happens to be in the Pittsburgh
13 area.

14 I was not allowed to take anything into the
15 deposition -- into the examination. I was not allowed
16 to take notes.

17 When I went into the room I found multiple
18 boxes of sprocket fed paper. There was no computer.
19 I couldn't look at the source code meaningfully in any
20 way.

21 So the examination was quite short. I went
22 back to counsel and I said you have to negotiate a
23 different source code examination. I couldn't do a
24 side by side comparison.

25 They said "Mike, we will take care of it,

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1 don't worry about it."

2 The day came for my expert report. They
3 hadn't done anything about it. I wrote a total of
4 eight pages in which five of which were substantive,
5 in which I said "Well, if this occurred, then there
6 was infringement. If that occurred, then there was
7 infringement."

8 I couldn't say it occurred. So I
9 completely agree with the Judge's decision to exclude
10 my testimony. In fact, I even have a hyperlink to his
11 decision on my CV.

12 Q Any other cases, Dr. Shamos?

13 A So I think there have been cases where
14 there have been successful motions to strike portions
15 of my reports.

16 I don't believe I ever had a report
17 stricken in its entirety other than the case number
18 31.

19 Q Do you recall those cases where a portion
20 of your report was stricken by the court?

21 MR. OLIVER: Objection. Relevance.

22 A No. I don't. Sitting here I don't. It is
23 not common.

24 For example, I mean, I can't remember a
25 specific case. I can remember the nature.

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1 Sometimes I will have an opinion, let's say
2 in an infringement report that goes beyond the
3 infringement contentions. So there is a theory in my
4 report that is not in the contentions, and they move
5 to strike that.

6 Q But as you sit here today, you don't recall
7 any of those cases where a portion of your expert
8 report may have been stricken by a court?

9 A That's right.

10 Q Dr. Shamos, to your knowledge, has a court
11 ever criticized an opinion that you have offered in a
12 patent case?

13 MR. OLIVER: Objection. Form.

14 A It is possible.

15 I don't have a specific recollection.
16 Occasionally my opinions will be referred to in a
17 memorandum opinion. Usually positively. But it is
18 conceivable. I don't recall.

19 Q Okay.

20 Dr. Shamos, you are an expert that has been
21 hired by Smart Speaker LLC. Correct?

22 A Yes.

23 Q How many times have you represented Smart
24 Speaker LLC before this matter?

25 A None.

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1 Q How many times have you worked with the law
2 firm of Fabricant Rubino and Lambrianakos?

3 A If I can access my laptop, I can answer
4 that.

5 Q Sure.

6 A I will tell you exactly what I am doing. I
7 am going to the CV that is in my report. I am
8 searching for Fabricant.

9 MR. OLIVER: Counsel, do we want to get our
10 names on the record?

11 MR. ARJOMAND: Sure. We can do that. Go
12 ahead.

13 MR. OLIVER: Ryan Oliver from Fabricant
14 Rubino and Lambrianakos on behalf of Smart
15 Speaker LLC and the witness.

16 MR. ARJOMAND: Mehran Arjomand of Morrison
17 and Foerster on behalf of petitioner Amazon.com
18 Service LLC. With me is Anna Yuan also of
19 Morrison and Foerster.

20 A So it is not in my current CV. Which leads
21 me to suspect this is the first case. Sorry, it's not
22 in the CV that was attached to my declaration. I am
23 looking at my current CV. I doubt there will be any
24 difference. But we will see.

25 There is no difference.

Page 8

1 Obviously, my CV that was attached to my
2 declaration did not include this case. It now does
3 include this case. It is now number 418.

4 So this is the first case I have been with
5 that firm.

6 Q Let's go over some of the groundrules for
7 this deposition. Dr. Shamos, I will ask you
8 questions. After any objections from counsel, you
9 will answer my questions other than a few exceptions,
10 that I can address.

11 Do you understand?

12 A Yes.

13 Q The exceptions would be, for example, an
14 instruction not to answer based on attorney-client
15 privilege, or confidentiality issues.

16 Do you understand?

17 A Yes.

18 Q I don't expect that any of my questions
19 today will touch upon attorney-client privilege or
20 work product or confidentiality issues.

21 So I don't expect there will be any
22 instructions not to answer.

23 But if there are, we can address those when
24 they arise.

25 Does that make sense?

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1 A Yes.

2 Q We can take breaks whenever you would like.

3 Please let me know.

4 Are you okay with that?

5 A Yes. I will probably need more water.

6 Q Sounds good.

7 A The bottle is empty.

8 Q There is definitely water right behind me,

9 I believe.

10 A No.

11 MR. OLIVER: No.

12 Q Then we will get you some water.

13 A Thanks.

14 Q If there is a question pending, we need you

15 to answer that question before we take a break. Do

16 you understand?

17 A Yes.

18 Q During the breaks, you are not allowed to

19 speak to counsel on the subject matter of your

20 testimony.

21 Do you understand that?

22 A Yes.

23 Q So this deposition relates to two IPR

24 proceedings. IPR2026-00145 and IPR2026-00276.

25 Do you understand?

Page 10

1 A Yes.

2 Q Some of my questions will -- strike that.
3 Certain issues and prior art references
4 overlap between the two proceedings.

5 So if I ask you a question about such an
6 overlapping issue, or prior art reference, your
7 testimony will apply to both proceedings, unless
8 either you or I make clear that the question or
9 testimony relates to a specific proceeding.

10 Does that make sense to you?

11 A Yes.

12 Q Great.

13 Dr. Shamos, what did you do to prepare for
14 today's deposition?

15 A So I reviewed the materials in the two IPRs
16 over the weekend, this past weekend.

17 I had half an hour meeting with counsel on
18 Monday.

19 I had a four hour meeting with counsel
20 yesterday.

21 Q The one and a half hour meeting with
22 counsel on Monday, was that with Mr. Ryan here?

23 A Yes. It was half an hour.

24 Q Half an hour.

25 The four hour meeting was also with counsel

Page 11

1 here?

2 A Yes.

3 Q And you indicated that you reviewed
4 materials in preparation for the deposition today.

5 What materials did you review?

6 A Specifically, I looked at my declarations.
7 And the references that were referenced in the
8 declarations.

9 Q Did you look at anything else?

10 A I probably looked at the patent owner's
11 response. I may have looked at Dr. Houh's reports or
12 declarations.

13 Q Anything else beyond those?

14 A I don't think so.

15 Q Did you review any dictionary definitions?

16 MR. OLIVER: Objection. Relevance.

17 A I can give you a truthful answer that will
18 be subjectively false. So the answer is no. I didn't
19 look at any dictionary definitions.

20 Q Can you explain your qualification?

21 A Yes.

22 So I went to Google search, and I looked
23 for -- I typed in "appliance definition." I received
24 some Gemini output, which is not a dictionary.

25 Q I see.

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1 Did you search for the definition of any
2 other terms beyond "appliance"?

3 A No.

4 Q Based on your review of your materials over
5 the weekend, and your meetings with counsel, how many
6 hours would you say, approximately, you have spent
7 preparing for today's deposition?

8 A Seven or eight.

9 Q Did you meet with anyone other than counsel
10 that is present here today?

11 A No.

12 Q And just to make sure the record is clear,
13 other than counsel here, did you speak to anybody else
14 with respect to preparing for your deposition today?

15 A No.

16 Q Let me place in front of you, Dr. Shamos,
17 what has been previously marked as Exhibit 2008.
18 IPR2026-00145.

19 This is entitled "Declaration of
20 Dr. Michael Shamos in support of patent owner's
21 response."

22 Dr. Shamos, I saw that you briefly leafed
23 through the exhibit in front of you.

24 Is this a true and correct copy of your
25 declaration?

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1 A It appears to be. I was looking for the
2 signature page. Obviously, I haven't reviewed every
3 page of it.

4 I have no reason to doubt it.

5 Q This declaration contains opinions you
6 offer in support of patent owner's response in
7 IPR2026-00145.

8 Is that correct?

9 A Yes.

10 Q Dr. Shamos, did you write this declaration
11 yourself?

12 A No. It was a collaborative effort.

13 Q Whom did you work with in preparing this
14 declaration?

15 A I'm not sure I know.

16 I received some emails that had drafts. I
17 believe Mr. Oliver was copied on those emails.

18 Q And when did you begin working on your
19 declaration, approximately?

20 A It was in June.

21 Q And other than Mr. Oliver, do you recall
22 with whom you worked with in preparing your
23 declaration?

24 A It just would have been other counsel at
25 his firm.

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1 Q But you don't recall the names?

2 A No.

3 Q And how many hours would you say, again,
4 approximately, that you spent in preparing and
5 drafting your declaration?

6 A So I don't think that I have the time split
7 out by specific case.

8 The total amount of time that I spent on
9 preparing declarations was probably around 40 hours.

10 Q That would apply across all of the Smart
11 Speaker IPR proceedings where you submitted a
12 declaration; is that correct?

13 A Yes.

14 There were major similarities.

15 Q Other than in preparing for today's
16 deposition, have you reviewed your declaration since
17 signing it?

18 A No.

19 Q As you sit here now, are there any
20 corrections that you wish to make to the text,
21 citation or opinion in your declaration?

22 A No.

23 Q Let me direct you to paragraph 17 of your
24 declaration.

25 A I am there.

Page 15

1 Q Take a moment to read that paragraph to
2 yourself.

3 A I am done.

4 Q Does paragraph 17 of your declaration
5 accurately convey what you reviewed and considered in
6 preparing your declaration?

7 A I think so.

8 Q Beyond what is listed in paragraph 17 of
9 your declaration, did you consider anything else?

10 A I don't think so.

11 Q Now, earlier in the deposition, you
12 mentioned that you may have an updated CV since you
13 prepared this declaration.

14 Is there anything in that updated CV, that
15 you think is relevant to your testimony as set forth
16 in your declaration, and as you testified today?

17 MR. OLIVER: Objection to form.

18 A No.

19 I can give you a hyperlink, if you want, to
20 pull down the current one.

21 Q That would be great. Counsel, if you could
22 provide that hyperlink to us?

23 A I could read it into the record if you want
24 to.

25 Q That works, too. Thank you.

Page 16

1 A It is EURO dot ECOM dot CMU dot EDU slash
2 people slash faculty slash MShamos, one word, slash
3 RESSHORT, capital C, OMBINED dot PDF.

4 Q Thank you, Dr. Shamos.

5 Now, let me direct you to paragraph 18 of
6 your declaration.

7 To be clear, when I have been referring to
8 your declaration, this is Exhibit 2008, IPR2026-00145.

9 So if you could take a moment to read
10 paragraph 18 through paragraph 22, I would appreciate
11 it.

12 A I have read it.

13 Q So this set of paragraphs provides the
14 legal standards that you applied in providing your
15 testimony. Is that correct?

16 A Preparing the declaration, yes.

17 Q Now, Dr. Shamos, do you know if a reference
18 in an obviousness analysis has to be enabling?

19 MR. OLIVER: Objection. Form.

20 A I suppose it would depend on what it is
21 cited for.

22 Q Can you explain?

23 A Sure.

24 So for example, suppose there is a
25 reference that alludes to an algorithm for doing

Page 17

1 something. But it doesn't actually contain that
2 algorithm.

3 Yet it gets cited by somebody for
4 obviousness purposes. Then I don't think that would
5 be proper.

6 On the other hand, it may be cited for some
7 statement that it makes about the art, that has
8 nothing to do with any of the claims in that
9 reference, in which case it is fine. It doesn't have
10 to be enabled.

11 There are plenty of references that aren't
12 enabling because they are not patents. Did you mean a
13 patent reference?

14 Q So let me step back.

15 My question wasn't limited to whether it is
16 a patent, publication, whether it be a patent or
17 published patent application. It could be an academic
18 paper, for example.

19 But I was specifically asking in the
20 context of a reference read broadly as I just
21 explained, does it have to be enabling, if it is used
22 in an obviousness analysis?

23 MR. OLIVER: Objection. Form.

24 A I believe it depends on the purpose for
25 which the reference is offered. For example, an

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1 academic paper might provide a motivation to combine,
2 it doesn't have to be enabling for anything.

3 Q And for the record to be clear, is it your
4 understanding that a patent reference, whether it be
5 an issued patent or patent publication for an obvious
6 analysis, has to be enabling depending on what it is
7 being offered for?

8 MR. OLIVER: Objection. Form.

9 A Yes. It is the same answer.

10 The prior patent might be cited to support
11 motivation to combine. It doesn't have to be enabling
12 if it is claimed.

13 Q Are there any other situations where you
14 think a patent could be cited for a purpose where it
15 doesn't have to be enabling?

16 MR. OLIVER: Objection. Form.

17 A I don't know sitting here. I have never
18 really met the issue.

19 Q By saying you have never really met the
20 issue, what did you mean?

21 A I mean it has never come up in any of the
22 cases I have been involved in.

23 Q It being whether a reference is enabling
24 for an obviousness analysis?

25 A Right.

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1 Q All right. Let me direct you to paragraph
2 24 of your declaration.

3 Take a moment to read that paragraph to
4 yourself.

5 A I read it.

6 Q Is it correct, Dr. Shamos, that you adopted
7 Dr. Houh's POSITA definition?

8 A For purposes of this declaration, yes.

9 Q And under that definition, the person has a
10 bachelor's degree in electrical engineering, computer
11 engineering or equivalent field.

12 A That is what it says.

13 Q A POSITA would also have two years of
14 experience working on remote device control and/or
15 network devices. Is that correct?

16 A Yes.

17 Q Dr. Shamos, can you provide me with
18 examples of work experience by January 2012 that would
19 meet the two years of work experience requirement?

20 A Sure.

21 So I ran a master's program in ebusiness
22 technology starting in 1999 continuing through 2018.
23 In that degree program we had Capstone projects that
24 were sponsored by outside companies.

25 We typically have something like ten per

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1 year of those.

2 So during the time period from 1999 to
3 2012, it would have been over 100 such projects.
4 Virtually all of those projects involve Internet
5 commerce. So they were all involved in networking. I
6 was the faculty leader for those projects.

7 Q Can you give me a few examples of those
8 projects that you recall, as you sit here today?

9 A Sure. So for example, for Dick's Sporting
10 Goods, large sporting goods retailer. They wanted to
11 develop an app that would run on a tablet that it
12 would inform a sales associate, or employee of the
13 store, of customers who had walked into the store, and
14 whether they were already associated with a
15 salesperson or not, what section of the store they
16 were in, so the sales associate could go up and
17 approach them and say "What are you looking for? Can
18 I help you?" Et cetera.

19 So that involved Internet and wireless LAN
20 communications with a laptop.

21 Q Is there another example that you can
22 recall, as you sit here today?

23 A You mean thinking back to before 2012?

24 Q Yes.

25 A Not sitting here. What I could do,

Page 21

1 however, I have all of the necessary information on my
2 laptop. So possibly during a break, I will take a
3 look for it.

4 Q Okay. I don't think that is necessary.

5 So in the definition it provides two years
6 of experience working on a remote device control
7 and/or network devices.

8 I am curious to understand what you
9 consider to be network devices?

10 A At the risk of being flip, it is a device
11 connected to a communications network.

12 Q So based on your previous testimony of
13 involvement in Internet and wireless LAN
14 communications with a laptop, that would be
15 encompassed by the definition of network devices. Is
16 that correct?

17 A I think a laptop that is connected to a
18 WLAN like mine is a network device.

19 Q As you sit here today, what other examples
20 of network devices can you think of?

21 MR. OLIVER: Objection. Form.

22 A Huge numbers of them. For example, these
23 days kitchen appliances can be networked. Telephones
24 can be networked. I have a telephone system at home
25 that has no central control box.

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1 Every one of the phones is connected to the
2 Internet and connections are made in the cloud. So a
3 phone could be a network device.

4 Heating ventilation air conditioning
5 systems contain network devices including sensors and
6 actuators for turning on the heat.

7 I mean, the list is huge.

8 Q What about servers, Dr. Shamos?

9 A Servers certainly a network device, if it
10 is connected to a network.

11 The exception would be if there were a
12 client server arrangement in which there were only a
13 client and a server that were directly connected to
14 one another, you probably wouldn't call that a
15 network.

16 Q But as you sit here today, you understand
17 that certain client server arrangements can be a
18 networked arrangement. Correct?

19 MR. OLIVER: Object to form.

20 A They normally are.

21 Q Let me direct you to paragraph 25 of your
22 declaration.

23 Take a moment to read that paragraph to
24 yourself.

25 A I have read it.

Page 23

1 Q Is it correct, Dr. Shamos, that you believe
2 that no claim term requires an express construction?

3 A I wasn't expressing my personal belief. I
4 was expressing my understanding that is what the
5 petition contended. I haven't formed a separate
6 opinion as to whether a claim construction is
7 necessary.

8 Q And as you sit here today, is that still
9 true, that you haven't expressed a separate opinion as
10 to whether a claim construction is necessary here?

11 A That's right.

12 Q In preparation for your deposition today,
13 you indicated that you reviewed a number of materials.
14 After reviewing those materials, did you reach any
15 conclusion whether express construction is necessary?

16 MR. OLIVER: Object to form.

17 A It is interesting you asked have I reached
18 an opinion. I wasn't specifically looking at it from
19 the point of view should a construction be needed.
20 What I was looking at and headed for was to understand
21 whether my understanding of the terms in the patent
22 were correct.

23 Q So would it be fair to say that, as you sit
24 here today, you don't believe an expressed
25 construction is needed?

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1 MR. OLIVER: Objection. Form.

2 A I can give you what my offhand impression
3 was. My offhand impression was no. But that depends
4 on -- needed for the purposes of an IPR? I actually
5 don't think construction is needed for IPR.

6 Q So in paragraph 25, you state "I have given
7 all claim terms their plain and ordinary meaning as a
8 POSITA would have understood them in light of the '710
9 patent's intrinsic evidence." Do you see that?

10 A Yes.

11 Q And that is -- strike that. What is your
12 understanding of what constitutes the intrinsic
13 evidence?

14 A The intrinsic evidence consists of the
15 patent and its prosecution history. Any patent office
16 proceedings in which the patentee has made statements
17 to the patent office.

18 Q Anything else?

19 A Not that I can think of.

20 Q Let me place in front of you, Dr. Shamos,
21 what has been previously marked Exhibit 1005 in
22 IPR2026-00145.

23 This is U.S. patent number 7,062,339 to
24 Howard, et al. If I refer to this exhibit as Howard,
25 will you understand I am referring Exhibit 1005?

Page 25

1 A I hope you will refer to it that way.

2 Q Do you recognize Exhibit 1005?

3 A Yes.

4 Q Did you review the exhibit in its entirety
5 in preparing your declaration?

6 A In its entirety? Probably not. I think
7 there are many drawings in it that are repetitious and
8 I probably didn't study every one of the drawings.

9 Q But did you review the written description
10 of the Howard patent in its entirety?

11 A Yes.

12 Q And did you review Exhibit 1005 in
13 preparation for today's deposition?

14 A Yes.

15 Q Do you recall how much time you spent in
16 reviewing Exhibit 1005?

17 A Not exactly. It sounds like a 20 minute
18 job to me.

19 Q Let me direct you to figures 2 and 3 of
20 Howard.

21 A I am there. You can go ahead.

22 Q As you take a look at figures 2 and 3 of
23 the Howard patent, is it your opinion they are
24 directed to two different embodiments?

25 MR. OLIVER: Objection. Form.

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1 A I don't know. I would have to refer to the
2 written description.

3 Q Let me direct you to column 2 of the Howard
4 patent.

5 A Yes.

6 Q Specifically, lines 44 to 47.

7 A Yes. So the patentee says they are
8 different embodiments.

9 Q Does that inform your understanding of
10 whether figures 2 and 3 are different embodiments in
11 Howard?

12 A I would say it informs my opinion. I don't
13 think it makes my opinion certain.

14 Q What would make your opinion certain?

15 MR. OLIVER: Object to form.

16 A If I studied the patent for the purpose of
17 answering that question. I would need to do that.

18 Q Do you want to take the time that you need
19 to take a look at that?

20 A No. I don't form opinions on the fly
21 during a deposition.

22 Q So as you sit here today, you understand
23 that the Howard patent, specifically figures 2 and 3,
24 are directed to different embodiments based on the
25 passage that I pointed you to in column 2. Is that

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1 correct?

2 MR. OLIVER: Objection. Form.

3 A Not quite correct. I certainly agree the
4 patentee says they are two different embodiments. I
5 agree with that. I agree with the fact that he says
6 that.

7 Q So just to be clear, you are not willing to
8 answer the question whether you understand figures 2
9 and 3 to be directed to two different embodiments?

10 MR. OLIVER: Objection. Form.

11 A As I say, I have to read more of the
12 written description to make that determination. There
13 are obvious differences between them.

14 Q So Dr. Shamos, I am giving you the
15 opportunity to spend whatever time you need to review
16 the Howard patent to make that determination. From
17 your previous answer I am understanding you are
18 refusing to do so. Is that correct?

19 A I will be happy to do it.

20 Q Great. Thank you.

21 A This is a case where I will need to go to
22 the copy on my computer.

23 Q That is fine. As long as you can state on
24 the record that there is no notes or annotations
25 relating to Howard on your computer?

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1 A Okay. I will make this general statement.
2 I have all of the documents in all the IPRs, none of
3 those documents on my machine have any annotations at
4 all.

5 Q Thank you.

6 A Because they were downloaded directly from
7 the PTAB website.

8 Q Thank you.

9 A They are separate embodiments. It is not
10 clear both are claimed in Howard. But they are
11 separate embodiments.

12 Q And on what basis do you make that
13 statement?

14 MR. OLIVER: Objection. Form.

15 A So I looked at the claims to see if I found
16 any claim that read on figure 3 -- sorry, on figure 2.
17 I didn't actually see that in the claims.

18 Q I should have been more clear in my
19 question.

20 On what basis did you conclude that figures
21 2 and 3 of Howard are separate embodiments?

22 A From the descriptions of figure 2 and
23 figure 3 in the specification. And looking at the
24 drawings and seeing different devices. For example,
25 there is an optical coder in figure 2. There isn't

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1 one in figure 3.

2 Q Let's take a short break.

3 (Recess taken.)

4 Q Dr. Shamos, during the break, did you speak
5 to counsel regarding the subject matter of your
6 testimony?

7 A I don't think I spoke to counsel at all.

8 Q Let me direct you back to your declaration,
9 Exhibit 2008 in IPR2026-00145.

10 A I am there.

11 Q I want to direct you to paragraph 26.
12 Take a moment to read that to yourself.

13 A I have read it.

14 Q Is it correct that for the purposes of this
15 declaration, you assume the prior art date of the '710
16 patent is January 9, 2012?

17 A Yes.

18 Q Let me direct you to paragraph 24 of your
19 declaration.

20 A I am there.

21 Q Is it correct that you believe that you
22 satisfy Dr. Houh's proposed characterization of the
23 level of skill of a POSITA as of the '710 patent's
24 earliest claim prior art date, re: January 9th, 2012?

25 A Yes.

Page 30

1 Q Let me ask you a few questions, Dr. Shamos,
2 regarding what was known as of January 2012 in the
3 art.

4 The first question I have for you, were
5 wireless home routers a known technology as of January
6 2012?

7 MR. OLIVER: Objection. Form.

8 A Yes.

9 Q Were Internet connected servers a known
10 technology as of January 2012?

11 MR. OLIVER: Objection. Form.

12 A Yes.

13 Q By January 2012, was it known that Internet
14 connected servers could be outside a home?

15 MR. OLIVER: Objection. Form.

16 A Yes.

17 Q By January 2012, was it known for client
18 devices to send audio to servers?

19 MR. OLIVER: Objection. Form.

20 A Yes.

21 Q And by January 2012, was it known for
22 servers to return data to client devices?

23 MR. OLIVER: Objection to form.

24 A Do you mean return data in response to
25 receiving human voice?

Page 31

1 Q Yes.

2 A Yes.

3 Q By January 2012, was speech recognition a
4 known technique in the art?

5 MR. OLIVER: Objection.

6 A Yes.

7 Q By January 2012 was comparing voice
8 characteristics to stored voice information known?

9 MR. OLIVER: Objection. Form.

10 A Yes.

11 Q By January 2012 were microphone arrays for
12 source localization known?

13 MR. OLIVER: Objection. Form.

14 A Yes.

15 Q By January 2012, bluetooth and safety were
16 established WPAN technologies, correct?

17 MR. OLIVER: Objection. Form.

18 A I will just ask you to clarify what do you
19 mean by established?

20 Q Known.

21 A Yes.

22 Q By January 2012 LED status -- strike that.
23 By January 2012, LED status indicators were known
24 output components. Correct?

25 MR. OLIVER: Objection. Form.

Page 32

1 A Yes.

2 Q Loud speakers were known to convert
3 electrical energy to mechanical movement and sound by
4 January 2012. Is that correct?

5 MR. OLIVER: Objection. Form.

6 A Yes. I think that happened some time in
7 the 19th century.

8 Q By January 2012, remote processing was
9 known to reduce local component count. Is that
10 correct?

11 MR. OLIVER: Objection. Form.

12 A I will just rephrase it. Offloading
13 computation to a remote device would lessen the load
14 on the local device. That might mean that you could
15 use a smaller device or fewer of them.

16 Q And by January 2012 was it known remote
17 processing would reduce local power consumption?

18 MR. OLIVER: Objection. Form.

19 A Yes.

20 Q Now let me place in front of you what has
21 been previously marked as Exhibit 1001 in
22 IPR2026-00145.

23 This is U.S. patent 11,128,710 to Binder,
24 et al.

25 Have you seen this exhibit before?

Page 33

1 A Oh yes.

2 Q And did you review this exhibit in
3 preparing your declaration?

4 A Yes.

5 Q And did you review this exhibit in
6 preparation for today's deposition?

7 A Yes.

8 Q Do you recall how much time that you spent
9 in reviewing the '710 patent?

10 A Probably an hour.

11 Q Do you recall what you reviewed with
12 respect to the '710 patent?

13 A Yes. I did searches. I looked up various
14 terms in the patent to see how they were used or
15 defined.

16 Q Let me direct you to column 25 of the '710
17 patent.

18 A I am there.

19 Q Specifically I want to direct you to
20 lines --

21 A 33.

22 Q You read my mind, Dr. Shamos.

23 A Yes.

24 Q At line 33, it provides an actuator may be
25 a display for presentation of visual data or

Page 34

1 information commonly on a screen and may consist of an
2 array, e.g. matrix of light emitters or light
3 reflectors and may present text graphics, image or
4 video.

5 Do you see that sentence? It goes from
6 line 33 to line 36?

7 A Yes. I was following along as you read it.

8 Q How would a person of ordinary skill in the
9 art understand that sentence as of January 2012?

10 MR. OLIVER: Objection. Form.

11 A I don't think there is any difficulty in
12 understanding it. Basically, what this is doing is
13 explaining how the patentee is using the word
14 "actuator." I think at the time people in the art
15 would not have considered display to be an actuator.
16 But the patentee does and says so here. It affects
17 the meaning of the word "actuator."

18 Q And is it your understanding a display can
19 operate by presenting visual data or information?

20 MR. OLIVER: Objection. Form.

21 A Yes. That is I think what displays do.

22 Q Now let me direct you to column 40.

23 A I am there.

24 Q Specifically, lines 15 through 21.

25 Roughly.

Page 35

1 A Yes. I read it.

2 Q So line 15 says the actuator may be a
3 sounder for converting an electrical energy to emit
4 audible or inaudible sound waves.

5 Then it continues from there.

6 How do you think a person of ordinary skill
7 in the art as of January 2012 would understand that
8 sentence in the '710 patent?

9 A I think again it is expanding the meaning
10 of the word "actuator" to include loud speakers. The
11 term "sounder" is somewhat unusual. But it is clear
12 from the context what it means. It is something that
13 makes a sound.

14 Q Would you agree the claimed actuators
15 encompass ordinary output components?

16 MR. OLIVER: Objection. Form.

17 A I am sorry. Could you repeat?

18 Q Sure.

19 Would you agree that the claimed actuators
20 in the '710 patent encompass ordinary output
21 components of network devices?

22 MR. OLIVER: Objection maintained.

23 A It certainly could include them, yes.

24 Q You mentioned that a sounder can be a loud
25 speaker. Is that correct?

Page 36

1 A I am not sure I mentioned it. But it can
2 be, sure.

3 Q And a loud speaker can operate by playing
4 received audio data. Is that correct?

5 MR. OLIVER: Objection. Form.

6 A It depends on the nature of the loud
7 speaker. Normally, what it would be receiving is an
8 analog signal. It is conceivable it might receive a
9 digital signal and have a digital to analog converter.
10 Ultimately, an audio signal has to be analog.

11 Q Whether the signal is analog or digital,
12 you would agree that audio data is information?

13 MR. OLIVER: Objection. Form.

14 A Audio data is certainly information. Now,
15 what we have to decide is whether an analog audio
16 signal is information. That is a different question.

17 Q Let me now place in front of you what has
18 been previously marked as Exhibit 2011 in
19 IPR2026-00276. This is "Declaration of Dr. Michael
20 Shamos in support of patent owner's response."

21 Have you seen this exhibit before,
22 Dr. Shamos?

23 A Yes. I have. Not in paper form. But I
24 have.

25 Q Is the paper form of Exhibit 2011 a true

Page 37

1 and correct copy of your declaration?

2 A It appears to be. I looked at the
3 signature page. But I haven't looked at every page.

4 Q And is it correct that Exhibit 2011
5 contains the opinions that you offer in support of the
6 patent owner response in IPR2026-00276?

7 A Yes.

8 Q And would it be fair to say that you
9 drafted this declaration with the assistance of
10 counsel?

11 A Yes.

12 Q And would it be fair to say that counsel is
13 counsel sitting here with you today?

14 A Yes.

15 Q And that counsel may also include other
16 folks that you don't recall who they are?

17 A Lawyers. Yes. No non-lawyers, as far as I
18 know.

19 Q Have you reviewed Exhibit 2011 since
20 signing it?

21 A Yes.

22 Q Did you review it in preparation for
23 today's deposition?

24 A Yes.

25 Q Do you recall how much time you spent

Page 38

1 reviewing that declaration?

2 A Probably half an hour. Not as much as for
3 the other declaration, because a lot of the material
4 is repetitive. I didn't have to review it again.

5 Q And are there any corrections that you wish
6 to make to the text, citation or opinion in Exhibit
7 2011?

8 A No.

9 Q Now directing you to paragraph 17 of
10 Exhibit 2011. It sets forth what you reviewed and
11 considered in preparing your opinions as set forth in
12 Exhibit 2011. Is that correct?

13 A Yes.

14 Q As you sit here today, do you recall if you
15 relied on any documents other than what is listed in
16 paragraph 17?

17 A I recall that I didn't.

18 Q Let me direct you to paragraph 24 of
19 Exhibit 2011.

20 A I'm there.

21 Q You agree that -- strike that.
22 You apply Dr. Houh's proposed
23 characterization of the level of skill of a POSITA in
24 reaching your opinions in Exhibit 2011. Is that
25 correct?

Page 39

1 A For purposes of the declaration, yes.

2 Q And turning to paragraph 25, is it correct
3 that you have given all claim terms their plain and
4 ordinary meaning as a POSITA would have understood
5 them in light of the '721 patent's intrinsic evidence
6 in reaching your opinions as set forth in Exhibit
7 2011?

8 A Yes.

9 Q I asked you whether, as you sit here
10 today -- strike that.

11 As you sit here today, do you believe that
12 any claim term requires an express construction for
13 the '721 patent?

14 MR. OLIVER: Objection. Form.

15 A Not for purposes of an IPR.

16 Q Let me direct you back to Exhibit 1001. In
17 IPR2026-00145, the '710 patent.

18 Specifically, let me direct you to claim 2.

19 A I am there.

20 Q Take a moment to read claim 2 to yourself.

21 A I have read it. It is short.

22 Q Did you review claim 2 in preparation for
23 today's deposition?

24 A Yes.

25 Q Does claim 2 require the outputting of a

Page 40

1 person's name?

2 MR. OLIVER: Objection. Form.

3 A Probably not. For example, it could output
4 somebody's social security number. As long as it is
5 some data that identifies the person.

6 Q Does claim 2 require reporting which person
7 provided the voice command data to a user or server?

8 MR. OLIVER: Objection. Form.

9 A Well, claim 2 doesn't recite that step. We
10 have to look to its parent claim 1 to see if that is
11 necessary. It says wherein the processing. And so
12 there are two processings in claim 1. It is
13 applicable to both.

14 So the first processing is processing by
15 the server, that captured first human voice data. The
16 second processing is processing by the server that
17 captured second human voice data.

18 There is no recitation in claim 1 of any
19 use being made of the identity of the person.

20 This claim 2 requires a step of identifying
21 it. It doesn't require more.

22 Q You state claim 2 requires a step of
23 identifying it. What is "it"?

24 A The voice of a specific person.

25 Q Would it be fair to say -- strike that.

Page 41

1 Would it be fair to say claim 2 doesn't require
2 outputting the person's name?

3 MR. OLIVER: Objection. Form.

4 A It doesn't require outputting anything. It
5 says performing a voice recognition algorithm for
6 identifying the voice of a specific person. It has to
7 identify the voice of a specific person.

8 How that person is denominated could vary.
9 It is not just somebody's name. It might be their
10 employee number, their badge number, their social
11 security number. As long as the algorithm knows who
12 the person is.

13 Q So you had previously referred back to the
14 two processing steps in claim 1 of the '710 patent.

15 Could you explain to me why you referred to
16 those two processing steps in considering your answers
17 to claim 2?

18 A Yes.

19 Because claim 2 says "wherein the
20 processing." I have to understand what the processing
21 is. The processing has an antecedent in claim 1. I
22 wanted to see if there are any steps in claim 1 in
23 which the output of the processing is used. And there
24 are.

25 So there are two responses to the

Page 42

1 processing steps. The first being responsive to the
2 processing sending a first message by the server to
3 the client device over the Internet.

4 And the second responsive is at line 49,
5 responsive to the processing sending a second message
6 by the server to the controlled device over the
7 Internet.

8 Now, something has to be responsive to the
9 processing. If there is some output of step 2
10 unclaimed, there is some output of step 2, it is part
11 of the processing, then something would have to be
12 responsive to that.

13 But there is no discussion of output.

14 Q I see.

15 A The output would be the second message.
16 Second message does not include necessarily the
17 person's identity.

18 Q Okay. Now let me direct you to claim 3 of
19 the '710 patent.

20 A I have read it.

21 Q What is your understanding of physical
22 phenomenon in claim 3?

23 MR. OLIVER: Objection. Form.

24 A So I read that in conjunction with the word
25 "sensor." Sensor has to sense something. The only

Page 43

1 way it can sense something is if something impinges
2 upon it physically.

3 So the physical phenomenon might be, for
4 example, someone came in the room and my camera picked
5 up that person. Photons from the person were received
6 by the infrared camera. And camera outputs data
7 corresponding to what it sees. As an example.

8 Q Would another example be a sensor that
9 senses your location?

10 MR. OLIVER: Objection. Form.

11 A Yes. Physical phenomenon is your presence
12 at a location. The whole idea of sensors is they
13 sense physical things. I am trying to imagine a
14 sensor that senses something non-physical. I'm not
15 sure we would call that a sensor.

16 Q Would another example be environmental
17 conditions?

18 MR. OLIVER: Objection to form.

19 A If the question is are environmental
20 conditions a physical phenomenon? Then yes.

21 Q Let me place in front of you what has been
22 previously marked as Exhibit 1007 in IPR2026-00145.

23 This is U.S. patent number 7,529,677 to
24 John Wittenberg.

25 Do you recognize Exhibit 1007?

Page 44

1 A Yes.

2 Q Did you review the exhibit in preparing
3 your declaration?

4 A Yes.

5 Q And did you review the exhibit in
6 preparation for today's deposition?

7 A Yes.

8 Q Do you recall how long you spent in
9 preparing -- strike that. In reviewing Exhibit 1007?

10 A Not exactly. I can tell you the process
11 that I used.

12 Q Okay.

13 A So I went through my declaration. And any
14 statement I made in the declaration that referred to a
15 prior art reference, I went and checked that reference
16 to see what it really said.

17 So I didn't read Wittenberg straight
18 through in preparation for this deposition.

19 Q Great. Thank you for the clarification.

20 Let me direct you to column 5, line 61 to
21 column 6, line 13 of Wittenberg.

22 A I have read it.

23 Q And what is your understanding of that
24 passage in Wittenberg?

25 MR. OLIVER: Objection. Form.

Page 45

1 Q Strike that.

2 How would a person of ordinary skill in the
3 art as of January 2012 understand that passage of
4 Wittenberg, specifically beginning at column 5, line
5 61 and continuing to column 6, line 13?

6 A I am not sure how you want me to answer
7 that. Basically, what it is saying is that you use
8 voice to determine authorization.

9 Q So when the received voice matches a stored
10 profile in Wittenberg, is it correct the system has
11 determined that the voice matches the person who
12 provided the stored profile?

13 MR. OLIVER: Objection. Form.

14 A So I didn't see the word "profile" in the
15 passage that you pointed me to.

16 Q Sorry about that. Let me ask the question
17 again.

18 So at column 5, line 66 it refers to a
19 stored voice information.

20 Do you see that?

21 A Yes.

22 Q How would a person of ordinary skill in the
23 art as of January 2012 understand where that stored
24 voice information comes from?

25 MR. OLIVER: Objection. Form.

Page 46

1 A There are many possibilities. One obvious
2 one is that you have people record things, that is
3 they give samples of their voice. That is one way of
4 doing it.

5 Q All right.

6 Let me place in front of you what has been
7 previously marked as Exhibit 1008 in IPR2026-00145.

8 This is U.S. patent publication number
9 2012/0265528 to Gruber, et al.

10 A G-R-U-B-E-R.

11 THE COURT REPORTER: Thank you.

12 Q Have you seen Exhibit 1008 before,
13 Dr. Shamos?

14 A Yes.

15 Q Did you review Exhibit 1008 in preparing
16 your declaration?

17 A Yes.

18 Q And did you review Exhibit 1008 in
19 preparing for today's deposition?

20 A I will give it the same answer as for
21 Wittenberg.

22 Q Let me direct you to claims 52 and 53 of
23 the Gruber patent publication.

24 This would be on page 58 of the document.

25 A I am there.

Page 47

1 Q So what is your understanding of claim
2 52 -- strike that.

3 How would a person of ordinary skill in the
4 art, as of January 2012, understand claim 52 of
5 Gruber?

6 A Well, I have to go back --

7 MR. OLIVER: Objection. Form.

8 A I have to go back to claim 42, the parent
9 claim.

10 I will read that.

11 So what is happening is claim 42 is
12 claiming a system for interpreting user input to
13 perform a task. Presumably the user is saying
14 something into a microphone what it wants done, turn
15 on the lights, something like that.

16 Then there is reference to a dialogue
17 response. So the idea is that the system is going to
18 talk back to the user.

19 And 52 talks about generating a dialogue
20 response by generating a dialogue response based at
21 least in part on the received context information.

22 Now, a problem that I see is there are
23 dialogue responses referred to in claim 42. But in
24 claim 52 it is a dialogue response. Which means it
25 isn't necessarily any one of the dialogue responses

Page 48

1 claimed in claim 42.

2 I think it should have said the first
3 dialogue response, or something like that.

4 Anyway, there is a dialogue that is going
5 on. The user is speaking, and the system is talking
6 back, either through sound or some other mechanism.

7 Q How would a person of ordinary skill in the
8 art as of January 2012 understand the portion of claim
9 52 that recites based at least in part on the received
10 context information?

11 MR. OLIVER: Objection. Form.

12 A I don't think I can say it much better than
13 it said here. The response is based on the received
14 context information. It is not just any old random
15 response.

16 Q Let me direct you to claim 53 of Gruber.

17 A I am there.

18 Q How would a person of ordinary skill in the
19 art understand claim 53 as of January 2012?

20 MR. OLIVER: Objection. Form.

21 A I need to pull up Gruber on my computer. I
22 need to do some searching through the text.

23 Q Please do.

24 If you could just let me know what you are
25 searching for, I would appreciate that.

Page 49

1 A Sure.

2 So what I am interested in here is the
3 concept of application context. Which is the second
4 element of the group that is referred to in 53.

5 I want to see how the phrase "application
6 context" is used in the patent.

7 In figure 1 there is a block 1060 called
8 "current application context." Which is inputs to
9 virtual assistant 1002.

10 Here we go. Paragraph 0180. It says
11 application context 1060 refers to the application or
12 similar software state in which the user is doing
13 something. For example, the user could be using a
14 text messaging application to chat with a particular
15 person.

16 Then dot dot dot. Rather virtual assistant
17 1002 can receive context from any number of
18 applications with each application contributing its
19 context to inform virtual assistant 1002.

20 So the idea is that the application context
21 basically refers to the state of an application.

22 So very often an application will require
23 you to go through a number of steps in order to
24 achieve a result. A listing of which steps have been
25 completed or what step we are on now would be part of

Page 50

1 the application state. The application context.

2 Other than that, I don't think there is
3 much to interpret in claim 53.

4 I want to see how the word "history" is
5 used. I don't think it refers to the Roman Empire.

6 Q But other than application context and
7 history, the other terms you indicated that there is
8 not much to interpret in claim 53. Is that correct?

9 MR. OLIVER: Objection to form.

10 A That's correct.

11 So I'm looking for "history."

12 There are several histories referred to in
13 the specification. One is a usage history, which is
14 in one of the figures block 1072 it says application
15 preferences and usage history.

16 Then there is another one at 1052, dialogue
17 history and assistant memory.

18 But I will go through each of the 68
19 occurrences of history.

20 Paragraph 0019 refers to application usage
21 history.

22 Paragraph 0136 refers to context of the
23 user interaction history including dialogue and
24 request history.

25 I won't be repetitious. So I will omit

Page 51

1 paragraphs that say basically the same thing as prior
2 paragraphs.

3 But 0177 refers to previous dialogue
4 history.

5 Dialogue history is explicated at paragraph
6 0203.

7 Another source of context data is the
8 user's dialogue history 1052 with virtual assistant
9 1002, such history may include, for example,
10 references to domains, people, places and so forth.

11 Then there are lots more histories coming
12 up.

13 Q Dr. Shamos, I would be happy for you to
14 continue looking for all of the references to
15 "history." But if you are okay, we can move on to
16 other questions.

17 A I am certainly okay with it.

18 I just want to make sure "history" was not
19 an arbitrary thing about the history of the human
20 race. But it is related to significant events in the
21 operation of the patented device.

22 Q So I will place in front of you Exhibit
23 1013 in IPR2026-00145.

24 This is the Springer handbook of acoustics
25 with Rossing, R-O-S-S-I-N-G, being the editor.

Page 52

1 What I am placing in front of you is not
2 the entirety of the exhibit, Dr. Shamos. It is
3 excerpts from that exhibit. Specifically stamp pages
4 1 through 20.

5 Strike that. Through 21.

6 And stamp pages 36 through 40.

7 Have you seen -- strike that.

8 Do you recognize Exhibit 1013?

9 A Yes.

10 Q Did you review Exhibit 1013 in preparing
11 your declaration?

12 A Yes.

13 Q And did you review Exhibit 1013 in the
14 manner that you previously testified in preparing for
15 today's deposition?

16 A Yes.

17 Q Let me direct you to native page 18 of
18 Exhibit 1013. Which corresponds to stamp page 38, I
19 believe.

20 A I am there.

21 Q And in the right column, at the first full
22 paragraph, it begins with -- there is a reference to
23 Ernest Siemens, do you see that?

24 A Yes.

25 Q Could you read that first sentence to

Page 53

1 yourself?

2 A Yes. I have done so.

3 Q Would a person of ordinary skill in the art
4 as of January 2012 understand that Rossing describes a
5 dynamic or moving coil loud speaker as moving axially?

6 MR. OLIVER: Objection. Form.

7 A Yes.

8 Q What kind of motion is axial motion?

9 A Straight line.

10 Q By straight line, do you mean linear
11 motion?

12 A Yes.

13 Q Let's take a break.

14 (Recess taken.)

15 (Thereupon, a luncheon recess was taken
16 from 11:52 a.m. until 12:55 p.m.)

17 -- -- --

1 A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

2 Q Dr. Shamos, during the lunch break, did you
3 discuss the subject matter of your testimony with
4 counsel?

5 A No.

6 Q Let me direct you to claim 8 of the '710
7 patent, Dr. Shamos.

8 Do you have the '710 patent in front of
9 you?

10 A Yes.

11 I have read it.

12 Q Does claim 8 locate any particular
13 microphone array geometry?

14 MR. OLIVER: Objection.

15 Q Let me strike that. Strike that. Bad
16 question.

17 Does claim 8 require any particular
18 microphone array geometry?

19 A Sorry? Any particular microphone what?

20 Q Array geometry.

21 A So the array geometry has to be such that
22 it will be operative to estimate the various
23 quantities that are listed there.

24 I mean, I suppose there are arrays that
25 wouldn't do that.

Page 55

1 Q Do you understand that the "or" in claim 8
2 requires that array to perform or estimate all of
3 those quantities?

4 MR. OLIVER: Objection to form.

5 A So I haven't considered that. Normally,
6 with that grammar in English, it would be any one of
7 those.

8 Q Looking at claim 8, does it require, in
9 your opinion, any specific localization algorithm?

10 A No.

11 Because it doesn't specify localization.

12 It doesn't locate anything. It can tell
13 distance, for example. It can tell proximity maybe.

14 But it doesn't give the actual location of
15 anybody.

16 It could. But it is not required by the
17 claim.

18 Q In your opinion, does claim 8 require any
19 numerical accuracy threshold?

20 A It is not express. No.

21 Q In your opinion, does claim 8 require any
22 processing resource threshold?

23 A So the reason I am hesitating on that
24 question is it is not clear that it requires a
25 processor at all.

Page 56

1 So for example, you could have a
2 directional array that feeds its input into a
3 processor. The end processor does the computations,
4 or the processing could be built into the array. It
5 just outputs one of the quantities listed in the
6 claim.

7 Q So then going back to my question, in your
8 opinion does claim 8 require any processing resource
9 threshold?

10 A You mean a minimum number of processors or
11 minimum number of operations per second, or something
12 like that?

13 Q Yes.

14 A No.

15 Q Let me direct you to claim 12 of the '710
16 patent.

17 A I have read it.

18 Q Does claim 12 recite bridge or a bridging
19 device?

20 A No. The word "bridge" or "bridging" does
21 not appear in the claim.

22 It may be in the standards. But it is not
23 in the claim.

24 Q Now let me direct you to the Howard patent.
25 Let me specifically direct you to column 7,

Page 57

1 lines 59 through 65.

2 A I have read it.

3 Q How would a person of ordinary skill in the
4 art as of January 2012 understand what server 200 does
5 with analysis of audio data signals 112?

6 A I am referring also to figure 4, which was
7 referenced.

8 Unfortunately, some of the structures that
9 are referred to in that paragraph do not appear in
10 figure 4.

11 So I may have to look at another figure.

12 Since this is stapled together, I will use
13 the copy that is on my machine.

14 Q Sure.

15 A Well, in this paragraph, the only functions
16 that are ascribed to server 200 in this paragraph are
17 analysis of the optical data signals 116 and/or the
18 audio data signals 112.

19 The analysis has to be sufficient to
20 identify the guide and command corresponding to the
21 particular data signal.

22 That is the processing the server has to
23 do.

24 Q How would a person of ordinary skill in the
25 art considering this paragraph at column 7, lines 59

1 through 65 of the Howard patent understand why the
2 server is assigned the analysis of those signals?

3 MR. OLIVER: Objection.

4 Form.

5 A I think the last sentence answers that.
6 Accordingly, in this embodiment the circuit components
7 and the power requirements of the portable device 10
8 are minimized.

9 So if you offload computation to the
10 server, it doesn't have to be performed on the
11 portable device, which means the portable device can
12 be smaller, it could be less power.

13 Q Now, let me direct your attention to column
14 11, lines 20 to 47 of Howard.

15 A I read them.

16 Q Actually, before I ask you a question about
17 that column, let me go back to column 7, lines 59
18 through 65.

19 A Uh-huh. Yes.

20 Q Would a person of ordinary skill in the art
21 as of January 2012 understand that relocating the
22 analysis of the signals, that paragraph, from a local
23 device to a remote server would minimize processing of
24 that local device or on that local device?

25 MR. OLIVER: Objection.

Page 59

1 Form.

2 A Yes.

3 Q I will go back now to column 11.

4 So specifically, column 11, lines 22 to 47,
5 what does Howard say server 200 does with the received
6 audio data?

7 A It begins at line 23.

8 Upon receipt of the data, the data analyzer
9 202 -- 202 is part of server 200.

10 Q Uh-huh.

11 A Utilizing the speech recognition software
12 functions to interpret the language fragment and
13 determine if the received audio data corresponds to
14 any preprogrammed language fragments.

15 So it is looking for an utterance that it
16 knows to expect. It is not doing arbitrary speech
17 recognition.

18 Q What type of spoken or audio reply can
19 server 200 generate for the portable device?

20 A An example given is at line 39, "What can I
21 do for you?"

22 Q That is an example.

23 A It is preprogrammed.

24 So there is some set of responses, that are
25 probably tied to the original utterance. So if you

Page 60

1 say TV, it may show you a guide and say, "What can I
2 do for you?"

3 Q Is that a spoken reply?

4 A I think -- yes.

5 So at line 43.

6 Upon receipt of the encoded reply data by
7 the receiver 120 of the portable device ten, the data
8 is coupled to the audio decoder 122. And then coupled
9 to the speaker 4, so as to be reproduced for the user.

10 So what is coming out of the speaker is
11 going in.

12 Q Let me direct you, basically, to the next
13 paragraph, the next two paragraphs in Howard. They
14 begin at column 11, line 48, and then they go over to
15 column 12, line 14.

16 A I will take a moment.

17 Q Yes.

18 A Okay.

19 Q Now having considered column 11, line 48 to
20 column 12, line 14, what kind of device control output
21 does Howard describe this server as generating?

22 A TV.

23 It is controlling a TV.

24 Q Let me place in front of you what has been
25 previously marked as Exhibit 1006 in IPR2026-00145.

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1 This is wireless home network simplified by
2 John Doherty and Neil Anderson.

3 I am providing you an excerpted version of
4 Exhibit 1006.

5 It includes pages -- stamped pages, I
6 should say, 1 through 16. And stamped pages 118
7 through 120.

8 Have you seen Exhibit 1006 before,
9 Dr. Shamos?

10 A Yes.

11 Not in this excerpted form.

12 Q Did you review Exhibit 1006 in preparing
13 your declaration?

14 A Not in its entirety. I reviewed relevant
15 sections.

16 Q Did you review Exhibit 1006 in preparation
17 for today's deposition based on what you previously
18 testified in how you reviewed references?

19 A Yes.

20 Q Let me direct you to stamped page 119 of
21 Exhibit 1006.

22 A I am there.

23 Q Is it correct that Doherty shows in-home
24 devices such as laptops in the bedrooms connected to
25 the Internet through a wireless router?

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1 A Yes.

2 Q Looking at stamp page 119 of Doherty, would
3 a person of ordinary skill in the art, as of January
4 2012, understand that the Internet depicted there
5 includes many servers?

6 A Yes.

7 Q Looking at stamp page 119 of Doherty, would
8 a person of ordinary skill in the art as of January
9 2012 understand that the Internet servers are located
10 outside of the home?

11 A Yes.

12 Q By January 2012, was this a common home
13 network configuration to access the Internet?

14 MR. OLIVER: Objection. Form.

15 A Yes.

16 I'm confused by the yellow dashes, however,
17 which come from this wireless router. It looks like a
18 human walking a certain path. But the wireless router
19 is not a human. I'm not sure what those yellow dashes
20 are.

21 Q Let's take a quick break.

22 (Recess taken.)

23 Q We don't have any further questions on
24 cross.

25 A How many hours of redirect do you have?

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1 MR. OLIVER: I don't have any redirect.

2 THE COURT REPORTER: Are you getting
3 transcripts?

4 MR. OLIVER: Yes.

5 MR. ARJOMAND: Yes.

6 (Thereupon, at 1:22 p.m. the deposition was
7 concluded.)

8 -- -- --
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CERTIFICATE

I, Lance E. Hannaford, do hereby certify that before me, a Notary Public in and for the Commonwealth aforesaid, personally appeared DR. MICHAEL SHAMOS, who then was by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth in the taking of his oral deposition in the cause aforesaid; that the testimony then given by him as above set forth was by me reduced to stenotypy in the presence of said witness, and afterwards transcribed by means of computer-aided transcription.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified, and was completed without adjournment.

I do further certify that I am not a relative, counsel or attorney of either party, or otherwise interested in the event of this action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Pittsburgh, Pennsylvania, on this 30th day of September, 2026.



Lance E. Hannaford, Notary Public

My commission expires October 19, 2030

1 Ryan Oliver, Esquire

2 roliver@frlip.com

3 September 30, 2026

4 RE: Amazon.Com Services LLC v. Smart Speaker LLC

5 9/30/2026, Michael Shamos (#8479048)

6 The above-referenced transcript is available for
7 review.

8 Within the applicable timeframe, the witness should
9 read the testimony to verify its accuracy. If there are
10 any changes, the witness should note those with the
11 reason, on the attached Errata Sheet.

12 The witness should sign the Acknowledgment of
13 Deponent and Errata and return to the deposing attorney.
14 Copies should be sent to all counsel, and to Veritext at
15 (production-ca@veritext.com).

16 Return completed errata within 30 days from
17 receipt of testimony.

18 If the witness fails to do so within the time
19 allotted, the transcript may be used as if signed.

20
21
22 Yours,

23 Veritext Legal Solutions
24
25

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1 RE: Amazon.Com Services LLC v. Smart Speaker LLC
2 Michael Shamos (#8479048)
3

4 E R R A T A S H E E T

5 PAGE_____ LINE_____ CHANGE_____
6 _____

7 REASON_____
8

9 PAGE_____ LINE_____ CHANGE_____
10 _____

11 REASON_____
12

13 PAGE_____ LINE_____ CHANGE_____
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17 PAGE_____ LINE_____ CHANGE_____
18 _____

19 REASON_____
20

21 PAGE_____ LINE_____ CHANGE_____
22 _____

23 REASON_____
24

25 PAGE_____ LINE_____ CHANGE_____

Michael Shamos

Date

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1 RE: Amazon.Com Services LLC v. Smart Speaker LLC
2 Michael Shamos (#8479048)
3

4 ACKNOWLEDGEMENT OF DEPONENT

5
6 I, Michael Shamos, do hereby declare that I
7 have read the foregoing transcript, I have made any
8 corrections, additions, or changes I deemed necessary as
9 noted above to be appended hereto, and that the same is
10 a true, correct and complete transcript of the testimony
11 given by me.
12

13 _____
14 Michael Shamos

_____ Date

15
16 *If notary is required
17

18 SUBSCRIBED AND SWORN TO BEFORE ME THIS
19 _____ DAY OF _____, 20____.
20

21
22 _____
23 NOTARY PUBLIC
24
25

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