

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 -----

5 ROKU, INC.,

6 Petitioner,

7 v.

8 UNIVERSAL ELECTRONICS INC.,

9 Patent Owner.
10 -----

11 Case IPR2022-01289

12 U.S. Patent No. 9,847,083
13 -----

14 Deposition of BRUCE McNAIR

15 Wednesday, June 7, 2023

16 Conducted Virtually

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21 Reported Stenographically by:

22 Tiffany M. Pietrzyk, CSR RPR CRR

1 Virtual deposition of BRUCE McNAIR, pursuant
2 to notice, before Tiffany M. Pietrzyk, a Certified
3 Shorthand Reporter in the States of Illinois, Texas,
4 and California, Registered Professional Reporter,
5 Certified Realtime Reporter, and a Notary Public in
6 and for the State of Illinois.

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A P P E A R A N C E S

ON BEHALF OF THE PETITIONER:

BRENDAN McLAUGHLIN, ESQUIRE

SCOTT McKEOWN, ESQUIRE

ROPES & GRAY

2099 Pennsylvania Avenue NW

Washington, DC 20006

202.508.4600

ON BEHALF OF THE PATENT OWNER:

BENJAMIN P. GILFORD, ESQUIRE

GREENBERG TRAURIG, LLP

Suite 3100

77 West Wacker Drive

Chicago, Illinois 60601

312.456.8400

ALSO PRESENT:

Madison Rubin (Greenberg Traurig)

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C O N T E N T S

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E X H I B I T S

(Retained by counsel.)

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

2 (Witness sworn.)

3 MR. GILFORD: So let's go ahead and do
4 appearances for the record really quick. I'm Ben
5 Gilford of Greenberg Traurig, appearing on behalf of
6 patent owner Universal Electronics Inc.

7 MR. McLAUGHLIN: I'm Brendan McLaughlin,
8 Ropes & Gray, appearing on behalf of petitioner Roku
9 Inc. I'm joined today by my colleague Scott
10 McKeown.

11 WHEREUPON:

12 BRUCE McNAIR,
13 called as a witness herein, having been first duly
14 sworn, was examined and testified as follows:

15 EXAMINATION

16 BY MR. GILFORD:

17 Q. So good morning, Mr. McNair. Are you
18 connecting to the deposition today on a personal
19 computer?

20 A. Yes, I am.

21 Q. And do you have any other electronic devices
22 in the room with you, like an iPhone, iPad,

1 something like that?

2 A. My iPhone is in airplane mode.

3 Q. Okay. If I could ask that you just keep it
4 in airplane mode with the Wi-Fi turned off for the
5 duration of the deposition, I would appreciate that.

6 A. It is.

7 Q. And other than your iPhone, do you have any
8 other electronic devices in the room with you, of
9 course, other than your computer as well?

10 A. No.

11 Q. Are there any other people in the room with
12 you today?

13 A. There are not.

14 Q. And do you have any notes with you today?

15 A. I only have the printouts that were supplied
16 to me by counsel of all of the exhibits and the
17 petition and the declaration of mine.

18 Q. So you have a printout of your declaration?

19 A. Yes.

20 Q. And do you have a printout of the subject
21 patent?

22 A. Yes.

1 Q. Okay. Do you have any notes pulled up on
2 your computer?

3 A. No.

4 Q. Do you have your -- do you have any web
5 pages open on your computer other than Zoom?

6 A. No.

7 Q. Do you have any email or messaging programs
8 open on your computer?

9 A. No.

10 Q. Did you do anything to prepare for today's
11 deposition?

12 A. Yes.

13 Q. What did you do to prepare for today's
14 deposition?

15 A. I reviewed the materials in the case, and I
16 spoke with counsel yesterday.

17 Q. So you said you reviewed the case materials
18 and spoke with counsel yesterday. Did you do
19 anything else to prepare for today's deposition?

20 A. No.

21 Q. And when you say you reviewed case
22 materials, in general, what kind of case materials

1 did you review?

2 A. The exhibits to the petition, the petition,
3 the institution decision, my declaration. I think
4 that was everything.

5 Q. Do you recall reviewing Universal
6 Electronics Inc.'s patent owner preliminary
7 response?

8 A. No.

9 Q. And you mentioned you spoke with counsel
10 yesterday. Who did you speak with?

11 A. I spoke to Brendan McLaughlin and Scott
12 McKeown.

13 Q. And approximately how many hours did you
14 speak with Brendan and Scott?

15 A. I think it was on the order of an hour.

16 Q. Other than counsel, did you speak with
17 anybody else in preparation for today's deposition?

18 A. No.

19 Q. And I know you mentioned you reviewed the
20 board's institution decision. In preparing for
21 today's deposition, did you review any other
22 documents that you had not reviewed at the time you

1 submitted your declaration in this proceeding?

2 A. No.

3 Q. Other than Roku's attorneys, have you spoken
4 to anyone else about this IPR proceeding or the
5 subject patent?

6 A. No.

7 Q. Have you spoken with anyone at Roku about
8 this IPR proceeding or today's deposition?

9 A. No.

10 Q. So if you could go ahead and pull up what
11 was previously marked as Exhibit 1001.

12 (Exhibit 1001, previously marked, was
13 retained by counsel.)

14 MR. GILFORD: And, Brendan, do you also have
15 a copy of the exhibits with you, or do you want me
16 to share it on the screen?

17 MR. McLAUGHLIN: I have a copy, hard copy
18 with me.

19 MR. GILFORD: Okay.

20 BY MR. GILFORD:

21 Q. Yeah. So, you know, let me know,
22 Mr. McNair, when you have Exhibit 1001 in front of

1 you.

2 A. I have it.

3 Q. And this is the patent that's at issue in
4 this proceeding; correct?

5 A. That's correct.

6 Q. And if I refer to this patent as the '083
7 patent, you'll know what I'm talking about; right?

8 A. Yes.

9 Q. Now, you've reviewed the claims of the '083
10 patent before; correct?

11 A. I have.

12 Q. Would you mind flipping to Claim 1 on the
13 second to last page?

14 A. Okay.

15 Q. All right. Do you have Claim 1 in front of
16 you?

17 A. Yes, I do.

18 Q. All right. So I want to discuss Claim 1 of
19 the '083 patent for a little bit.

20 Do you see at about the fourth line down in
21 Claim 1 where it says, [As read] Causing a codeset
22 record to be provisioned to the controlling device?

1 A. Fourth line down. Yes.

2 Q. Do you have an understanding of what the
3 term "codeset record" means?

4 A. Yes.

5 Q. What is your understanding?

6 A. I understand it to be the data structure
7 that defines the various information involved in
8 interacting with the -- between the remote device
9 and the control device.

10 Q. And what must a codeset record contain at a
11 minimum for it to be considered a codeset record?

12 A. Well, let's see. It's -- according to the
13 patent claim, [As read] Comprising protocol and
14 formatting information and a plurality of individual
15 command function entries wherein each of the
16 plurality of individual function entries within the
17 codeset record comprises command data, a standard
18 function identifier, data which comprises a phonetic
19 representation of a function name corresponding to
20 the standard function identifier, and a plurality of
21 data each of which comprises a phonetic
22 representation of a unique one of plurality of

1 synonyms of the function name.

2 That's what the claim says.

3 Q. Does a codeset record need to have command
4 codes in it?

5 A. Does it need to have command codes in it?
6 Well, I see it says "command data." I'd have to
7 refer back to my declaration to see if I said
8 anything more about this, but I don't see -- I just
9 see that it says "command data."

10 Q. So I think to take a step back, I know the
11 codeset record you're talking about is the specific
12 one claimed here, and I'm trying to get at what
13 codeset record means more broadly. And I know you
14 said earlier that you understand a codeset record to
15 be the data structure that defines the various
16 information involved in interacting between the
17 remote device and the control device.

18 Do you recall saying that?

19 A. Yes.

20 Q. And I'm trying to get at what -- what
21 information needs to be in that data structure in
22 order for it to be considered a codeset record.

1 Would you mind elaborating on that? And, again, I'm
2 speaking more generally, not the specific codeset
3 record claimed in Claim 1.

4 MR. McLAUGHLIN: Objection.
5 Mischaracterizes the testimony.

6 A. Well, I think, you know, you're asking a
7 question -- I can answer that in the context of what
8 the specification says. I can answer it in the
9 context of what other prior art may describe that is
10 implementing the -- let's see -- let me get the
11 verbiage correct -- command data.

12 Q. Well, let's see if I can help you out here.
13 So would you mind going to column 9, and let me know
14 when you're there. And I'm looking at about line 60
15 in column 9.

16 A. Okay.

17 Q. And do you see at line 60 of column 9 of the
18 '083 patent, it says, [As read] A codeset record 706
19 containing command code data, function labels, et
20 cetera, and then it goes on?

21 A. I see that.

22 Q. Is it fair to say that a codeset record in

1 general is a data structure that contains command
2 code data?

3 A. I didn't hear that word. What code data?

4 Q. Sorry. I'll repeat the question.

5 Is it fair to say that a codeset record is a
6 data structure that contains command code data?

7 A. Well, that's -- that's what the
8 specification is describing, and that's what the
9 claim is saying is a codeset comprising, among other
10 things -- or is it -- command data. So they're both
11 saying command data.

12 Q. So it's fair to say that a codeset record is
13 a data structure that contains command data?

14 A. I believe so.

15 Q. Okay. So if we could go back to Claim 1,
16 and I'm looking at about the sixth line. Do you see
17 where the claim says, [As read] The provision
18 codeset record comprising protocol and formatting
19 information and a plurality of individual command
20 function entries.

21 Do you see that?

22 A. Yes.

1 Q. So it's fair to say that Claim 1 of the '083
2 patent recites protocol and formatting information;
3 right?

4 A. That's correct.

5 Q. And Claim 1 of the '083 patent separately
6 recites, [As read] A plurality of individual command
7 function entries; right?

8 A. That's correct. That's what it says.

9 Q. Do you have an understanding as to what an
10 individual command function entry is?

11 A. Well, here again, it says, [As read]
12 Individual command function entries wherein each of
13 the plurality of the individual function entries --
14 so that sounds like it's referring back to the
15 command function entries -- comprises command data,
16 a standard function identifier, et cetera.

17 Q. And the plurality of individual command
18 function entries are different than the protocol and
19 formatting information; right?

20 A. They appear to be distinct.

21 Q. And then looking down Claim 1, now you had
22 mentioned this before that Claim 1 recites command

1 data.

2 Do you see that?

3 A. Yes.

4 Q. Do you have an understanding as -- as to
5 what the term "command data" means?

6 A. Well, again, I'd have to look at it in the
7 context of the specification to understand if
8 there's any more information that informs me as to
9 what command data is. But in general, you know, I
10 am trying to convey commands of some sort. So there
11 must be some data associated with those commands.

12 Q. Is command data a command code?

13 MR. McLAUGHLIN: Objection. Calls for a
14 legal conclusion.

15 A. If you can point me to where command code is
16 described, maybe I can interpret if there's any, you
17 know, technical information there that helps me to
18 inform that.

19 Q. Yeah, let's see if I can help you out. Bear
20 with me for a sec. So if you go to column 9, I'm
21 looking at about line 38 to 40. Let me know when
22 you get there.

1 A. Okay.

2 Q. Do you see at column 9, line 38 to 40, it
3 says, [As read] Once the desired function has been
4 uniquely identified, at step 610 the indicated
5 command code data may be provisioned to the
6 controlling device.

7 Do you see that?

8 A. I see that.

9 Q. So after reading that, is it fair to say
10 that command data is referring to command codes?

11 A. Well, it's saying command code data. It
12 doesn't specifically refer to command codes, so I
13 don't know if there's anything here that
14 distinguishes between a command code and a command
15 code data. I don't see anything else there.

16 Q. To your knowledge, is there any difference
17 between the claimed command data and command code
18 data?

19 A. Could you say that again?

20 Q. To your knowledge, is there any difference
21 between the claimed command data and command code
22 data?

1 MR. McLAUGHLIN: Objection. Calls for
2 speculation.

3 A. You refer to the claimed command data.
4 Okay. Well, they're different words, so I'd have
5 to, you know, I have to analyze that. I don't know
6 that I've talked about the difference between
7 command data and command code data. If you can
8 point me to someplace that I may have referred to
9 that, you know, I can review that. But, you know,
10 they're different terms. One is command data. One
11 is command code data. So I'd have to -- I'd have to
12 think about where -- what the difference between
13 them might be.

14 Q. Let's go back to the -- the term used in the
15 claim which is command data.

16 Do you have an understanding of what the
17 term "command data" means?

18 MR. McLAUGHLIN: Objection. Calls for a
19 legal conclusion.

20 A. Well, here again, I'd look to the -- I'd
21 look to the claim to see what it's talking about.
22 And it says -- let's see. Where is it?

1 It says, [As read] The command -- the
2 codeset record comprises command data.

3 I'm reading the rest of the claim to see if
4 I can get any -- any additional clarification here
5 about the command data.

6 Q. Sure, take your time.

7 A. Well, I don't see any additional information
8 to have defined that. I know the term hasn't been
9 construed, so I don't know that I can really say
10 very much more about it.

11 Q. You don't have an understanding as to what
12 the term "command data" means?

13 MR. McLAUGHLIN: Objection.
14 Mischaracterizes testimony.

15 A. Again, you know, I don't remember if I've
16 specifically addressed that in my declaration. But
17 as I sit here right now, I don't have any
18 information before me that, you know, helps me to
19 better refine what that information is intended to
20 mean in the claim.

21 Q. Okay. We'll -- we'll circle back to that
22 later. I want to go back to Claim 1. And I'm

1 looking at line 65 of column 11.

2 Do you see where Claim 1 recites, [As read]
3 A phonetic representation of a function name?

4 A. Yes.

5 Q. Do you have an -- do you have an
6 understanding as to what a phonetic representation
7 of a function name is?

8 MR. McLAUGHLIN: Objection. Calls for a
9 legal conclusion.

10 A. Well, again, I'd have to look and see if
11 there's any specific reference to this. Let me look
12 further in the claim to see if it says anything more
13 about the phonetic representation.

14 Well, it gives me a little bit of guidance
15 here. It's talking about a plurality of data, each
16 of one comprises a phonetic representation of a
17 unique one of a plurality of synonyms of the
18 function name. So what it appears to be, and,
19 again, I don't remember if I specifically addressed
20 this in my declaration. You know, I'd defer to that
21 to see if there's any more information there, but it
22 looks like, you know, the words that sound like what

1 the function that's intended to be performed is. So
2 if I want to turn on the television set, then a
3 phonetic representation of turn on or, you know,
4 synonyms for that might be part of the phonetic --
5 phonetic representation of the function name.

6 Q. Would you mind going to column 10 of the
7 '083 patent, and I'm looking at lines 1 through 5.

8 A. Okay.

9 Q. Let me know when you're there.

10 A. Okay.

11 Q. Would you read lines 1 through 5 of column
12 10 to yourself, and then let me know if that informs
13 you of your understanding of what the term "phonetic
14 representation of a function name" means.

15 A. No, I don't think it does.

16 Q. Okay. You understand that you submitted a
17 declaration in this case opining that the claims of
18 the '083 patent are invalid over the prior art;
19 correct?

20 A. Yes.

21 Q. And in your declaration, did you apply the
22 plain and ordinary meaning of the claim terms?

1 A. Yes.

2 Q. Okay. So what is the plain and ordinary --
3 ordinary meaning of the claim term "phonetic
4 representation of a function name"?

5 A. Well, as I said, I believe that a phonetic
6 representation of a function name, particularly as
7 it's further identified in the claim, would be a --
8 well, a phonetic representation is the -- the list
9 of sounds that one makes when saying a particular
10 function name or, as it explains here, various
11 synonyms of words that have the same meaning but are
12 different words.

13 Q. So it's fair to say that a phonetic
14 representation of a function name is the list of
15 sounds that one makes when saying a particular
16 function name; is that fair?

17 A. That sounds reasonable.

18 Q. When you say "the list of sounds that one
19 makes," is that referring to phonemes?

20 A. It could.

21 Q. What else could it refer to? Diphones?

22 A. A vary, you know, a variety of speech

1 sounds. Phonemes are one of them. Diphthongs,
2 plosives, so it's various sounds that one makes when
3 making speech.

4 Q. Sorry. You said phonemes, diphthongs --
5 would you mind spelling that for the court reporter?

6 A. D-i-p-t-h-o-n-g-s.

7 Q. And what was the last thing you said? I --
8 I -- I didn't catch it. I'm sorry.

9 A. Plosives, p-l-o-s-i-v-e-s. These are
10 additional speech sounds. There are others, but,
11 you know, those come to mind immediately.

12 Q. All right. So you mentioned a list of
13 sounds that one makes when saying a function name
14 can include phonemes, diphthongs, and plosives.

15 Are there any other things that you would
16 add to that list as we sit here today?

17 A. There are other sounds that are defined in,
18 you know, standard speech processing technology.
19 I -- as they occur to me, I may mention them but
20 none occur to me right now.

21 Q. Okay. So other than phonemes, diphthongs,
22 and plosives, you can't think of anything else as we

1 sit here at this moment?

2 A. I'll remember them as they come to me.

3 Q. Okay. Fair enough.

4 At a minimum, what does a phonetic
5 representation of a function name need to include?

6 MR. McLAUGHLIN: Objection. Calls for a
7 legal conclusion.

8 A. Well, I would say as a minimum, it includes
9 enough information to be able to distinguish the
10 function name from some other sound.

11 Q. And when you say "enough information to be
12 able to distinguish a function name from another
13 sound," what are you referring to there?

14 A. Well, what I'm saying is that, you know,
15 when people speak, they do not always speak clearly.
16 They may leave out words. They may shorten sounds.
17 And, you know, human beings are much more capable of
18 filling in the blanks, particularly in the context
19 of a conversation. When you're trying to give a
20 short command, it's more difficult to understand.

21 So, you know, there has to be enough
22 information there for the speech recognizer to be

1 able to, with a reasonably high probability,
2 understand what the intended speech was.

3 I obviously can't expect a user of a system
4 like this to speak clearly and consistently and the
5 same volume, things like that. You know, they're --
6 they're gonna pick up a control and they're gonna
7 say, "turn on TV." That needs to have enough
8 information recorded and compared to give a
9 reasonable chance that the television gets turned on
10 instead of the volume on the stereo being turned up.

11 Q. Have you ever seen phonetic representations
12 of function names used in voice control
13 applications?

14 A. Yes.

15 Q. In voice control applications, what are the
16 alternatives to using phonetic representations of
17 function names?

18 A. As I sit here, I can't think of any
19 specifically.

20 Q. Could you use a whole word model?

21 A. Well, you could, but then the question is
22 how do you recognize it?

1 Q. Could you use an individual word model?

2 A. You could certainly do that. The -- the
3 question really is, you know, are you dealing with
4 continuous or connected speech, how much processing
5 capability do you have, how many templates do you
6 have. One of the difficulties if you try to work
7 with whole words, you have to store all of the words
8 that you need to recognize, as well as all of the
9 variations of them. So there's -- there's always
10 tradeoffs in designing such a system.

11 Q. Okay.

12 MR. GILFORD: I will object to everything
13 after "you could certainly do that" as
14 nonresponsive.

15 Q. Could you use a syllable model?

16 A. You could.

17 Q. So it's fair to say that whole word models,
18 individual word models and syllable models are all
19 alternatives to a phonetic representation model; is
20 that fair to say?

21 A. Depending on the application, that would
22 probably be some of the alternatives.

1 Q. Any other alternatives you can think of as
2 we sit here today?

3 A. None come to mind.

4 Q. You had mentioned earlier that, when talking
5 about a whole word model, that you would have to
6 store the whole words and then you would also have
7 to store all the words that you'd need to recognize
8 them as well as all the variations of them.

9 Do you recall saying something along those
10 lines?

11 A. Yes.

12 Q. When you say "all of the words" -- sorry.
13 Strike that. Strike that question.

14 Let's go ahead and pull up Exhibit 1003.

15 (Exhibit 1003, previously marked, was
16 retained by counsel.)

17 A. Okay.

18 Q. And you've seen this document before; right?

19 A. Yes.

20 Q. This is the declaration you submitted in
21 this case; correct?

22 A. Correct.

1 Q. Have any of your opinions changed since you
2 drafted this declaration?

3 A. No.

4 Q. Go ahead and flip to paragraph 123, which is
5 on page 92 of your declaration.

6 A. Okay.

7 Q. And do you see here on paragraph 123, you
8 say, [As read] Aginsky discloses the provisioned
9 codeset record comprising protocol and formatting
10 information (e.g., "signal columns 112-1 and 112-2"
11 "denote the type of signal").

12 Do you see that?

13 A. Yes.

14 Q. So it's fair to say it's your opinion that
15 Aginsky discloses the provision codeset record
16 comprises protocol and formatting information;
17 correct?

18 A. Yes.

19 Q. And, specifically, it's your position that
20 the type of signal denoted in signal columns 112-1
21 and 112-2 discloses the claimed protocol and
22 formatting information; right?

1 A. Yes.

2 Q. If you go to the next page and look at
3 paragraph 124, the last sentence, let me know when
4 you're there.

5 A. Okay.

6 Q. Do you see where you wrote, [As read]
7 Accordingly, a person of ordinary skill in the art
8 would have understood that Aginsky's examples --
9 frequency set, IR, and Bluetooth -- require protocol
10 and formatting information as defined in '083.

11 Do you see that?

12 A. I see that.

13 Q. So it's your opinion that the '083 patent
14 defines the term "protocol and formatting
15 information"; correct?

16 A. Let me go back to the patent that I referred
17 to here.

18 Q. Yeah. I think that's fair. So, you know,
19 you cite to the '083 patent at column 10, lines 47
20 through 54?

21 A. That's what I'm looking at.

22 Q. Let's go ahead and turn to that. Let me

1 know when you're there.

2 A. Okay. I'm there.

3 Q. All right. And you see in the '083 patent,
4 at lines approximately 47 through 54, it says, [As
5 read] A block of protocol and formatting information
6 752 which may describe the physical protocol
7 requirements for transmitting the command data
8 elements which comprise this codeset including, for
9 example, items such as carrier frequency, bit
10 encoding, data frame size and structure, appliance
11 address, parity, or CRC requirements, et cetera.

12 Do you see that?

13 A. Yes.

14 Q. Do you agree that the sentence I just read
15 is how the '083 patent defines the term "protocol
16 and formatting information"?

17 A. It's giving those as examples of what
18 protocol and formatting information may include.

19 Q. Is it fair to say that protocol and
20 formatting information is the physical protocol
21 requirements for transmitting the command data
22 elements which comprise the codeset?

1 A. It may be that.

2 Q. Okay. Going back to your declaration at
3 paragraph 124 on page 93, do you see where you
4 wrote, [As read] Protocol and formatting information
5 as defined in '083?

6 A. Yes.

7 Q. So what do you mean by "protocol and
8 formatting information as defined in '083"?

9 A. Well, what I'm saying in this section is a
10 person of ordinary skill in the art would have
11 understood that Aginsky's examples, the frequency
12 set, IR, and Bluetooth, require protocol and
13 formatting information, and '083 gives me
14 information about what that protocol and formatting
15 information may include. So the carrier frequency,
16 the CRC, these are things that are defined in
17 Bluetooth, and Aginsky is referring to this.

18 Q. Okay. You're saying the Bluetooth protocol
19 defines, for example, CRC requirements?

20 A. Yes.

21 Q. Okay. And does the IR protocol define
22 carrier frequency requirements and stuff like that?

1 A. Well, there is a wavelength for infrared so,
2 by nature, that would define the frequency. We
3 don't think of it in terms of frequency when we talk
4 about light, but yeah, that's -- that's a frequency,
5 the wavelength of the light that the emitter is
6 generating and the receiver is capable of receiving
7 is frequency information.

8 Q. Is it fair to say that, when the '083 patent
9 refers to protocol and formatting information, it's
10 referring to the physical protocol requirements for
11 transmitting the command data elements which
12 comprise the codeset?

13 A. Well, the specification is giving that as an
14 example. It says it may include that.

15 Q. Okay. What else could the term "protocol
16 and formatting information" be referring to?

17 A. Well, there's a wide variety of things. It
18 may include frame size. It may include bit order.
19 You know, when I define a protocol, you know, a
20 protocol is a defined set of procedures designed to
21 ensure the orderly exchange of information between
22 communicating elements. So whatever I need to make

1 sure that the exchange of information is done in an
2 orderly and reliable manner, you know, protocol
3 would define that. IR protocols define that.
4 Bluetooth protocols define that. Other protocols
5 define that. These are standard elements.

6 Q. Right. So at a high level, isn't it fair to
7 say that protocol and formatting information is
8 referring to the physical protocol requirements for
9 transmitting command data?

10 A. It may include that. It may include other
11 information.

12 Q. What other information?

13 A. It could be higher-level information.

14 Q. Such as?

15 A. Well, such as, you know, things at the data
16 link layer, things at the networking layer, if I
17 have a more complex interaction. You know, for
18 instance, Bluetooth. Bluetooth can define subnets
19 and interactions in those subnets. So it defines
20 levels 1, 2, and 3. It's more than just level 1.
21 But it may include level 1.

22 Q. So at a high level, explain to me what the

1 claim term "protocol and formatting information"
2 means?

3 MR. McLAUGHLIN: Objection. Calls for a
4 legal conclusion.

5 A. Well, I can only answer that technically.
6 Formatting and protocol information would be the
7 information that I need to transmit from one device
8 in a way that the receiving device can make sense
9 out of it and use it.

10 Q. Okay. I see what you mean. So, again, if
11 we look at column 10, lines approximately 47 through
12 54 where it mentions carrier frequency, bit
13 encoding, et cetera, those are some examples of what
14 would be included of protocol and formatting
15 information; correct?

16 A. That's correct.

17 Q. Okay. What's the difference between
18 protocol information and formatting information?

19 A. Well, you know, in the abstract, not
20 necessarily in the context of this patent, I'd have
21 to see if there were any -- you know, any examples
22 that might mean something different than this. But

1 I would say, in general, a protocol would include
2 formats. A format might be more specific than the
3 overall protocol. The format would include, you
4 know, things, for instance, like frame size, bit
5 order, and the protocol would include that as well
6 as what messages may mean that are formatted in a
7 particular way.

8 Q. Is it fair to say that protocol information
9 is information needed to identify a target
10 appliance?

11 A. You know, I could think of things being
12 designed where that is addressing information
13 separate from the specific protocol or it may be
14 included depending -- you know, if I'm talking about
15 a physical layer protocol, I might decide to put the
16 addressing at a higher level. So it -- the answer
17 is it depends.

18 Q. You mentioned a physical layer protocol.
19 Is protocol information referring to a
20 physical layer protocol?

21 A. Yeah, we can have physical layer protocols.
22 We can have data link layer protocols and network

1 layer protocols and end-to-end layer protocols and
2 application-level protocols. There are many -- you
3 know, in the iso model, there are seven layers of
4 protocol.

5 Q. So at a high level, what does the claim term
6 "protocol information" mean, to your understanding?

7 A. Well, the standard meaning --

8 MR. McLAUGHLIN: Objection. Calls for a
9 legal conclusion.

10 A. The standard meaning of protocol, you know,
11 separate from any particular patent, a protocol is a
12 procedure, a set of procedures used to ensure
13 orderly communications and commands between
14 communicating entities. So it's a set of
15 procedures. That's what a protocol is.

16 Q. So is it fair to say that protocol
17 information is a set of procedures used to ensure
18 orderly communications and commands between
19 communicating entities?

20 A. Yes. That's the term of art in the art of
21 communicating systems.

22 Q. Back to your declaration, I'm looking, now,

1 at page 94 and paragraph 128.

2 Do you see where you wrote, [As read]
3 Aginsky discloses wherein each of the plurality of
4 individual function entries within the codeset
5 record comprises command data (e.g., native command
6 data underlying "signal 112-1").

7 Do you see that?

8 A. Yes.

9 Q. Is it fair to say that it is your opinion
10 that the native command data underlying signal 112-1
11 reads on the claimed command data?

12 A. Yes.

13 Q. What do you mean by "native command data
14 underlying signal 112-1"?

15 A. Well, let's see. I think that's a term that
16 Aginsky uses. I'd have to look at his patent to see
17 where he defines signal 112-1.

18 Q. Sure. Do you want to pull up Exhibit 1004?

19 (Exhibit 1004, previously marked, was
20 retained by counsel.)

21 Q. Let me know when you've got it.

22 A. I have 1004 open.

1 Q. Yeah. I'm looking at column 9, the first
2 paragraph there so like lines 1 through 14. Let me
3 know when you're there.

4 A. Okay.

5 Q. So I'm looking at about line 7. Do you see
6 where it says, [As read] In the embodiment shown,
7 the notation used in signal columns 112-1 and 112-2
8 denote the type of signal as well as the code or
9 code sequence of the signal?

10 Do you see that?

11 A. Yes.

12 Q. Okay. So when you say in your declaration
13 "the native command data underlying signal 112-1,"
14 what do you mean by that?

15 A. Well, that's what I'm looking at, where ...
16 unfortunately, it's not efficient to try and scan
17 this written document. If I can pull up my
18 electronic copy of it, I could scan through that. I
19 don't have any notes in it. It is the document in
20 its original form, and I might be able to see if
21 there's any reference to native command data.

22 Q. Yeah, you're more than welcome to. I -- I'm

1 almost posi -- positive there's not, but please, by
2 all means, go ahead.

3 A. Yeah, I was -- I'm trying to think of what I
4 was thinking about when I -- when I referred to
5 native. Let's see. Where is it? Okay. Native.

6 Yeah, okay. So that's not a term from
7 Aginsky.

8 Q. So you agree Aginsky doesn't say anything
9 about native command data?

10 A. It does not.

11 Q. Okay. So going back to my original
12 question, do you have an understanding of what you
13 meant by "native command data underlying signal
14 112-1"?

15 A. Right. So I'm thinking what I was referring
16 to is, you know, the fundamental function, what is
17 intended to be -- the fundamental function that's
18 intended to be acted on when the -- when the command
19 is sent.

20 Q. So by "native command data underlying signal
21 112-1," you -- you were referring to the fundamental
22 function that's intended to be acted on when the

1 command is sent; is that fair to say?

2 A. Yeah, that's what I think I just said.

3 Q. And where is the underlying native command
4 data found in Aginsky?

5 A. Where is the command data found?

6 Q. The underlying native command data, where --
7 where do you find that in Aginsky's data structures?

8 A. Well, I think, if my memory serves me
9 correctly, I think that's the function in 111-1. So
10 112-1 is the signal.

11 Q. Uh-huh.

12 A. And 111-1 is the function.

13 Q. So you're saying the underlying native
14 command data in Aginsky is found in column 111-1?

15 A. If I remember correctly, I believe that's
16 the case.

17 Q. And where does Aginsky say anything about
18 transmitting something in column 111-1 to a
19 controllable appliance or other device?

20 A. Well, the signal is what is transmitted.
21 The function is what is conveyed.

22 Q. So we -- we talked earlier about the term

1 "command data" as it's used in the claim.

2 Do you recall that conversation?

3 A. Yes.

4 Q. So what is -- you know, now having gone back
5 through your -- your declaration here and its
6 discussion of the term "command data," what is your
7 understanding of what the term "command data" means
8 as it's used in the claims of the '083 patent?

9 A. Well --

10 MR. McLAUGHLIN: Objection. Calls for a
11 legal conclusion.

12 A. If I use the standard terms and, you know,
13 the technical terms of what a command is and what
14 command data might be, I think it's the -- the
15 signals that are sent to cause a command to be
16 actuated.

17 Q. So it's fair to say that the term "command
18 data" as it's used in the '083 patent means the
19 signals that are sent to cause a command to be
20 actuated; is that fair?

21 A. I'm trying to think if there's any other
22 implication of that. And I think there -- there may

1 be more complex commands that require a sequence of
2 instructions to be sent. So there may be -- there
3 may be more to it than a single command. There may
4 be sequences of commands necessary to perform
5 certain functions.

6 Q. Is it fair to say that the term "command
7 signals" as it's used in the '083 patent means one
8 or more signals that are sent to cause a command to
9 be actuated?

10 MR. McLAUGHLIN: Objection. Calls for a
11 legal conclusion.

12 A. I'd have to go back and see if I've made
13 any -- expressed any opinion on that in my
14 declaration. If you could -- if you know that I
15 have, I'd have to scan and see. But as I sit here,
16 I don't remember expressing any opinion on that.

17 Q. Yeah, I have no idea. I'm trying to get
18 your understanding of what the term "command data"
19 means.

20 So, again, backing up, the question was,
21 what does command data mean as it's used in the
22 claims of the '083 patent?

1 MR. McLAUGHLIN: Objection. Calls for a
2 legal conclusion. Objection. Asked and answered.

3 A. Yeah, I'd say the same thing as I did. I --
4 I -- I think it could be one or more sequences that
5 cause the receiving device to perform a particular
6 action.

7 Q. One or more signals that cause a command to
8 be actuated; is that fair to say?

9 MR. McLAUGHLIN: Objection. Form.

10 A. Well, I guess the question is, you know, if
11 you're gonna distinguish commands, the command from
12 the action, if the command requires multiple
13 actions, are there multiple commands, or is there a
14 single command? You know, that's more of an
15 esoteric question to me.

16 Q. When you say "multiple actions," what are
17 you referring to? Are you saying the command would
18 like power on the TV and turn up the volume? Is
19 that what you mean by multiple actions?

20 MR. McLAUGHLIN: Objection to form.

21 A. I think about -- I think about the -- you
22 know, the remotes that I use all the time. I press

1 a single button and it says turn on the television,
2 turn on the stereo, turn on the cable box. You
3 know, is that one command or is that three commands?
4 And at what level am I describing this? Am I
5 describing it at the user level?

6 A user presses a button and they say
7 everything turns on. It says power on. I look at
8 it as an engineer and I say, no, there's three
9 sequences of events that have to happen here. And I
10 mention this specifically because I've had users
11 that don't understand that, and they'll turn the
12 controller on and then they'll move it away, and the
13 television goes on and the cable box hasn't been
14 switched on yet. So now you're out of sequence.

15 Q. Well, let's -- let's bring the discussion a
16 little bit more closely to the language the claims
17 use. So remember it's command data in a codeset
18 record and the command data is related to some sort
19 of function. So with -- with all -- with all that
20 the claim says, you know, surrounding the term
21 "command data," again, what -- what is your
22 understanding of what the term "command data" means

1 as it's used in the claims of the '083 patent?

2 MR. McLAUGHLIN: Objection. Calls for a
3 legal conclusion.

4 A. Well, here again, I'm saying, you know,
5 depending on the application, I could see it as a
6 single, do one thing, turn the television on. Or it
7 could be a higher level function that says turn on
8 multiple devices.

9 I had a Sony Commander many, many years ago
10 that I could write a macro. I press one button and
11 it does several things. Is that one command or is
12 that multiple commands? What level am I looking at
13 it at, the user level, the implementation level, or
14 some intermediate level.

15 Q. So is the command data a -- I want to back
16 up a second. You -- you had said earlier when we
17 were talking about command data, you kind of used
18 the term "signal" and you used the term "sequence,"
19 I believe, at different times.

20 So is the command data a sequence of
21 something or is it a signal?

22 A. Well, I believe the command data is a

1 signal.

2 Q. And how do you store a signal in a codeset
3 record?

4 A. You can store information relating to the
5 signals in the codeset record. You can store what
6 are the instructions that are necessary and what are
7 the signals that will result from that.

8 Q. Is command data a code or code sequence?

9 A. Excuse me?

10 Q. Is command data a code or code sequence?

11 MR. McLAUGHLIN: Objection. Asked and
12 answered.

13 A. Is the term "code sequence" a patent term?

14 Q. No, but it's in Aginsky.

15 A. Okay.

16 Q. I'm looking at column 9, lines 9 through 10
17 of Aginsky. And it says, [As read] Signal columns
18 112-1 and 112-2 denote the type of signal, as well
19 as the code or code sequence of the signal.

20 Do you see that?

21 A. Yes.

22 Q. So is the code or code sequence command

1 data?

2 A. I think they can be.

3 MR. McLAUGHLIN: Counsel, we've been going
4 for about an hour. Do you know how much longer you
5 have with this line of questioning?

6 MR. GILFORD: Not much longer.

7 THE WITNESS: Okay. I'm gonna be limited by
8 my remaining water.

9 MR. GILFORD: That's fair.

10 BY MR. GILFORD:

11 Q. In your analysis of Aginsky and the '083
12 patent, did you -- were you reading Aginsky's code
13 or code sequence of the signal on the claim command
14 data?

15 A. Could you say that again?

16 Q. In your analysis of the '083 patent and
17 Aginsky, were you reading Aginsky's code or code
18 sequence of the signal on the claim command data?

19 MR. McLAUGHLIN: Objection. Form.

20 A. Yes.

21 Q. And, again, in your analysis of the Aginsky
22 reference where you mention native command data

1 underlying signal column 112-1, how is that native
2 command data underlying signal column 112-1
3 different than the code or code sequence contained
4 in Aginsky's signal column 112-1?

5 MR. McLAUGHLIN: Objection. Form.

6 A. If my memory serves me correctly, I think
7 they are alternate ways of describing similar
8 things.

9 Q. Can you elaborate on that?

10 A. Well, I can refer to an object in a number
11 of different ways depending on where I'm thinking of
12 it in the system. So if I'm thinking of it at the
13 user level as a command or if I'm thinking of it at
14 the communications level as a sequence, you know, I
15 may be referring to similar functions and I may use
16 a different term to describe them.

17 Q. So you're basically saying that the code or
18 code sequence inherently describes some sort of
19 indicated function?

20 MR. McLAUGHLIN: Objection.
21 Mischaracterizes testimony.

22 A. The intent is to communicate a function, and

1 there are various steps along the way that are
2 necessary to have that function performed.

3 Q. So how does the code or code sequence in
4 signal column 112-1 relate to the native command
5 data underlying signal column 112-1?

6 A. Well, if I want to -- if I would send a
7 particular command, then I may need to have certain
8 sequences of codes sent from the remote control
9 device to the control device. So I think that's the
10 relationship. The command versus the code sequence
11 that executes that command.

12 Q. So the code or code sequence is what is sent
13 to execute a particular command; is that fair to
14 say?

15 MR. McLAUGHLIN: Objection.
16 Mischaracterizes the testimony.

17 A. I have to think about where in the system
18 these various signals or entities exist, but I think
19 the command causes the code sequence to be sent.

20 Q. You think the command causes the code
21 sequence to be sent. What do you mean by that?

22 A. Well, at a high level, there's a function

1 that I request, there's a command that that
2 generates, and a code sequence results from it.

3 Q. Now, when you say "a command that that
4 generates," what are you specifically referring to?

5 A. Could you say that again?

6 Q. You said "At a high level, there's a
7 function that I request, there's a command that that
8 generates, and a code sequence results from it."
9 Now, I'm focusing on the part where you said "a
10 command that that generates." What did you mean by
11 that? What is the generated command?

12 A. Well, if I look back at Aginsky, figure 1, I
13 have a function that I want to perform.

14 Q. Which of figure 1? There's 1A, 1B, 1C.

15 A. Oh, I'm looking at 1B.

16 Q. Okay.

17 A. So there's a function I want to perform,
18 volume. The command to control the volume is the --
19 is indicated XX1, and that will be -- that will
20 result in a particular code being sent to the device
21 when that's interpreted.

22 Q. So is this XX1 in Aginsky figure 1B a code

1 or code sequence or is it something else?

2 A. Well, I think -- I think the command is
3 the -- I think the command is the 112-1, and the
4 code is the 112-2. So the controllable device is
5 gonna be receiving something based on what the
6 controlling device required.

7 Q. I think you might have misspoke there. So
8 the -- you said the command is the 112-1 and the
9 code is 112-2? Do you mean the command is 111-1 and
10 the code is 112-1?

11 A. No. 111 is the function.

12 Q. Uh-huh.

13 A. So if I want to perform a particular
14 function, I send a command, and that command causes
15 a code to be generated that controls the end device.

16 Q. Okay. So where in figure 1B of Aginsky is
17 the command?

18 A. I think that's 112-1.

19 Q. And then where in figure 1B of Aginsky is
20 the code?

21 A. Excuse me. I did misspeak because these are
22 different controllable devices. Yeah. I misspoke.

1 Q. I figured you had.

2 A. Yeah.

3 Q. So you want to back up and re-explain
4 yourself?

5 A. Yeah, that's -- they're referring to
6 different controllable devices. I was thinking in
7 terms of controlled and -- controllable and control
8 device. Can you ask your question again?

9 Q. Sure. So, again, looking at figure 1B of
10 Aginsky, where do you find the command and where do
11 you find the code that you were previously referring
12 to?

13 A. Let me go back to my declaration and see
14 what I talk about. Refresh my memory.

15 I'm gonna need to pull up an electronic copy
16 of my declaration again so I can search.

17 Q. Sure, go ahead.

18 A. Right. So the codeset is the data structure
19 that contains the commands.

20 Q. Did you have anything more you wanted to add
21 or was that --

22 A. No, no, that's it. The codeset is the data

1 structure.

2 Q. My question was, looking at figure 1B of the
3 Aginsky, where do you find the command and where do
4 you find the code that you were referring to
5 previously in our discussion?

6 A. Well, we're talking about codesets.

7 Q. We were talking about codesets and codes and
8 commands. We were talking about a lot of things,
9 but you specifically were referring to commands and
10 codes.

11 A. Right. So a command is a code.

12 Q. A command is a code?

13 A. Yes.

14 Q. And I guess, more specifically, is command
15 data a code?

16 A. Well, data is plural. So command data would
17 be general commands. A code is a single code.

18 Q. Can you have command data for a single
19 function?

20 A. Well, still, again, if I talk about command
21 data, I am talking about the plural of the
22 information. I can have a specific -- I can have a

1 specific function that has a specific command, which
2 would be one piece of command data.

3 Q. What would the other pieces of command data
4 be?

5 A. Other commands.

6 MR. McLAUGHLIN: Ben, we've been going for
7 about an hour and a half now. Are you about ready
8 to wrap up?

9 MR. GILFORD: Yeah, again, very close.

10 BY MR. GILFORD:

11 Q. So is it your position that command data --
12 that command data, as it's used in the claims of the
13 '083 patent, is referring to multiple commands?

14 A. I'm just using the English word. Data is a
15 plural. Datum would be singular. If I say "command
16 data," I am talking about the general collection of
17 command information.

18 Q. Your position is command data, as it's used
19 in the claims of the '083 patent, is referring to a
20 general collection of command information?

21 MR. McLAUGHLIN: Objection. Calls for a
22 legal conclusion.

1 A. Let me go back to the patent and see.
2 Claim 1, when it says the word "command data." So
3 it says "The codeset record comprises command data."
4 It's not saying a single command data element. It's
5 saying command data, which could be plural. It
6 comprises.

7 Q. Well, to back up, it says, [As read] Each of
8 the plurality of individual function entries within
9 the codeset record comprises command data.

10 Right? So the claim requires each
11 individual function entry have command data; right?
12 Do you agree with that?

13 MR. McLAUGHLIN: Objection to form.

14 A. So here's what I see. There is this
15 collection of information called command data. It
16 is the set of all of the things that we could call
17 command data elements. And the claim is saying that
18 the individual entries within the codeset record
19 comprise something from that set of command data.
20 It's not necessarily telling me that it only has one
21 or many, but it is information that is made up of
22 the things that are referred to collectively as

1 command data. And data is a plural. So it's not
2 telling me it comprises a command data element.
3 It's saying that it comprises command data. So it's
4 not telling me whether it's singular or plural.

5 Q. So let's go ahead --

6 MR. McLAUGHLIN: Ben, do you want to take a
7 ten-minute break for lunch now?

8 MR. GILFORD: I honestly think we have about
9 ten minutes tops of --

10 MR. McLAUGHLIN: We've gone an hour and a
11 half.

12 MR. GILFORD: I don't think we need to take
13 a full lunch break because we have about five to ten
14 minutes left, but if we want to take a five-minute
15 break for restroom and water, whatnot, that's fine
16 with me.

17 MR. McLAUGHLIN: Yeah.

18 MR. GILFORD: That's fine. Let's go ahead
19 and go off the record for five minutes. So we'll be
20 back at 12:35 p.m. Eastern Time. Sound good?

21 THE WITNESS: Okay.

22 MR. McLAUGHLIN: Thank you.

1 (A short break was had.)

2 BY MR. GILFORD:

3 Q. Welcome back, Mr. McNair. Did you speak
4 with anybody?

5 A. No.

6 Q. Now, you had mentioned right before break
7 something called a command data element.

8 Would you mind explaining to me what you
9 meant by a command data element?

10 A. Well, I'm trying to use that term to
11 distinguish the general collection of command data
12 from one specific command. Because, again, as I
13 said, the word "data" is a plural word. So if you
14 refer to command data, you're talking about the
15 collection of all command data. But if you want to
16 talk about a specific one, you'd have to have some
17 different term, and that's -- I picked the term
18 "command data element" to be able to refer to a
19 specific command as opposed to the collection of all
20 of them.

21 Q. So when you say "command data element," are
22 you referring to a specific command code?

1 A. Yes.

2 Q. Okay.

3 MR. GILFORD: I have no further questions.

4 MR. McLAUGHLIN: No redirect from
5 petitioner.

6 (Off the record at 11:42 a.m.)

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1 CERTIFICATE OF COURT REPORTER - NOTARY PUBLIC

2
3 I, TIFFANY M. PIETRZYK, Certified Shorthand
4 Reporter No. 084-004371, CSR, RPR, CRR, and a Notary
5 Public within and for the State of Illinois, do
6 hereby certify:

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

12 I further certify that the adverse party,
13 ROKU, INC., was represented by counsel at the
14 deposition.

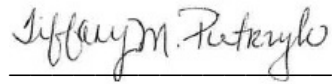
15 I further certify that the deposition of
16 BRUCE McNAIR occurred virtually via Zoom
17 videoconference, on Wednesday June 7, 2023,
18 commencing at 10:00 a.m. CST to 11:42 a.m. CST.

19 I further certify that I am not related to
20 any of the parties to this action by blood or
21 marriage, I am not employed by or an attorney to any
22 of the parties to this action, and that I am in no

1 way interested, financially or otherwise, in the
2 outcome of this matter.

3 IN WITNESS WHEREOF, I have hereunto set my
4 hand and affixed my notarial seal this 14th day of
5 June, 2023.

6
7 My commission expires: February 28th, 2024

8
9 _____

10 NOTARY PUBLIC IN AND FOR THE
11 STATE OF ILLINOIS

Transcript of Bruce McNair
Conducted on June 7, 2023

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A			
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