1
UNITED STATES PATENT AND TRADEMARK OFFICE
2
BEFORE THE PATENT TRIAL AND APPEAL BOARD
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4
APPLE INC.,
5 Petitioner,
6 v.
7 VARIA HOLDINGS LLC,
Patent Owner.
8
9 IPR2024-01362
Patent 8,381,974 B2
10
IPR2024-01363
11 Patent 9,405,947 B2
12 IPR2024-01364
Patent 8,127,984 B2
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19 REMOTE DEPOSITION UNDER ORAL EXAMINATION OF
20 DR. ZHI DING
21 DATE: October 7, 2025
22
23
24 REPORTED BY: CHARLENE FRIEDMAN, CCR, RPR, CRR
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8 TRANSCRIPT of the deposition of the
9 DR. ZHI DING, called for Oral Examination in the
10 above-captioned matter, said deposition being taken by
11 and before CHARLENE FRIEDMAN, a Notary Public and
12 Certified Court Reporter, a Registered Professional
13 Reporter, and a Certified Realtime Reporter, via video
14 teleconference, by Zoom, on October 7, 2025, commencing
15 at approximately 12:00 p.m., Eastern Standard Time.
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1 A P P E A R A N C E S:

2

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1 I N D E X

2 WITNESS NAME PAGE

3 DR. ZHI DING

4 By Mr. Jaffess 7

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10 E X H I B I T S

11 EXHIBIT NO. DESCRIPTION PAGE

12 (None marked.)

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2 Deposition Support Index

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5 Direction to witness not to answer

6 Page Line

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9 Request for production of documents

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11 None

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13 Questions marked

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1 CERTIFIED SHORTHAND REPORTER: My
2 name is Charlene Friedman, a Certified
3 Shorthand Reporter and Notary Public of the
4 State of New Jersey. This deposition is
5 being held via video teleconference
6 equipment.
7 The witness and reporter are not in
8 the same room. The witness will be sworn in
9 remotely, pursuant to agreement of all
10 parties. The parties stipulate that the
11 testimony is being given as if the witness
12 was sworn in person.
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1 D R. Z H I D I N G,
2 called as a witness, having been first duly
3 sworn according to law, testifies as follows:
4
5 EXAMINATION BY MR. JAFFESS:
6 Q Good morning, Dr. Ding.
7 A Good morning, Counsel.
8 Q We've done this before, so we don't
9 need to go through some of the introductory.
10 So you're aware for sure, just as a
11 reminder, of course, to please answer any
12 questions verbally so that the court reporter
13 can take down what's said.
14 If you have any questions about a
15 question that I ask, please don't hesitate to
16 ask me. Just leave some time for your
17 counsel to object as well.
18 Okay? Is that fair?
19 A Yes.
20 Thank you for the clarification.
21 Q Where are you located today, Dr.
22 Ding?
23 A Presently, sitting at home in
24 Davis, California.
25 Q And do you have a computer or phone

1 with you today?
2 I mean, obviously you're on a
3 computer with Zoom. Do you have any other
4 devices with you?
5 A No, my phone is in a separate
6 place. It's not -- it's been muted and not
7 near me. I'm in my office area here with the
8 computer I'm using to conduct the Zoom
9 interview.
10 Q Do you have any other applications,
11 aside from Zoom, open on that computer at the
12 moment?
13 A I have other applications on my
14 computer.
15 Q Are they running?
16 A Yes, there are two that are
17 running. One is the calendar, which I used
18 to access the Zoom interview -- sorry, the
19 Zoom link, and another is an Acrobat -- Adobe
20 Acrobat in case you send me files that I --
21 that I need to review.
22 Q Okay.
23 A But yeah, that's it. That's all.
24 That's all I have open.
25 Q Okay. Does the calendar

1 application have any messaging capability,
2 real time messaging capabilities?
3 A If there is, I don't know how to
4 use it.
5 Q Okay.
6 A But it's just like a calendar that
7 tells me my schedule. I don't know how to
8 use it for other purposes.
9 Q That's fine.
10 And there's no other case notes or
11 materials related to these actions that are
12 in the calendar?
13 A Not on the apps.
14 Q And do you have any other case
15 materials in hard copy with you?
16 A Yes, that I have. I have printed
17 out a few clean copies for just details.
18 Sometimes I like to look at the hard copy
19 fast, so I have a few clean copies here for
20 today's deposition.
21 Q Okay. And just what are those
22 clean copies of? What exactly do you have?
23 A Certainly, they are the three
24 supplemental declarations with respect to the
25 '974 patent, the '947 patent and the '984

1 patent. These are the three copies, clean
2 copies here.
3 And I have the Exhibit 1001 that --
4 sorry. There are several exhibits, but I
5 have the clean copy of the '974 patent here,
6 and I also have a copy of Willgert. That's
7 the -- that's one of the prior art that is
8 foundational to the grounds for invalidity.
9 I have -- and the last part I have
10 a copy of is Holloway. That is all I have
11 here.
12 Oh, I also have Mooney, but I have
13 not reviewed it. So I just printed out a
14 copy of Mooney.
15 Q Okay. And what did you do to
16 prepare for today's deposition?
17 A Right. I reviewed the files I
18 mentioned. I reviewed my supplemental
19 declaration, the three supplemental
20 declarations.
21 I reviewed the -- to refresh my
22 memory, I reviewed the claims of all three
23 patents in question; and also, I reviewed the
24 specification of '974, reviewed Willgert and
25 also reviewed Holloway.

1 That's -- that's the extent of what
2 I have reviewed as those are part of the case
3 record.
4 And I had some conversations with
5 counsel. That's all.
6 Q And without getting into what was
7 discussed with counsel, when did you meet
8 with counsel and for how long?
9 A I met with counsel for -- Mr.
10 Chowdhury, Friday, the 3rd, I think.
11 That's why I need the calendar,
12 sorry.
13 Q No, that's okay.
14 So this past Friday?
15 A This past Friday, yes. So it was
16 Friday the 3rd, and then briefly yesterday on
17 the 6th of October.
18 I would say all together, perhaps
19 we spoke for -- let me think what --
20 somewhere between two and a half hours to
21 three hours, I think, in total.
22 Q In total between the two
23 conversations?
24 A Correct.
25 Q Okay. If you can -- and I'm happy

1 to put it into the chat as well, but if you
2 can get your supplemental declaration for the
3 '974 patent.
4 This is the case with 1362.
5 A Yes, I will get there.
6 MR. JAFFESS: For the record, this
7 is Exhibit 1063 in IPR2024-01362.
8 BY MR. JAFFESS:
9 Q And today we're going to stick
10 mostly to this declaration.
11 A This is '974, right?
12 Q Correct.
13 A Okay. I remember there was --
14 there was some type mentioned, but since I
15 didn't put notes here -- let's see.
16 That's okay. I think I will when
17 we get there. Thank you.
18 Q If you remember at any point,
19 please let me know.
20 A Okay.
21 Q Another reminder, I guess, is just
22 these depositions are a little different than
23 some others in that no content can be
24 discussed at the breaks.
25 I just want to put that on the

1 record just to be clear on that.
2 If you can go down to paragraph 31
3 of Exhibit 1063. Again, this is in case
4 1362. I'll stop saying that for now. From
5 here on out, we'll just use Exhibit 1063 as
6 referring to case 1362 for the record.
7 A And this is for case 1362?
8 Q Yes, the '974 patent.
9 A Yes, I have it. I'm there.
10 Thank you.
11 Q You state in paragraph 31 that,
12 "None of the limitations of the independent
13 claims use language to suggest emulating or
14 action without an RFID transponder," correct?
15 A Yes.
16 Q Is that required to construe claim
17 terms, that language, that's within the
18 claims themselves?
19 A Is what required?
20 Q Is the limitation within the
21 language of the claims themselves required in
22 order to construe claim terms?
23 MR. CHOWDHURY: Objection, to the
24 extent that it calls for a legal conclusion.
25 You can go ahead and answer.

1 A Yeah, I was just going to say that
2 I'm not an attorney, so I would not be able
3 to tell you whether -- what is required to
4 construe legally.
5 But what I'm simply pointing out in
6 paragraph 31 is the factual, in other words,
7 the -- the language suggesting limitation --
8 emulation of the language that requires the
9 action without an RFID transponder are absent
10 in the independent claims of '974 patent.
11 Q You don't know the legal
12 significance of that is what you're saying?
13 A That's not what I said. I said I
14 am not an attorney, so it would not be my
15 place to provide you with what's required
16 in -- in the -- legally how to construe a
17 term.
18 But as a person of skill in an art,
19 I'm pointing out that the claims themselves
20 do not require or do not indicate the
21 language of emulation or the action to be
22 taken without an RFID transponder.
23 In fact, I disagree with those --
24 with what Dr. Shamos said in his declaration
25 that these are required in the claims. As a

1 person of ordinary skill in the art, I
2 disagree with that.
3 That's what I outlined in my
4 supplemental declarations. I specifically
5 addressed these two points, whether emulation
6 is required, is it explicitly described in
7 the claim, and whether the claim says that
8 the emulation must be done without an RFID
9 transponder.
10 Q Okay. If you can go down to
11 paragraph 33, please.
12 A Sure.
13 Q Your argument here is that figure 4
14 itself does not exclude the use of an RFID
15 transponder?
16 A I don't know what you mean by my
17 "argument."
18 Paragraph 33 in my declaration
19 simply states that, "Based on my review of
20 the specification, there is no requirement
21 that the transceiver is clearly the
22 components of the physical art by the
23 transponder. Figure 4 reproduced below
24 reflects a generic architecture of components
25 without specification as to the physical

1 implementation."
2 And I can read more if you like,
3 but basically, from the figure, you can see
4 that there are two -- there are two parts of
5 circuitry here. One is for higher frequently
6 signal processing. That's box 410. One is
7 for low frequency signal processing. That's
8 408.
9 The specification of the '974
10 patent indicated that the low frequency
11 circuitry for signal processing 408 is for
12 processing RFID signals.
13 Q You said that it could include
14 components of an RFID transponder?
15 A I said there's no requirement that
16 a transceiver as required in the transceiver
17 as disclosed in the claim exclude components
18 of a physical RFID transponder.
19 Q Okay. Taking a look at figure 4
20 here --
21 A Yes.
22 Q -- you're saying there's nothing in
23 figure 4 that excludes components of an RFID
24 transponder.
25 Is that correct?

1 A What I said in the declaration is
2 that because a specification does not
3 describe otherwise, a person of ordinary
4 skill in the art would have understood the
5 transceiver described submitted in the claims
6 may be implemented to include a physical RFID
7 transponder or part of an RFID transponder.
8 And this is consistent with the
9 plain and ordinary meaning, because physical
10 components of an RFID transponder, such as an
11 antenna, are configured to transmit and
12 receive signals, making the collection of the
13 componentry in figure 4, which shows an
14 antenna, both a physical RFID transponder and
15 a transceiver.
16 In figure 4 there is an antenna or
17 at least to and from antenna in figure 4 on
18 the right side.
19 Q Is the use of an antenna the use of
20 an RFID transponder?
21 A An antenna, as a part of a
22 component of a RFID transponder, has been
23 used in figure 4.
24 In fact, if you look at both figure
25 4, there is what's called a joined RF -- a TX

1 and RX. I'm sorry, a joint RF radio
2 frequency, TX/RX. So it shows a joint radio
3 frequency transmit and receiver box 402.
4 That particular component, the
5 joint RF TX/RX has been used by both; the
6 communication part of the mobile phone and
7 the RFID part of it.
8 Q Thank you, Dr. Ding.
9 But I want to repeat the question
10 that I said before.
11 A Okay.
12 Q Is the use of an antenna the same
13 as the use of an RFID transponder?
14 A The use of an antenna that is part
15 of the RFID transponder indicates the use of
16 a component that's a part of the RFID
17 transponder.
18 I don't know if whether I can go
19 more circular than that.
20 Q I agree that that is circular. I'm
21 trying to separate it.
22 The use of an antenna itself, is
23 that the use of an RFID transponder?
24 Because it seems to be what you're
25 implying in these paragraphs here, components

1 of, the use of.
2 So I'm trying to understand, is
3 that alone, the use of an antenna, does that
4 qualify as the use of a RFID transponder?
5 A As an example, the antenna, which
6 is used by the transponder, is also being
7 used for other functionalities in figure 4.
8 The power amplifier 414 is also being used
9 jointly by the high frequency signal
10 processing unit 410 and low frequency signal
11 processing 408. The use of the filter for 12
12 is similar being used jointly. These filters
13 and antenna are part of the transponder
14 functionality.
15 Therefore, other functionalities of
16 the phone using the same components such as a
17 filter 112, power amplifier 414 and the
18 antenna you mentioned, right, they are using
19 parts of the transponder functionality or the
20 transponder, because those components form
21 components of the transponder.
22 Q Okay. Your declaration doesn't
23 mention the filter at all, does it?
24 A It would have been obvious by a
25 person of skill in the art looking at the

1 figure 4. And I believe it's -- it was
2 obvious enough, but I did use antenna as an
3 example for sure.
4 Q That's why I'm trying to focus on
5 the antenna, because that was in the
6 declaration itself.
7 And I think we're going around and
8 around, but the antenna itself is not a
9 transponder, correct?
10 A Incorrect. Without antenna, the
11 transponder would not have worked.
12 Let's put it differently.
13 I do not know of a transponder
14 without a component of an antenna in order to
15 transmit or receive the RF signals.
16 Q Okay. Just to be clear, you do not
17 know of an RFID transponder without the
18 component of an antenna, correct?
19 A I do not -- I do not believe any
20 RFID transponder would have been possible
21 without an antenna.
22 Q And so, use of an antenna as you're
23 arguing is --
24 (Reporter clarification.)
25 Q And so the use of an antenna is per

1 se the use of an RFID transponder?
2 A That was not what I stated,
3 Counsel. I think my -- the record speaks
4 clearly for itself. I certainly did not say
5 that.
6 Q Okay. I don't think the record is
7 clear enough, and that's why I'm trying to
8 drill down on this.
9 A Thank you.
10 Q I just want to be clear here.
11 Look at the last sentence in
12 paragraph 33 of your declaration, please.
13 A Okay.
14 Q You say, "Physical components of an
15 RFID transponder, for example, an antenna,
16 are configured to transmit and receive RFID
17 signal," correct?
18 A Yes.
19 Q So that, you say, makes the
20 collection of components in figure 4,
21 including the antenna, both a physical RFID
22 transponder and a transceiver, correct?
23 A Yes.
24 Q But sitting here today, you will
25 not say that the use of an antenna equates to

1 the use of an RFID transponder, correct?
2 A No. You took it -- you said the
3 use of an antenna in a vacuum is -- an
4 antenna may have something to do with a
5 physical RFID transponder or it may not have
6 anything to do with an RFID transponder.
7 So by using "antenna," one cannot
8 ascertain whether the antenna was part of the
9 physical RFID transponder or not.
10 Now, if you had said that the
11 antenna was part of an RFID transponder and
12 the use of that for a transceiver and for
13 other transceiver functionalities are using
14 part of the RFID transponder for other
15 functionalities, my answer would have been
16 yes.
17 Q Thank you.
18 A So figure 4 basically shows you
19 that you cannot split the baby between the
20 RFID, the RFID and other functionalities of
21 figure 4. The antenna is being shared.
22 As I mentioned, the power amplifier
23 is being shared in 414. The filter 412 is
24 being shared.
25 Q So you're using the antenna of an

1 RFID transponder. I want to separate that
2 out.
3 The use of an antenna to transmit
4 RFID signals, does that make the antenna an
5 RFID transponder?
6 A If I understand your question, the
7 use of an antenna is an RFID transponder.
8 I apologize, I didn't quite
9 understand the question.
10 Q Sure.
11 So in your prior answer, you had
12 referenced a transponder and the antenna
13 separately and together and it seems circular
14 to me.
15 So my question to you here is, if
16 the -- is the use of an antenna to transmit
17 RFID signals, is that the use of a
18 transponder?
19 A So if the -- you're saying the use
20 of -- I think I understand it.
21 The use of an RFID -- I apologize.
22 The use of an antenna to transmit
23 an RFID transponder signal, whether that is
24 the use of RFID transponder, is that the
25 question?

1 Q Yes.
2 A Well, if you use an antenna alone,
3 that itself doesn't necessarily give you the
4 transponder signal. There needs to be other
5 components that would allow the antenna to
6 transmit the RF signal that are compliant
7 with RFID protocols. So behind the antenna,
8 there would have been other components there,
9 too.
10 But to summarize, though, this
11 whole chain of components, including the
12 antenna that your hypothesis or your
13 hypothetical addresses for transmitting an
14 RFID transponder signal, means that there is
15 at least a functional RFID transponder that
16 uses the antenna as a part of that functional
17 transponder along with other necessary
18 components, hardware or software.
19 So yes, you are functioning as an
20 RFID transponder.
21 Q Okay. If you can turn to paragraph
22 35.
23 A Okay.
24 Paragraph 35, yes.
25 Q For the record, this is still in

1 Exhibit 1063 in your reply declaration in the
2 '974 case. We're sticking with that.
3 In paragraph 35 of your
4 supplemental declaration, from where did you
5 get the definition of "functional emulation"?
6 A From where do I get the definition?
7 Q Umm-hmm.
8 A I'm afraid I did refer to
9 functional emulation. I do not -- so in
10 paragraph 35, I stated that, "By the critical
11 date, a POSITA would have also known of RFID
12 emulation techniques that involve use of an
13 RFID transponder signal. One example is
14 functional emulation," which I referred to
15 as, "the capability of a transmitting device,
16 e.g., a mobile device, to make an external
17 RFID reader perceive a transmission of an
18 RFID signal as if it were transmitted from an
19 originating device of a different device
20 type."
21 So here I'm explaining the example
22 of functional emulation by a device of a
23 different type to transmit the RFID that
24 makes an external reader, RFID reader, to
25 perceive that transmission as if it were

1 coming from an RFID tag, but the actual
2 transmission would be coming from different
3 types of device.
4 That is what I explained as a
5 functional emulation. And that's just a
6 phrase of a -- what we mean by RFID
7 emulation. You're emulating the
8 functionalities of a passive RFID tag by
9 using a different device.
10 Q But you're specifically calling it
11 a functional emulation versus merely
12 emulation, correct?
13 A My -- my declaration here explains
14 that emulation involves -- or at least one
15 example of emulation is functional emulation.
16 This example is consistent with a
17 specification which actually describes the
18 mobile device being used to transmit an RFID
19 signal that is perceived by an RFID reader as
20 being transmitted by a dedicated RFID device
21 or a stand-alone RFID device such as a
22 passive RFID tag.
23 Q Is there a distinction between
24 emulation and functional emulation in what
25 you're saying here?

1 A In which context?
2 Q In paragraph 35, I'm talking about
3 RFID emulation techniques in the first
4 sentence, and then you give an example that's
5 functional emulation.
6 What other types of emulation are
7 there?
8 A Well, I gave an example of
9 functional emulation, and that, to me, is
10 when -- a clear example of what emulation can
11 comprise of, I simply do not give an opinion
12 what are the other types of emulations.
13 Q And I'm just trying to understand.
14 A Okay.
15 Q Because first, you discuss
16 emulation in the first sentence, and then you
17 say that an example is functional emulation.
18 I want to know what the difference
19 between "emulation" and "functional
20 emulation" is in the context of your
21 declaration.
22 A Well, functional emulation is, as I
23 explained as an example, that by way of
24 example shows that you are using a different
25 device to transmit an RFID signal such that

1 the reader perceives it as being no different
2 from coming from a -- from a -- no different
3 from a signal coming from -- no different
4 from a signal transmitted by a stand-alone
5 RFID device. That's what I explained as a
6 functional emulation.
7 And any other types of emulation
8 achieving the same functionality that an RFID
9 reader -- being an RFID perceiving that
10 signal as coming from a dedicated RFID device
11 or as a passive RFID tag would also be
12 emulation.
13 It is really the affect that allow
14 the RFID reader to perceive that as coming
15 from a dedicated RFID device. That's what
16 emulation, as a person of skill in the art,
17 would have understood.
18 Q Again, because you used "functional
19 emulation" a lot throughout this declaration,
20 I just -- what types of emulation are there?
21 One type is functional emulation. What other
22 sorts?
23 I want to understand what the
24 difference is between functional emulation
25 and any other type of emulation or any

1 emulation as a whole.
2 I understand that you're talking
3 about the affect, but is there something else
4 that's within the term "emulation" that
5 you're trying to distinguish here?
6 A No. I'm trying to explain that Dr.
7 Shamos did not explain what emulation means.
8 I was trying to explain that a POSITA, a
9 person of ordinary skill in the art, would
10 have understood that the emulation, whatever
11 it is, would have known the RFID emulation
12 techniques that would have been involved in
13 the use of the RFID transponder signal.
14 You are transmitting a RFID
15 transponder signal. That would -- and then
16 that signal would let the RFID reader to
17 understand or to perceive as being coming
18 from a stand-alone RFID device. That is a
19 functional emulation.
20 No, I did not opine on 20 other
21 different types of emulations.
22 Q Are there 20 other types of
23 emulation?
24 A As an example -- since I give you
25 an example, I gave you an example in my

1 declaration as to what a functional emulation
2 means. I think that's consistent. That
3 example is consistent with the specification.
4 The purpose of the '974 patent is
5 to use a mobile phone, mobile device to
6 transmit an RFID signal, and that's perceived
7 by the RFID reader as being transmitted by a
8 stand-alone RFID device such as a passive
9 RFID tag.
10 So there's consistency. There's
11 clarity as to what the example of functional
12 emulation represents. And so that is my --
13 that's what my declaration paragraph 35 is
14 stating here.
15 Q In paragraph 40 -- sorry, paragraph
16 39, you're referencing Holloway as an example
17 of functional emulation.
18 Is that correct?
19 A I reference Holloway.
20 In paragraph 39, line 3 of
21 paragraph 39 in my declaration, I said, "For
22 example, Holloway describes a mobile device
23 that functions as an RFID smart card through
24 on-board, integrated RFID circuitry, there by
25 effectively emulating a stand-alone

1 transponder without any separate tag."
2 So the Holloway invention described
3 a mobile device that can function like a RFID
4 smart card such as a RFID tag but using a
5 RFID circuitry. And that is the example I
6 show as various techniques for receiving
7 functional emulation of RFID signal using
8 regular devices which may be functionally
9 configured as an RFID transponder.
10 Q Okay. If I can repeat the
11 question.
12 In this paragraph, paragraph 39,
13 you are referencing Holloway as an example of
14 functional emulation.
15 Yes or no, Dr. Ding.
16 A I'm referring to Holloway --
17 Holloway's description of using a mobile
18 device to function as an RFID smart card.
19 Q Okay. You say, "Techniques for
20 achieving functional emulation were known,
21 for example, Holloway."
22 So I really am trying to get to --
23 I mean, yes or no. Are you using Holloway as
24 an example of functional emulation?
25 A I'm using Holloway to show that

1 techniques for achieving functional emulation
2 of RFID signal, you're emulating an RFID
3 signal using radio devices that may be
4 functionally configured as a physical RFID
5 transponder were well-known by the critical
6 data, for example.
7 That's exactly what I said here.
8 Q Okay. If we can look at Holloway
9 briefly.
10 MR. JAFFESS: And this is Exhibit
11 1006. I'll put it in the chat in a second.
12 BY MR. JAFFESS:
13 A Sorry, Holloway.
14 Which page, please?
15 Q You can just get Holloway out for
16 now. I'll get to the page in a second. I'm
17 trying to get it into the chat.
18 (Brief pause in proceedings.)
19 BY MR. JAFFESS:
20 Q I put into the chat Exhibit 1006.
21 So we'll go to specific places in
22 Holloway, but my question for you is, does
23 Holloway use the term "functional emulation"?
24 A I understand your question is
25 whether Holloway uses the exact word of

1 functional emulation.
2 Is that correct?
3 Q That is correct.
4 A Not -- my recollection is that
5 Holloway did not use exact -- the exact
6 wording of "functional emulation."
7 But I do recall -- in fact, we can
8 go to page 11 -- that Holloway stated -- page
9 11 I think is PDF page 12, starting on line
10 11 that, "The memory within the telephone 10
11 may be subdivided into a number of mutually
12 secure areas partitioned by fire walls. This
13 makes it possible to allocate several
14 providers with individual areas for their
15 particular application. As a consequence, it
16 becomes possible to incorporate the
17 functionality of a number of different cards
18 within one mobile telephone."
19 So not using as a functional
20 emulation, Holloway here describes that a
21 mobile device can functionally emulate a
22 number of different cards rather than
23 requiring a person to carry an RFID card or a
24 lot of credit cards or smart cards. It shows
25 that you can use one mobile device and

1 functionally it can perform the functionality
2 of a number of different cards.
3 And that is Holloway's way of
4 describing functional emulation with a single
5 mobile device.
6 Q But Holloway does not use the term
7 "functional emulation" or even "emulation,"
8 correct?
9 A Holloway does not use those words,
10 but it carries the plain meaning of emulating
11 a smart card by saying that your mobile
12 device now incorporates the functionality of
13 a number of different cards.
14 So that, to a person of ordinary
15 skill in the art, is a functional emulation.
16 Q Let's go to the bottom of page 5.
17 This is PDF page 5 of Holloway.
18 If you can, look at the paragraph.
19 You don't have to read it in the record, but
20 you can look at the paragraph beginning on
21 line 21.
22 A Okay.
23 I read that, yes.
24 Q So Holloway integrates the smart
25 card chip into a telephone, correct?

1 A Holloway says that, "Also connected
2 to processor 11 is an RFID chip 16
3 corresponding to the chips foundation in RFID
4 smart cards or combi cards."
5 Q The chip of a dedicated RFID
6 antenna, correct?
7 A "The chip is connected to an RFID
8 antenna 17 which is tuned to
9 13.56-megahertz."
10 So the chip is connected to an RFID
11 antenna 17. So that antenna can be used for
12 RFID chips. It can be used with RFID chip
13 16.
14 Q So it takes a chip out of a card
15 and puts it into a telephone.
16 What is being emulated in Holloway?
17 A What -- what I have explained
18 earlier is that you would have a mobile
19 phone, but you don't actually carry a smart
20 card.
21 So within the context of
22 Holloway -- and one example is that you put
23 in a chip 16 in here together with an RFID
24 antenna 17, and that would provide a
25 functionality needed to transmit an RFID

1 transponder signal.
2 Q And where is the emulation there?
3 A Well, the emulation is that this
4 particular mobile phone with the chip, the
5 antenna, and hopefully a battery source and
6 other control units generate an RFID
7 transponder signal that's perceived by a
8 reader to be coming from a smart card.
9 That -- that very act is a
10 functional emulation by the mobile phone.
11 Q The chip is acting just as it would
12 in the smart card, correct?
13 A "Chip 16 is an RFID chip
14 corresponding to the chips found in the RFID
15 smart card or combi cards."
16 Holloway left it open. It may be
17 identical, it may not be identical, but they
18 have to work together with the memories and
19 other components in the phone.
20 So it is not the same as having an
21 RFID card put inside housing of a mobile
22 phone.
23 Q Is it the same as putting an RFID
24 card chip within the content of a mobile
25 phone?

1 I want to be clear here.
2 A There is a chip corresponding in
3 the mobile phone corresponding to the chips
4 in the RFID smart card, but a chip itself
5 doesn't necessarily mean that the entire
6 circuitry, right, has been replicated in the
7 RFID -- in the mobile phone.
8 Q Are you saying that there's
9 circuitry in a smart card beyond the chip
10 itself?
11 A As in the -- as in Holloway, we
12 talked about -- I quoted page 12 of
13 Holloway -- that there's going to be -- there
14 is a memory device.
15 So let's put it this way.
16 I read in line 11 of page 12 that,
17 "The memory within telephone 10 may be
18 subdivided into a number of mutually secured
19 areas petitioned by fire walls."
20 So there is a memory within the
21 phone, and that memory can be accessed by a
22 member of -- can be accessed to achieve the
23 functionality of a number of different cards
24 within one telephone.
25 So that memory is subdivided. So

1 at least that memory is being shared by
2 potentially multiple smart card
3 functionalities.
4 So it is definitely not as simple,
5 at least it's not limiting, that you would
6 have to slap in multiple chips in there, and
7 without worrying about how they will function
8 together such as sharing a memory within the
9 telephone, that's described here in Holloway.
10 There will be other -- there needs
11 to be other control units that allows these
12 different cards to access the memory
13 differently.
14 Q And I'm going back to a smart card.
15 A Okay.
16 Q Is there circuitry in a smart card
17 beyond the chip itself?
18 A As one can see with the definition
19 in Holloway, it indicates that there is a
20 card and the -- sorry, there's a chip 16 and
21 the chip 16 -- where were we?
22 Q On page 5.
23 A Page 5?
24 Q Page 5 of Holloway.
25 A Okay. Thank you.

1 On page 5, okay. So in Holloway,
2 "The chip is connected to an RFID antenna
3 17."
4 There is the connection.
5 Q Okay. And I'm going back to a
6 smart card alone.
7 Think of a chip in that smart card.
8 Is there other circuitry?
9 A As I have explained here, the chip
10 16 corresponds to the chips found in an RFID
11 smart card. And in here, Holloway describes
12 the description of the chip is separate from
13 the RFID antenna.
14 Q How does a chip function in a smart
15 card; doesn't it have an antenna?
16 A It should. It should have an RFID
17 antenna as well.
18 Q And it should be tuned to
19 13.56-megahertz to operate as an RFID in a
20 smart card, correct?
21 A It doesn't have to be, but that's
22 one possible frequency.
23 Q That's a standard frequency for use
24 in RFID smart card chips, correct?
25 A I did not -- I did not state that.

1 Q Is it or is it not, sir, standard
2 frequency?
3 A It's one of the bands for RFID
4 chips to operate in.
5 Q One of the standard bands, correct?
6 A Holloway said on page 12, line 6,
7 "This invention also covered the use of
8 devices operating at frequencies other than
9 13.56 megahertz."
10 MR. JAFFESS: We've been going for
11 about an hour long.
12 We can take a break.
13 (Brief recess taken.)
14 BY MR. JAFFESS:
15 Q Dr. Ding, if we can go back to
16 paragraph 39 of your declaration where you're
17 talking about Holloway.
18 A Okay.
19 Q Where do you reference the
20 paragraph that we've been talking about on
21 PDF page 12 of Holloway?
22 A What I reference in PDF 12 of
23 Holloway in paragraph 39, is that your
24 question? Sorry.
25 Q Yes, or elsewhere in your

1 declaration.
2 I'm just being transparent. It
3 seems like a shift here in your declaration.
4 I was asking about Holloway and emulation,
5 and according to this paragraph, it's nowhere
6 cited here.
7 I'm just confused.
8 A Yeah, I -- I'm not seeing the
9 direct cite from paragraph 39.
10 Paragraph 40 seemed to allude to
11 that part in my declaration where I said, as
12 an example, multi-protocol RFID devices often
13 use a physical transponder that can emulate
14 different RFID standards.
15 I think that corresponds to the
16 paragraph on page 11 Holloway where I was
17 talking about the functionality of a number
18 of different cards within the same mobile
19 device.
20 But I think you're right, that that
21 wasn't directly cited here.
22 Q And you talk in paragraph 39 about
23 embedding an RFID chip corresponding to the
24 chips found in RFID smart cards with an
25 antenna in the telephone of Holloway,

1 correct?
2 A Yes.
3 Q Does that chip embedded in Holloway
4 emulate something?
5 A That chip alone is not going to be
6 able to function. So that chip 16 together
7 with antenna 17 in addition to other
8 functionalities described in Holloway will
9 generate an RFID transponder signal.
10 So it is emulating the use, the
11 function of smart cards. Well, RFID
12 transponder signal generated by an RFID smart
13 card.
14 Q And should the antenna alone --
15 you're talking about other functionality.
16 I'm confused.
17 The chip functions in the card
18 without anything else, correct, just an
19 antenna and a chip, right?
20 A It would need a battery source. It
21 would need a power source.
22 Q Okay. So the chip, the antenna and
23 a power source function completely in the
24 smart card, correct?
25 A The power source in the back

1 scattering could be acquired from the query
2 signal in the reader.
3 Q Okay. So in that case where the
4 back scatter and query signal is used, the
5 chip alone and the antenna in the smart card
6 function to output an RFID signal, correct?
7 A No, not the chip alone. The chip
8 plus antenna and the connection between the
9 chip and the antenna can function as a -- can
10 function to generate an RFID transponder
11 signal.
12 Q And if you put that chip and
13 antenna in a phone, it functions just the
14 same, correct?
15 A If I put Holloway -- I think if
16 I -- if I put Holloway's chip 16 and
17 connected that using circuitry with the
18 antenna, that is part of the phone. It would
19 function to generate an RFID transponder
20 signal, and the reader wouldn't be able to
21 tell the difference.
22 Q And the chip would be functioning
23 just as it does in the smart card, correct?
24 A The chip will function like what --
25 the chip 16 would function as if you would

1 find -- you would find it in an RFID smart
2 card.
3 That's what I said here, that
4 you're -- that Holloway is embedding an RFID
5 chip 16 corresponding to the chips found in
6 RFID smart card together with an antenna.
7 Q And where is the emulation; the
8 chip and the antenna function as they do
9 outside of the phone or within the phone?
10 Where is the emulation in Holloway?
11 A To the reader, the reader -- as
12 Holloway explained, the reader does not know
13 whether the signal was generated by an actual
14 smart card was emulated by this particular
15 phone.
16 Q So the chip is emulating itself in
17 Holloway?
18 A The phone here is emulating a
19 standard-alone dedicated RFID smart card.
20 Q Because the chip is in the phone,
21 it emulates a dedicated RFID smart card?
22 A The chip is in the phone. The
23 antenna is part of the phone.
24 In fact, I believe the antenna 17
25 in Holloway, it illustrated in both figure

1 3 -- sorry, in figure 1 as element 17, so
2 that's part of the phone. That's not part of
3 the card.
4 So we did not slap a smart card
5 into -- inside the phone. That's what
6 Holloway did not disclose. So the phone now
7 emulates what a smart card would have
8 responded to when they are being queried by
9 an RFID reader.
10 Q So the antenna alone makes it
11 emulation?
12 You're saying the chip function is
13 the same, but that the antenna is part of the
14 phone and that makes it emulation.
15 Is that correct?
16 A That's not what I said.
17 I was explaining to you that the
18 emulation is from the viewpoint of the RFID
19 reader. The reader in various transactions
20 involving RFID tag, the reader is trying
21 to -- trying to conduct or perform a
22 transaction with a -- hopefully a smart card.
23 And in this particular case, you
24 have the phone transmitting an RFID
25 transponder signal.

1 And if it's from an RFID smart
2 card, then the reader would not have known
3 the difference.
4 And that's the act of functional
5 emulation by a phone emulating a smart card,
6 which is a stand-alone dedicated RFID tag.
7 Q Where does Holloway show the
8 antenna is part of the phone? Strike that.
9 Let me rephrase.
10 You're saying it perceives the
11 phone as the card and that is emulation?
12 I'm trying to be clear here.
13 The reader perceives the phone as
14 the card and that equates to emulation?
15 A I believe I said that the reader is
16 the one that is attempting to read
17 information that the reader can only read an
18 RFID transponder signal, a signal that is
19 standard complying with what an RFID
20 transponder would have generated.
21 So over here, Holloway's phone
22 includes a chip and antenna 17 then reads
23 from page -- PDF page 5 of Holloway that,
24 "Antenna 17 comprises a length of conductor
25 configured in the coil around the perimeter

1 of the telephone."
2 That antenna is around the
3 perimeter of the telephone, not part of a
4 smart card as we typically experienced, that
5 this kind of a coil around the perimeter of
6 the telephone would not be possible to --
7 to -- would not be possible to wrap the cord
8 outside a smart card.
9 Q Okay.
10 A And it continues to say in the
11 paragraph that, "The coil may be
12 prefabricated with a flexible sheet that is
13 mounted on the underside of the telephone."
14 Q So the chip functions itself,
15 that's not emulating anything, correct?
16 A We didn't define or specify the
17 other perimeter of the chip. We know the
18 chip will function in Holloway. It's
19 Holloway's chip, so it's able to function in
20 a way that's similar to a chip within the
21 smart card. That's what Holloway described.
22 Q And you're saying it's attached to
23 an antenna that's on the phone and that is
24 the emulation, the antenna?
25 A No. I said that to the RFID

1 reader, it perceives that whether the signal
2 generated by the chip within chip 16 and the
3 coil wrap around the underside of the phone
4 as being coming from a stand-alone dedicated
5 RFID transponder.
6 Q And the chip doesn't change within
7 the phone, correct?
8 A I'm sorry, if the chip what?
9 Q The chip doesn't change whether
10 it's in the phone or a card, correct? It's
11 in the same chip?
12 A It corresponds to that.
13 Now, for various reasons, it may or
14 may not be different. You may have to
15 package it differently because you may not
16 have as much area as you would have on a
17 plastic card. When you want to fit that chip
18 inside a phone, you may not much as much
19 space or you may have more space.
20 And then furthermore, as we
21 referenced to the last page, page 12 of PDF
22 of Holloway, very often you would be
23 emulating the -- or you would be
24 incorporating the functionality of a number
25 of different cards within one mobile phone.

1 So there's not that much space for you to
2 put, let's say, 20 different cards in there
3 as a hypothetical example.
4 Q Go to paragraph 40 of your
5 declaration.
6 You discuss emulating a standard,
7 correct?
8 A I discuss, "As another example" --
9 I was reading paragraph 40.
10 "As another example, multi-protocol
11 RFID devices often use a physical
12 transponder, but can emulate different RFID
13 standards by adjusting the modulation scheme,
14 frequency or data structure."
15 That is what I think you're
16 referring to. Correct, Counsel?
17 Q Yes, sir.
18 So is every implementation of a
19 standard emulation?
20 A I didn't hear the question clearly.
21 Could you repeat that again? Just
22 one word.
23 Q You said you can emulate different
24 RFID standards.
25 Is every implementation of any

1 standard, is that emulation?
2 A Oh, I see.
3 Well, here, what I'm describing is
4 considered a multi-protocol RFID device. And
5 in the sense that you have an RFID device,
6 that may use a physical transponder, one
7 physical transponder. But it can emulate
8 certain RFID standards by using different
9 modulation, frequency and data structure.
10 So as if -- when it's carrying or
11 using this multi-protocol RFID device, you
12 can configure that to emulate signals
13 complying with different RFID standard using
14 different frequency and so forth.
15 So you are not carrying multiple
16 RFID cards each corresponding to one RFID
17 standard. You are -- you're carrying -- you
18 can carry a single device that will emulate
19 the different RFID standard by making that
20 adjustment.
21 Here you're emulating the signal so
22 that the receiver of different RFID standards
23 would perceive as if they are just coming
24 from a stand-alone dedicated RFID transponder
25 that correspond to different -- that

1 correspond to their individual RFID standards
2 or protocols.
3 Q So altering the data output is
4 emulation?
5 A A structure or frequency and
6 modulation schemes, they are specific to
7 different RFID standards.
8 We talked about one frequency
9 that's 13.5 4-megahertz, but there are other
10 RFID standards and protocols that may use
11 different frequency or different modulation
12 scheme or data structure.
13 One type of a reader may not read
14 the data structure of another RFID product of
15 another RFID protocol.
16 Q There's no citation in paragraph
17 40, correct, for an example of this
18 multi-protocol RFID device?
19 A It's -- it's not directly -- yeah,
20 the paragraph does not cite multi-protocol
21 RFID devices which actually is a
22 well-known -- is actually well-known to a
23 person of skill in the art as of the critical
24 date.
25 Q Go to paragraph 24 of your

1 declaration. It's exhibit 1063 of 1362,
2 please.
3 A Paragraph 24, yes.
4 Q So voice call signals, you say,
5 under this plain meaning, that it includes a
6 potential used to convey information relating
7 to a telephone call, correct?
8 A Including a potential use to --
9 okay.
10 "When combined, the phrase, voice
11 call signals, under its plain meaning,
12 includes a potential use to convey
13 information relating to a telephone call
14 established for the purpose of transmitting
15 voice rather than data communications."
16 Yes.
17 Q This includes a signal relating to
18 any metadata for a voice call, correct?
19 A I did not mention metadata.
20 I did not understand the question.
21 What is the metadata that you're
22 referring to?
23 Q So it's any information relating to
24 a telephone call, correct?
25 A What I said was not any

1 information, but it is a potential used to
2 convey information relating to a telephone
3 call established for the purpose of
4 transmitting voice rather than data
5 communication.
6 Q So it's a voice call rather than a
7 data transmission, correct?
8 A It's -- a voice call signal is a --
9 is for the purpose of transmitting voice, not
10 for the pure purpose of sending data.
11 Q And a voice call signal includes
12 potential used to convey information relating
13 to such a telephone call, correct?
14 A Yes.
15 Q So a signal showing the number of
16 the party called is a voice call signal --
17 strike that -- a signal indicating the number
18 of a party called is a voice call signal?
19 A A signal -- I apologize. I'm a
20 little confused by your question.
21 Can you do that again?
22 Q Sure.
23 A signal transmitted that indicates
24 the number of -- the telephone number of the
25 party that was called, is that a voice call

1 signal?
2 A I see.
3 I think you mean a caller ID?
4 Q Sure, yes.
5 A Well, under the plain and ordinary
6 meaning, a voice call signal could include
7 that, but what I have explained in my
8 declaration, supplemental declaration, is
9 that the voice call signal would obviously
10 include the signal that actually carried the
11 voice information.
12 So you could -- under a broader
13 meaning, the voice call signal would at least
14 include signals conveying the voice
15 communication, the voice signals, but it
16 could also broadly incorporate all the dial
17 tones that you hear, all the push buttons,
18 the dial -- not the dial tone, but the --
19 what is it? When you press the button, you
20 basically get a digital tone for each of the
21 numbers. Those are also audible signals.
22 Those would also -- could also fall
23 under the voice call signal explained under
24 the plain meaning because those signals are
25 used to incorporate information relating to a

1 telephone communication call.
2 Q You're talking about audible
3 signals, but I'm saying just a telephone
4 number pertaining to a voice call transmitted
5 via a signal somehow.
6 Is that a voice call signal?
7 A It's not a voice signal, but it is
8 a signal used to convey information about a
9 telecommunication call.
10 Q Okay.
11 A Is that -- that's the difference
12 that it's not -- that itself is not a voice
13 signal, but is it a voice call signal.
14 And that's the difference I think
15 we are -- there are two meanings. One is a
16 voice call, and then there's a voice -- one
17 that's the definition of voice call signal.
18 One is a voice signal.
19 Here in paragraph 24, I described
20 that, "When combined, the voice call signal
21 under the meaning includes a potential use to
22 convey information related to a telephone
23 call."
24 You're -- the potential is either a
25 voltage in here or light. That's the

1 example. The number you're looking at itself
2 is not a voltage nor a light. It's just a
3 number.
4 So that wouldn't fall -- that
5 wouldn't qualify as in this definition as a
6 voice call signal, because if I just look at
7 the number, that is not a voltage potential.
8 Q That's why I said a signal
9 transmitting a number.
10 So again, conveying information
11 related to a telephone call, when I download
12 a telephone bill, it's a signal that I'm
13 downloading.
14 Correct or incorrect.
15 A When you're downloading a bill?
16 Q Correct.
17 It's a signal, correct?
18 A When you're downloading a bill,
19 you're downloading a file that -- that has
20 the numbers on it.
21 Q It's information conveyed via a
22 signal, correct?
23 A It is -- those typically are
24 conveyed by a signal or over wireless lines.
25 Q And the data within a telephone

1 bill includes phone numbers called, correct?
2 A Okay. The data in -- you're saying
3 the phone bill shows that -- shows
4 information about the phone call.
5 Is that what you're asking?
6 Q Yes.
7 It has information relating to
8 telephone calls established for the purpose
9 of transmitting voice rather than data
10 communications, correct?
11 A That would not be what a person of
12 ordinary skill in the art would have
13 understood.
14 So what you're almost saying,
15 right, is that a voice call signal would
16 cover a -- a discussion via, let's say,
17 notes, okay. I write you a note. The note
18 says, remember the call we had, you know, 25
19 years ago, right?
20 No, that is not -- that is
21 information related to the telecommunications
22 for the -- regarding the telephone call. It
23 is related, but that's not a voice call
24 signal.
25 Q How does that fall outside of your

1 definition in paragraph 24 for what a voice
2 call signal is, information relating to a
3 telephone call?
4 A Well, here I said that in my
5 paragraph 24, that this potential has to be
6 for the purpose of transmitting voice.
7 Q You're parsing it differently than
8 I am.
9 The telephone call is established
10 for the purpose of transmitting voice, but
11 the information is not so limited in your
12 definition.
13 A For the -- for the purpose of -- of
14 the -- this particular discussion, a voice
15 call signal is describing a potential use for
16 information relating to a telephone call
17 established for the purpose of transmitting
18 voice rather than data communication signal.
19 That is one session. The potential
20 use to convey information and the telephone
21 call should be -- should be the same session.
22 It's not something that you decided to
23 disclose that 25 years later or in your will.
24 This is a person of ordinary skill
25 in the art would have understood that that

1 kind of -- that the voice call signal is
2 relating to a potential use to convey
3 information about the telephone call, right,
4 in that session of the telephone call, not at
5 a different moment, different day, a
6 different universe.
7 Q The caller ID information is
8 transmitted contemporaneously with a
9 telephone call.
10 Is that a voice call signal?
11 A The caller ID information -- so my
12 experience about the caller ID information is
13 that it usually takes place before the
14 telephone call.
15 Whether you may or may not -- you
16 may or may not decide to accept a phone call.
17 So it is not related to a telephone -- it
18 happens before a telephone call has been
19 established.
20 Q If it happens during the telephone
21 call, information related to the caller ID,
22 is that a voice call signal?
23 A If the party reads me their phone
24 number, it is part of the voice call signal.
25 Q No, not an audible reading by one

1 of the parties. Data transmitted relating to
2 the voice call signal during the voice call
3 signal -- during the voice call.
4 A I have never had such experiences
5 during a call someone shows me a caller ID.
6 I cannot -- I cannot answer these
7 hypothetical situations when I don't have
8 firsthand experience.
9 And I don't believe that a person
10 of ordinary skill in the art would have --
11 would have, you know, similar experiences.
12 Q So you're saying it has to be
13 contemporaneous with the call to qualify as a
14 voice call signal?
15 Because I don't see that in
16 paragraph 24 where you're laying out this
17 definition.
18 MR. CHOWDHURY: Objection,
19 misstates testimony.
20 MR. JAFFESS: Ryan, just object to
21 the form. It's very clear in the rules for
22 PTAB.
23 BY MR. JAFFESS:
24 Q So I can restate, Dr. Ding.
25 Are you saying today that to

1 qualify as a voice call signal, it has to be
2 contemporaneous with a voice call?
3 Because to me, I do not see it in
4 paragraph 24 where you laid out this
5 definition.
6 MR. CHOWDHURY: Objection to form.
7 A I did not say contemporaneously,
8 but I said that it should be in the same
9 session of the telephone call.
10 Q Okay. You and I are on a telephone
11 call in a hypothetical, okay?
12 A Okay.
13 Q From my phone I text you, "That was
14 funny what you just said."
15 Is that a voice call signal?
16 A I have not considered that
17 hypothetical. If you called me on my phone,
18 I already most likely already know your phone
19 number.
20 Q I understand the phone number, but
21 I'm saying, I'm commenting out of band via
22 text message during the session of the voice
23 call, and I am commenting so it relates to
24 the telephone call.
25 Is that text message a voice call

1 signal?
2 A No, that text message under what I
3 have explained here is not part of your
4 telephone conversation. That is a separate
5 session.
6 Q It relates to a telephone call,
7 correct?
8 A There are many things, Counsel,
9 that relates to the telephone call. Whether
10 I pick it up or whether I'm walking or
11 sitting here, all are -- a lot of things can
12 relate to the telephone call.
13 Q Yes. That's my point.
14 A That's not -- it is not used to
15 convey information about our call.
16 Q If there is a signal or a
17 potential, as you have defined signal, that
18 conveys information that relates to the call,
19 how does it fall outside your definition of a
20 voice call signal?
21 MR. CHOWDHURY: Objection, form.
22 A I see. I think I understand now
23 where you're getting that, Counsel.
24 You're reading anything relating to
25 a telephone call as information relating as

1 a -- as a voice call signal. That's what
2 you're trying to get at.
3 I think the -- what I would go to,
4 the declaration in paragraph 24 is -- and
5 it's the last line, second line from below.
6 What I'm saying here is that when combined,
7 the phrase "voice call signals" under its
8 plain meaning includes a potential, basically
9 a voltage relating to a telephone
10 communication call.
11 Here when I mentioned "relating," I
12 was really talking about a potential used to
13 convey information for a telecommunication
14 call.
15 So this potential used to convey
16 information is for the purpose of the
17 telecommunication call, to make it happen,
18 not that anything relating to the telephone
19 call.
20 So if it's someone's will, they
21 mention a conversation they had 25 years ago,
22 that would not be the potential relating to
23 that or the potential for a telecommunication
24 call established.
25 So one could read it as, at least

1 my purpose is to say that this potential is
2 for affecting a telecommunication call, to
3 make it happen, to make it work.
4 MR. JAFFESS: If we can jump off
5 the record.
6 MR. CHOWDHURY: Okay.
7 (Whereupon, a discussion was held
8 off the record.)
9 (Brief recess taken.)
10 BY MR. JAFFESS:
11 Q Okay. Dr. Ding, can an RFID
12 transponder emulate a RFID transponder?
13 (Reporter clarification.)
14 Q Just to repeat.
15 Can an RFID transponder emulate an
16 RFID transponder?
17 A It was possible for one RFID
18 transponder to emulate an RFID of -- a
19 transponder of a different protocol if it's
20 so configured.
21 So you can -- as we explained,
22 discussed earlier, I think what I called a
23 multi-purpose or -- I forgot the wording.
24 Let me find it.
25 Yes, a multi-protocol RFID

1 transponder could emulate an RFID transponder
2 of different protocols.
3 So you have one, you can emulate
4 any one of them if so configured.
5 MR. JAFFESS: I have no further
6 questions at this time.
7 MR. CHOWDHURY: No questions for
8 me, either.
9 MR. JAFFESS: Off the record.
10 (Whereupon, the deposition was
11 concluded at 2:25 p.m.)
12 (Witness was excused.)
13
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1 C E R T I F I C A T E
2 I, CHARLENE FRIEDMAN, a Certified Court
3 Reporter and Notary Public, qualified in and for
4 the State of New Jersey do hereby certify that
5 prior to the commencement of the examination DR.
6 ZHI DING was duly sworn by me to testify to the
7 truth the whole truth and nothing but the truth.
8 I DO FURTHER CERTIFY that the foregoing
9 is a true and accurate transcript of the testimony
10 as taken stenographically by and before me at the
11 time, place and on the date hereinbefore set forth.
12 I DO FURTHER certify that I am neither a
13 relative of nor employee nor attorney nor counsel
14 for any of the parties to this action, and that I
15 am neither a relative nor employee of such attorney
16 or counsel, and that I am not financially
17 interested in the action.
18
19
20
21 CHARLENE FRIEDMAN, RPR, CRR, CCR of the
22 State of New Jersey
23 License No: 30XI00204900
24 Date: October 7, 2025
25

1 LAWYER'S NOTES

2	PAGE	LINE	
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1 DEPOSITION ERRATA SHEET
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4 Case Caption: Apple v. Varia
5
6
7 DECLARATION UNDER PENALTY OF PERJURY
8 I declare under penalty of perjury
9 that I have read the entire transcript of
10 my Deposition taken in the captioned matter
11 or the same has been read to me, and
12 the same is true and accurate, save and
13 except for changes and/or corrections, if
14 any, as indicated by me on the DEPOSITION
15 ERRATA SHEET hereof, with the understanding
16 that I offer these changes as if still under
17 oath.
18
19
20
21 Signed on the _____ day of
22 _____, 20____
23
24 _____
25 DR. ZHI DING

1 DEPOSITION ERRATA SHEET
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22 Reason for change:_____
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24 SIGNATURE:_____DATE:_____
25 DR. ZHI DING

1 DEPOSITION ERRATA SHEET
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24 SIGNATURE:_____DATE:_____
25 DR. ZHI DING