

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MASTERCARD INCORPORATED AND
MASTERCARD INTERNATIONAL INCORPORATED,

Petitioner,

vs.

OV LOOP, INC.,

Case No. IPR2023-01289
Patent 10,032,171

Patent Owner.

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DEPOSITION OF CHUCK EASTTOM

Tuesday, August 13, 2024

Conducted Remotely

REPORTED BY:

Christina Diaz, RDR CRC CRR RMR CSR-NY/NJ CLR

Job No.: SY9589

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August 13, 2024

9:55 A.M. E.S.T.

Deposition of CHUCK EASTTOM, taken
by Petitioner, pursuant to notice dated July
24, 2024, conducted remotely, before
Christina Diaz, a Registered Diplomate
Reporter, Certified Realtime Captioner,
Certified Realtime and Registered Merit
Reporter and Notary Public within and for
the State of New York.

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1 I N D E X

2 WITNESS

3 Chuck Easttom

4 EXAMINATION BY

PAGE

5 Mr. Williams

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10 R E F E R E N C E D E X H I B I T S

11 EXHIBIT PAGE

12 1001 24

13 1006 18

14 1009 117

15 1011 110

16 1012 184

17 1018 94

18 1019 26

19 1020 98

20 1026 32

21 1027 28

22 2009 10

23 2018 67

24 2035 142

25

INFORMATION REQUESTS

INSERTED INFORMATION - NONE -
REQUESTS FOR PRODUCTION - NONE -
RULING - NONE -
DIRECTIONS NOT TO ANSWER - NONE -

S T I P U L A T I O N S

IT IS HEREBY STIPULATED AND AGREED,
by and between counsel for the respective
parties hereto, that all objections, except
as to form, are reserved to the time of
trial.

IT IS FURTHER STIPULATED AND AGREED
that the deposition may be signed and sworn
to before any officer authorized to
administer an oath.

IT IS FURTHER STIPULATED AND AGREED
that the sealing and filing of the
deposition be waived.

1 (The following statement was read
2 by the reporter)

3
4 "All parties to this deposition
5 are appearing remotely and have
6 agreed to the witness being sworn in
7 remotely.

8
9 "Due to the nature of remote
10 reporting, please pause briefly before
11 speaking to ensure all parties are
12 heard completely.

13
14 "Counsel, please state your
15 appearance and your agreement on the
16 record."

17
18 MR. WILLIAMS: This is Eliot
19 Williams for the Petitioner, and we so
20 stipulate.

21
22 MR. LINDNER: This is Seth
23 Lindner for patent owner OV Loop, Inc.,
24 and we also so stipulate.
25

1 C H U C K E A S T T O M,
2 having been remotely sworn as
3 stipulated by the parties, was examined
4 and testified as follows:

5

6 EXAMINATION

7 BY MR. WILLIAMS:

8

9 Q. Good morning.

10 A. Good morning.

11 Q. Can you tell me where you are
12 today?

13 A. I am in my office inside my home
14 at 5605 Woodspring Drive, Plano, Texas.

15 Q. Is there anyone in the room with
16 you?

17 A. No, there is not.

18 Q. And can you tell me what you have
19 open on your computer screen?

20 A. Well, in addition to Zoom, I have
21 a PDF version of my declaration and of the
22 '171 patent. That is all.

23 Q. Do you have access to any other
24 materials on that computer?

25 A. Not on this computer, no.

1 Q. Have you been deposed before?

2 A. I have.

3 Q. Approximately how many times?

4 A. Today will be my 72nd deposition.

5 Q. Okay. Great. So I won't cover

6 too many of the rules. If you, at any

7 point, don't understand one of my

8 questions, please let me know, and we can

9 try to figure out a better question.

10 Do you understand?

11 A. I do.

12 Q. Okay. The only other thing I ask

13 is if you need a break, let me know, and I

14 will find a good time for us to break. And

15 I just ask that we try to answer any

16 pending questions before we take that

17 break.

18 Do you understand?

19 A. I understand.

20 Q. Just as a reminder -- let me ask

21 you this question. Have you given

22 testimony in connection with a proceeding

23 in the patent trial and appeal board

24 before?

25 A. I have.

1 Q. And so just a reminder, the rules
2 there prohibit discussing the substance of
3 your testimony with counsel until I
4 conclude my cross-examination.

5 Do you understand that?

6 A. I understand.

7 (Exhibit 2009 was referenced for
8 identification)

9 BY MR. WILLIAMS:

10 Q. You said one of the documents you
11 had open was your declaration in this
12 matter.

13 Is that correct?

14 A. That's correct.

15 Q. And is that Exhibit 2009 at the
16 bottom?

17 A. Yes.

18 Q. And it's entitled, "Declaration
19 of Dr. Chuck Easttom, Ph.D., D. Science,"
20 correct?

21 A. That's correct.

22 Q. Is that how you pronounce your
23 last name? Is it Easttom?

24 A. Yes.

25 Q. Turn to the last page of that

1 document. There is a signature.

2 Do you see that signature?

3 A. I do.

4 Q. Is that your signature?

5 A. It is.

6 Q. Have you done anything to prepare
7 for today's deposition?

8 A. Yes.

9 Q. Could you describe for me,
10 generally, what that was?

11 A. Primarily, rereading my
12 declaration, rereading the '171 patent,
13 rereading the exhibits that have been
14 called Collinge and Fiske and rereading Dr.
15 Fiske's declaration. I have also had a
16 meeting with counsel, Mr. Lindner.

17 Q. Did you meet with anyone besides
18 Mr. Lindner to prepare for today's
19 deposition?

20 A. No.

21 Q. How many meetings did you have
22 with Mr. Lindner to prepare for today's
23 deposition?

24 A. Two.

25 Q. How long in total were those

1 meetings?

2 A. I think each was roughly two
3 hours apiece.

4 Q. Were they in person or virtually?

5 A. Virtually.

6 Q. Let me turn to your declaration,
7 then, Exhibit 2009, and ask you about
8 paragraph 1. You say there that you have
9 30 years of experience in the computer
10 science industry.

11 Is that right?

12 A. That's correct. I think it's 31
13 now. I am getting older.

14 Q. Can you describe for me your
15 experience with payment systems?

16 A. Certainly. I think my first real
17 exposure would have been in '96 or '97. I
18 worked for a company called Allegis
19 Corporation. We did contract software
20 development for banks, Boatman's Bank and a
21 few others. Some of which no longer exist
22 such as Public Bank.

23 Our first and primary focus was
24 on a collection software with them that
25 interfaced with their mainframe computers,

1 but eventually we branched out into working
2 on some of their payment processing systems
3 and similar related financial applications.
4 I next encountered payment systems in the
5 2003 to 2005 range, when I was working as
6 the director of information technology at
7 Great American Insurance Company. And my
8 experience there was in the other end, the
9 retailer, who has to interface with payment
10 systems because in addition to selling
11 insurance, they sold continuing legal
12 education courses, things of that nature,
13 that people could pay for with credit
14 cards.

15 Since then there has been various
16 intermittent experiences. In the 2000, I
17 would say, '7 to maybe '12 range, I did a
18 lot of melt software work including
19 electronic medical records and medical
20 billing. Most of those not only had to
21 interface with payment systems, but in many
22 cases, I developed systems to read -- the
23 same thing you would read off a credit
24 card, but read off, say, a driver's license
25 or something of that nature in order to

1 read in personal information into the
2 records.

3 Since then, I have done a little
4 bit of work -- about two years ago I spent
5 a year actually doing cyber security
6 consulting with Visa, and that involved
7 some of their payment processing systems.
8 So it's not been exactly -- I can't say
9 it's been 30 years of direct experience
10 because it has been off and on. I would
11 say out of my 30 years of professional
12 experience, there is probably seven or
13 eight that was directly related to payment
14 card systems.

15 Q. And prior to, let's say, August
16 of 2011, how much experience had you had
17 with payment card systems?

18 A. I would say, at that time,
19 probably three to four years.

20 Q. Was all of that three to four
21 years the experience you were describing
22 with -- was it Allegiant?

23 A. Allegis Group, and it was also
24 payment processing for Great American
25 Insurance.

1 Q. Got it. The Great American
2 Insurance that was on the acceptance side,
3 you were a merchant essentially.

4 Is that correct?

5 A. That's correct. With Allegis, I
6 was on the issuer's side. With Great
7 American, I was on the vendor or retailer
8 side.

9 Q. Turning to your paragraph 9 --
10 let me know when you have that.

11 A. I do.

12 Q. You say in the second sentence,
13 that you noted that Dr. Fiske uses the
14 filing date of August 30th, 2012, rather
15 than the filing of the provisional patent
16 application.

17 Do you see that?

18 A. I do.

19 Q. Do you disagree with Dr. Fiske's
20 use of the August 2012 date?

21 A. I don't know that disagreement is
22 accurate. That may be a little too strong.
23 My understanding is you can date back the
24 provisional patent. And not being an
25 attorney, I am not offering a legal

1 opinion, but my understanding is from a
2 technical perspective, anything that was in
3 the provisional patent that carried over
4 into the actual patent would certainly be
5 included.

6 Q. When you say "included," included
7 in what?

8 A. Well, again, I am not an
9 attorney, but as a vendor myself with 26
10 patents and another going through the
11 process now, if I file a provisional, let's
12 say it has ten claims. But then when I
13 move forward to the actual patent, I drop
14 two of them. Well, one can certainly argue
15 that the elements of those two are not
16 included in my actual patent. However, the
17 things that did go forward would certainly
18 be included, which means you would have to
19 consider the filing of the provisional
20 application when considering priority
21 dates. But as I state in this paragraph,
22 if we use Dr. Fiske's date of August 30,
23 2012, it does not change my opinions.

24 Q. Fair enough. And then have you
25 done an analysis yourself of whether the

1 claims of the '171 patent are entitled to
2 the earlier provisional patent application
3 filing?

4 A. I want to make sure I understand
5 your question because it sounds almost like
6 a legal conclusion, which I don't -- I am
7 not qualified to make a legal conclusion.

8 Q. Okay. Have you reached any
9 conclusions in your opinions in this case?

10 A. Have I reached any conclusions in
11 this case? I have reached quite a few.
12 There is 111 declarations.

13 Q. Are any of those legal
14 conclusions?

15 A. I don't make legal conclusions.
16 I am a technical expert and I offer
17 technical opinions. Ultimately, it's up
18 to, in this case, the patent board to make
19 legal conclusions.

20 Q. Okay.

21 Regardless of whether we picked
22 the date of August 2011 or August of 2012,
23 you say that you had -- you were at least a
24 person of ordinary skill at that time,
25 correct?

1 A. That's correct.

2 Q. Do you disagree with Dr. Fiske's
3 assessment of the correct level of skill in
4 the art?

5 A. Can you refresh my memory as to
6 exactly what he said?

7 Q. I can put his declaration into
8 the chat for you.

9 A. Thank you. Give me one moment.

10 MR. WILLIAMS: I am putting into
11 chat now Exhibit 1006. Let me know
12 when you have had a chance to download
13 and open that.

14 (Exhibit 1006 was referenced for
15 identification)

16 THE WITNESS: I have it open now
17 and in anticipation of your question, I
18 am looking for his definition of one of
19 ordinary skill in the art.

20 BY MR. WILLIAMS:

21 Q. Okay. I think it's going to be
22 around paragraph 64.

23 A. I have it and I'm reading it now.

24 Q. Okay.

25 A. (Witness reviewing document).

1 Well, let me begin with there are
2 several elements that I agree with. For
3 example, when Dr. Fiske says a person with
4 less education but more experience or more
5 education and less experience may meet the
6 standard, that's essentially what I also
7 say, that one way or the other. More
8 education could make up for experience and
9 the other way around. So I agree with him
10 there. He starts with a person with a
11 bachelor's degree in electrical engineering
12 or computer engineering. I believe I state
13 someone with an undergraduate degree in
14 electrical or computer engineering or
15 related fields. So I think we are on the
16 same page there. He says two to four years
17 of academic or industry experience in
18 payment systems. I say two years and I say
19 industry experience, not academics. There
20 is a bit of a disagreement there. He also
21 states something a little odd here.
22 Sufficient mathematical background to
23 understand basic cryptographic techniques,
24 and that's off for a couple of reasons.
25 While I actually have extensive expertise

1 in cryptography myself, so I would
2 certainly be more than one of ordinary
3 skill in the art of that definition.
4 Nothing in the patent requires you to
5 actually understand the mathematics of
6 cryptography. In fact, most people I
7 encounter in the payment industry couldn't
8 walk you through a single algorithm step by
9 step.

10 Secondly, during his deposition,
11 Dr. Fiske expressed total unfamiliarity
12 with some very basic cryptographic
13 algorithms, which would mean if we use his
14 definition that even today he would not be
15 one of ordinary skill in the art.

16 Q. Explain that to me. What did he
17 say during his deposition that leads you to
18 believe he didn't understand cryptography?

19 A. There were quite a few algorithms
20 he said he had never heard of including
21 some that had been used in the finance
22 industry. I actually address this in my
23 declaration, so allow me to go down just a
24 little bit. I believe I start -- my first
25 mention is -- I start talking in 131 and

1 132 about a wide range of different
2 algorithms, and I use citations that many
3 of these have been used in finance.

4 In 133, I mention from
5 Dr. Fiske's deposition, he didn't even know
6 what the Serpent, IDEA, MARS, or Camelia
7 algorithms are, and they are introductory
8 simple algorithms that most people in
9 cryptography know.

10 In 134, I mention that Dr. Fiske
11 stated he was unfamiliar with the terms
12 AMAC, PMAC, and UMAC. AMAC is actually a
13 retail MAC used in banking, and these are
14 simply variations of message authentication
15 codes. So I am a bit surprised that he
16 would claim a POSITA needs to have a
17 mathematical understanding of cryptography
18 when from his deposition testimony -- I
19 don't know Dr. Fiske personally, but from
20 his deposition testimony he doesn't even
21 have a surface level knowledge of even what
22 many of these algorithms are, much less
23 mathematical.

24 Q. So are you saying it's your
25 opinion that if shown the ANSI Retail MAC

1 standard, Dr. Fiske wouldn't understand it?

2 A. I have no idea what he would do
3 if shown it, but he said he didn't even
4 know what it was.

5 Q. So in your view, to be a person
6 of skill in the art, you have to know what
7 it is?

8 A. I didn't say one needed
9 mathematical knowledge of cryptography in
10 my definition.

11 Q. I want to go back to that.

12 A. Dr. Fiske did.

13 Q. In your opinion, a POSITA does
14 not need a mathematical knowledge of
15 cryptography; is that correct?

16 A. That would be correct.

17 Q. You said you have had
18 interactions with people in the payment
19 industry who were persons of skill in the
20 art that didn't have mathematical
21 understanding of the algorithms; is that
22 correct?

23 A. That is absolutely correct.

24 Q. So how would a person of ordinary
25 skill in the art go about implementing the

1 invention of the '171 Patent if they didn't
2 have an understanding of the mathematics
3 behind it?

4 MR. LINDNER: Objection. Form.

5 A. Well, this is a very good
6 question and it just so happens that I
7 teach cryptography frequently, both at the
8 graduate level and at the industrial level
9 for people in industry. There are levels
10 of knowledge of cryptography.

11 For example, to be able to
12 implement, let's just say AMACs, you need
13 to know what they are; what their goal is;
14 be able to select an appropriate
15 cryptographic library to perform that
16 function, but you don't need to know the
17 mathematics. The mathematics is more
18 relevant to someone who might be designing
19 or modifying an algorithm, but you can
20 certainly implement an algorithm. And much
21 to my chagrin, most people who implement
22 cryptography have very little knowledge of
23 the mathematics behind it.

24 BY MR. WILLIAMS:

25 Q. Let's turn -- you have the '171

1 Patent available to you?

2 A. I do.

3 (Exhibit 1001 was referenced for
4 identification)

5 BY MR. WILLIAMS:

6 Q. Let's turn to that for a moment.
7 I just want to verify at the bottom of the
8 first page of that copy you are looking at,
9 does it say Exhibit 1001?

10 A. It does.

11 Q. And this is Patent 10,032,171,
12 correct?

13 A. That's correct.

14 Q. A couple things about it before
15 we get started on that. Do you know
16 Douglas Yeager?

17 A. I don't believe I have ever met
18 him. No, I say that because I frequently
19 speak at conferences, and lots of people
20 talk to me, and I occasionally get an
21 e-mail from someone who says, I met you at
22 such and such conference, and I politely
23 say, Wonderful, and I don't remember who
24 they are. So I have no memory of ever
25 having met him, but that doesn't guarantee

1 he didn't run into me at a conference
2 somewhere.

3 Q. What about -- the original
4 assignee of this patent was Simply Tapp.
5 Are you familiar with that company?

6 A. I am not, no.

7 Q. I should pause for one second.
8 In reviewing your declaration in
9 preparation for today's deposition, is
10 there anything in there that you noted that
11 you believed was incorrect?

12 A. There are a few typos, but other
13 than that, nothing of substance.

14 Q. The process of preparing your
15 declaration employed in this case -- can
16 you just explain to me generally how you
17 went about doing that?

18 A. Well, I use the same process in
19 every case I work, so it's fairly easy to
20 explain. I begin by carefully reading the
21 patent in question. And, frankly, I
22 usually read it a couple of times because
23 things can catch my eye after a second or
24 third reread that didn't the first time.

25 Then, in this case, because it's

1 an IPR proceeding, I, of course, read the
2 petition, the Petitioner's expert
3 declaration, and the relevant references.
4 At that point, after I have had a chance to
5 read and think about the various elements
6 in the petition, the elements in the
7 patent, the elements of the prior art, I
8 can then begin writing a first draft of my
9 declaration.

10 Q. So that's your process. Is that
11 the process that you followed in this case?

12 A. It is.

13 Q. On page 17 of your declaration,
14 you have a section at the bottom there, it
15 begins in paragraph 27, entitled EMV
16 Specifications, do you see that?

17 A. One moment. I do. I see it.

18 (Exhibit 1019 was referenced for
19 identification)

20 BY MR. WILLIAMS:

21 Q. So prior to working on this
22 declaration, were you familiar with the EMV
23 Specifications?

24 MR. LINDNER: Objection. Form.

25 A. First a moment of -- a bit of

1 clarification. As I state here, there is a
2 set of exhibits, 1019 to 1029, and I refer
3 to those as the EMV Specifications or EMV
4 standards. Those exhibits, I have not seen
5 any evidence that those are actually the
6 standards as published at that point in
7 time. So are you asking me, have I seen
8 these exhibits before, or prior to this
9 case was I familiar with the EMV
10 Specifications and standards?

11 BY MR. WILLIAMS:

12 Q. Let's start with whether prior to
13 your work on this case you were familiar
14 with any EMV Specifications?

15 A. Certainly. I would say I
16 probably first started hearing about them
17 probably 2011, 2012. By 2013 or '14, I
18 would have read through many of the
19 standards several times.

20 Q. And the particular exhibits at
21 issue here, 1019 to 1029 -- were you
22 familiar with those documents prior to
23 working on this case?

24 A. Just to be clear, I don't know
25 that these documents are the actual

1 published standards that were available at
2 that time. I was certainly familiar with
3 things such as the Specifications for
4 Payment Systems - Book C-3, which is a
5 title of one of those exhibits, but I can't
6 swear that that exhibit you put forth is
7 actually the published document that would
8 have been available at the time.

9 MR. WILLIAMS: I am going to put
10 a document in chat. Let me know when
11 you have that.

12 (Exhibit 1027 was referenced for
13 identification)

14 THE WITNESS: One moment. I
15 have it.

16 BY MR. WILLIAMS:

17 Q. This is entitled the EMV
18 Contactless Specifications for Payment
19 Systems - Book C-3, Kernel 3 Specification
20 Version 2.1, correct?

21 A. That is what's on the page, yes.

22 Q. Your prior answer referred to a
23 Book C-3. Is this what you mean by Book
24 C-3?

25 A. Well, I don't know if this

1 document is the published C-3 that was
2 available at the time, but at the time I
3 did review EMV Contactless Specifications
4 for Payment Systems - Book C-3. I just
5 can't tell you that this is that same
6 document.

7 Q. I see. So you were familiar with
8 the EMV Contactless Specification Book C-3
9 prior to your work on this case, but you
10 are not sure the document in front of you
11 is the same as the document you were
12 familiar with at the time.

13 Is that right?

14 A. That's accurate.

15 Q. Do you have a copy of the version
16 of Book C-3 that you were familiar with
17 prior to your work on this case?

18 A. I might have one somewhere, but
19 not off the top of my head.

20 Q. What is Book C-3 as you
21 understand it?

22 MR. LINDNER: Objection to form.

23 A. The Book C-3 was part of the EMV
24 Specifications for contactless payment.
25 Now the book covers a lot of stuff

1 including magstripe, configuration, and
2 other items. So it's part of the EMV
3 standards. I'm not sure what you are
4 actually asking, but that's a general
5 overview of the document.

6 BY MR. WILLIAMS:

7 Q. So why were you familiar with
8 Book C-3 in particular at the time?

9 A. Well, a couple of reasons, the
10 first one being that as I mentioned before,
11 I had some work in the payment card
12 industry. Frankly, until about 2014, there
13 wasn't a lot of people really that worried
14 about EMV in the United States. Somewhat
15 in Europe. Secondly, I make it a practice
16 just to keep up with various technical
17 innovations, things that are coming. In
18 fact, I don't think one of ordinary skill
19 in the art would do this, but I am
20 frequently looking at standards that are
21 still in progress that may come down the
22 road. A great example is the National
23 Institute of Standards and Technology still
24 has not published their final version of
25 Quantum-Resistant Cryptography, but I have

1 been following the development of the
2 standard since 2017.

3 Q. Was it -- so are you saying that
4 you were familiar with Book C-3 because you
5 were trying to keep up with potential
6 development in the industry at the time?

7 A. Well, interesting point there.
8 The way you word that is very good,
9 "potential." I frequently, as I said, look
10 at things that might become wide spread in
11 industry. Now sometimes that means I spend
12 some time investigating something that
13 doesn't then become an industry standard or
14 industry norm but, yes. In answer to your
15 question, that would be one of the main
16 reasons I would have been reviewing these
17 documents at that time.

18 Q. Okay. Are you familiar with
19 Book C-2, EMV Contactless Specifications at
20 the time?

21 A. Yes.

22 Q. What's your understanding of the
23 difference between Book C-2 and Book C-3 at
24 the time?

25 MR. LINDNER: Objection. Vague.

1 A. Well, each of the books involved
2 covered a different aspect of their
3 standard implementation. Now, from memory
4 without refreshing myself by looking at
5 some of these, I can't tell you with
6 exactitude. But as best I remember, Book 2
7 was probably related to cryptographic key
8 management things of that nature, but I may
9 have that inaccurately. But, essentially,
10 each of the books referenced a different
11 aspect of the EMV standard.

12 MR. WILLIAMS: I'm trying to put
13 another document in the chat. Let me
14 know when you have that document.

15 THE WITNESS: One moment, please.
16 I have it.

17 (Exhibit 1026 was referenced for
18 identification)

19 BY MR. WILLIAMS:

20 Q. That document is entitled EMV
21 Contactless Specifications for Payment
22 Systems - Book C-2, Kernel 2 Specification,
23 Version 2.1, March 2011?

24 A. It is. That's the title on the
25 page.

1 Q. Is this -- was Book C-2 then --
2 if you said Book C-2 was a document you
3 were familiar with at the relevant time,
4 correct?

5 A. Yes. But I misinterpreted the
6 question earlier. I thought you said
7 Book 2, not just Book C-2. It's Book 2
8 that's related to key management. C-2 has
9 a lot of other things it talks about.

10 Q. Okay. So the question I was
11 trying to get at is what is the difference
12 between Book C-2 in the Contactless
13 Specifications and Book C-3 in the
14 Contactless Specifications?

15 A. Well, that is a bit of a broad
16 question. We can begin looking at the
17 table of contents for each and they would
18 both have different items that are focusing
19 on.

20 For example, I am looking at the
21 exhibits that have been labeled these
22 names, and in Exhibit 1026, we have
23 Section 2, which is general architecture;
24 whereas, in Exhibit 1027, we have
25 Section 2, which is an overview of the

1 Kernel approach.

2 That's an example of a difference
3 between the two documents.

4 Q. Okay. And, in general, why would
5 a person of ordinary skill in the art have
6 looked at Book C-2 as opposed to Book C-3?

7 A. Presumably because the contents
8 of C-2 were of interest, so what they
9 specifically needed to do.

10 An example would be a 1026,
11 Section 3.4 in the exhibit produced,
12 discusses magstripe and EMV mode. That
13 would be one reason to look at this
14 particular document because with you had a
15 need to understand EMV with magstripes.

16 Q. You are talking about Book C-2,
17 correct?

18 MR. LINDNER: Objection to form.

19 A. Exhibit 1026.

20 And, again, just to be clear, I
21 don't know that this was the published C-2
22 available at the time. It's just what's
23 been called that by yourself and Dr. Fiske.

24 BY MR. WILLIAMS:

25 Q. Okay. So in C-2, what were you

1 just looking at, the table of contents?

2 I wasn't following exactly what
3 you were looking at when you said
4 magstripe.

5 A. That's one place to look,
6 Section 3.4, the table of contents
7 identifies a section called Mag-Stripe Mode
8 and EMV Mode.

9 Q. If you turn to Exhibit 1027 and
10 look at Section 3, there is similarly a
11 Magstripe mode and EMV mode, correct?

12 A. One moment. Section 3.

13 Q. Of Exhibit 1027?

14 A. 1027-3 says, Requirements in
15 Support of Kernel 3.

16 Q. Look down to 3.2.

17 A. 3.2, says, Messaging Requirements
18 in Support of Kernel 3.

19 Q. And there is two subsections to
20 that section, correct?

21 A. Correct.

22 Q. And one is EMV mode, and the
23 other is magstripe mode, correct?

24 A. That is correct.

25 Q. So what's the difference between

1 magstripe mode in Exhibit 1027 and
2 magstripe mode in Exhibit 1026, in your
3 understanding?

4 A. Since we have the exhibits in
5 front of us. It's quite easy to open them
6 up. If we begin in Exhibit 1027, it's
7 talking about enumerated requirements.

8 For example, 3.2.1.1 is first
9 asking if the reader supports EMV mode.
10 That's interesting because the standard is
11 even acknowledging that there are many
12 readers that are not EMV compliant.

13 Now, if we compare that to the
14 beginning of EMV mode in Exhibit 1026,
15 which is 3.4.3, it doesn't do that check.
16 It simply says, we start after the get
17 processing options command, and then
18 continue with these steps. So there is a
19 different focus on the aspects of EMV mode
20 and magstripe.

21 Q. What is a Kernel in connection
22 with these two documents?

23 MR. LINDNER: Objection. Vague.

24 A. Are you asking in general what a
25 Kernel is in EMV, how a Kernel is defined

1 in a specific document?

2 I'm not quite sure what you are
3 asking.

4 BY MR. WILLIAMS:

5 Q. I am asking in the context of EMV
6 contactless what a Kernel that these books
7 are trying to specify is.

8 MR. LINDNER: Objection. Form.

9 A. Well, in the EMV books in
10 general, they use the term Kernel to
11 discuss interface routines, control
12 functions, logic of manages commands. In
13 fact, that's stated in Section 1.5.5 of
14 Exhibit 1026.

15 BY MR. WILLIAMS:

16 Q. Do you have a page number for
17 that?

18 A. It says -- Exhibit 1026, page 28.
19 I don't think that's the actual PDF page,
20 but that's the page at the bottom.

21 Q. I understand.

22 So you were looking at 1.5.5 and
23 it talks about the Kernel and what it
24 contains. Is that right?

25 A. The exact wording is, "The Kernel

1 contains interface routines, security
2 control functions, and logic to manage a
3 set of commands and responses to receive
4 necessary data from the Card to complete a
5 transaction."

6 And the second sentence is
7 important. It says, "The Kernel processing
8 covers the interaction with the Card
9 between the selection of the card
10 application (excluded) and processing of
11 the outcome of the transaction (excluded)."

12 Q. You said the second sentence is
13 important.

14 Why did you believe it's
15 important?

16 A. Well, to begin with, whoever
17 wrote this document thought it was
18 important because there is only two
19 sentences in 1.5.5, but secondly, it tells
20 you what Kernel processing covers.

21 The first part starts with the
22 Kernel contains. So it's giving you an
23 idea of what's in the Kernel. The second
24 sentence says the Kernel processing covers.

25 So the second sentence tells you

1 what it's doing. We get structure and
2 function, if you read both sentences.

3 Q. And this section is part of
4 Section 1.5, which is entitled,
5 Terminology, correct?

6 A. That's correct.

7 Q. So the terminology section
8 defines various terms, including card, POS
9 system, and reader, correct?

10 A. Well, just to be clear, they give
11 you the definitions used in that document.
12 This is a common thing in standards because
13 terms could have more than one meaning in
14 different contexts.

15 I have been involved in a lot of
16 standards creation. Every standard I have
17 ever seen starts with a bit of a glossary
18 to explain how a term is being used within
19 that document.

20 Q. So within this document, do you
21 have an understanding of where the Kernel
22 would reside, and I guess, in particular,
23 would it reside in any of these other
24 structures that are defined here in
25 Section 1.5?

1 MR. LINDNER: Objection. Vague.

2 A. Well, this document doesn't state
3 where it resides; however, in the second
4 sentence, there are two terms "excluded"
5 given, such as, "The Kernel processing
6 covers the interaction with the Card
7 between the selection of the card
8 application (excluded)."

9 That would indicate to anyone
10 reading this that the Kernel and the card
11 application are two different things.

12 BY MR. WILLIAMS:

13 Q. And do you have a sense of
14 whether the Kernel would be part of the
15 card or part of the terminal?

16 A. Well, it's not part of the card
17 application based on the sentence here.
18 The standard, at least in this document, to
19 my recollection does not state where the
20 Kernel functions actually are occurring.

21 Q. And do you have an understanding
22 of how a person of ordinary skill in the
23 art would go about implementing the
24 Kernel 2 specifications, and in particular,
25 where the Kernel would reside?

1 A. First, are we referring to a
2 person of ordinary skill in the art under
3 my definition or Dr. Fiske or both?

4 Q. Under your definition.

5 A. It's very likely that one of
6 ordinary skill in the art wouldn't be
7 implementing the Kernel itself. They would
8 be implementing perhaps one part of it.

9 For example, a person of ordinary
10 skill in the art may be working on a card
11 application, in which case, they would only
12 be operating and working with the portions
13 that the application needs to do for the
14 entire transaction. Or they might be
15 working for the issuer, in which case, they
16 would be working on the part that does
17 verification of a transaction.

18 Q. So is it your view that this
19 specification isn't targeted to a person of
20 ordinary skill in the art under your
21 definition?

22 A. Well, I didn't say that.

23 Q. Let me ask the question.

24 Is this document, Book C-2, is it
25 targeted to a person of ordinary skill in

1 the art under your definition?

2 MR. LINDNER: Objection. Form.

3 A. Give me just a moment to refresh
4 my memory.

5 (Witness reviewing document).

6 Well, it all depends on the level
7 of understanding you are talking about.

8 For example, in Exhibit 1026
9 there is a Section 4.5.4, phone message
10 table. And neither myself nor Dr. Fiske
11 have stated that one of ordinary skill in
12 the art would have experience with
13 telephonic technology or an understanding
14 of it. However, to simply make sure you
15 can process a particular message doesn't
16 require that level of expertise.

17 So one of ordinary skill in the
18 art could read this document, but when we
19 say would they understand it, we would have
20 to define what level of understanding we
21 are referring to.

22 BY MR. WILLIAMS:

23 Q. So my question didn't use the
24 word "understanding," but your answer
25 seemed to imply that's important. I want

1 to make sure I understand why that's the
2 case.

3 My question was whether this book
4 was targeted to a person of ordinary skill
5 in the art under your definition.

6 Did you understand that to be my
7 question?

8 A. Well, I didn't, but now that you
9 have asked it that way, yes.

10 Target would indicate the
11 intention of the writers. And as I am not
12 one of the authors, I can't tell you what
13 was in their mind. I can tell you what
14 would be in the mind of someone reading it.

15 Again, just to be clear, all of
16 these questions are predicated on the
17 assumption that these documents are the
18 actual published EMV standards, and I have
19 not seen that established yet.

20 Q. Is there something in this
21 document that you are seeing that leads you
22 to believe it's not the published standard
23 as it existed in March of 2011?

24 A. Well, I don't recall this one,
25 but in some of these, for example, Exhibit

1 1020, there certainly are items that would
2 indicate that this was some sort of draft
3 and not the published standard.

4 Q. Let's make a note to come back to
5 that in a second.

6 In this document that we are
7 looking at -- and by this document,
8 you are talking about Exhibit 1026,
9 correct?

10 A. I am talking currently about
11 1026.

12 Q. In this document, is there
13 something that you saw that led you to
14 believe it was not the version of the
15 standard that was published in March of
16 2011?

17 MR. LINDNER: Objection. Form.

18 A. Well, just to be clear, I saw
19 indicators in several documents. The only
20 one that's still stood in my memory for
21 some reason is Exhibit 1020. I am happy to
22 quickly review, as quick as I can, the 511
23 pages of Exhibit 1026 to see if I see those
24 same indicators here.

25 Would you like me to do that?

1 BY MR. WILLIAMS:

2 Q. Why don't you describe for me
3 what those indicators are that you are
4 alluding to?

5 A. In Exhibit 1020, a good place to
6 start would be the page, iii. If you look
7 on the right-hand side, there are these
8 vertical lines by some of the text.

9 If you have ever used Microsoft
10 Word in editing mode where you have
11 comments and edits in it, but you put it
12 into a setting where it will only show a
13 little bit, this is exactly what you see on
14 the right-hand side. This indicates -- and
15 these appear at different portions.

16 Some parts don't have it. Some
17 parts do. For example, if I go down to
18 page 11, Definitions, one of those lines is
19 next to application authentication
20 cryptogram, but not next to application.
21 This looks exactly like and I have no other
22 explanation for this other than this was a
23 PDF that was created from a Word document
24 that had edits in it.

25 Having worked on a number of

1 industry standards myself, that's a clear
2 indicator that this was a work in progress,
3 and very likely is not precisely what was
4 published to the public. And I saw those
5 in all sorts of documents for 1026.

6 I don't recall sitting here, but
7 I am very happy to look through it and see
8 if I see those same indicators in 1026.

9 Q. No, that's okay. I wanted to
10 verify that that's the indicator you would
11 be looking for.

12 Is that correct?

13 A. Well, that's one of many, but
14 that's the most obvious that you can show
15 to anyone.

16 Q. You said prior to your work on
17 this case you had looked at published
18 versions of the EMV standards, correct?

19 A. That is correct.

20 Q. In any of those published
21 versions, did you ever see that indicator
22 that you are alluding to, the line in the
23 margin?

24 A. No. Not that I can recall.

25 Q. So it's not your understanding

1 that EMV uses that line to indicate that a
2 change has been made to the standard from
3 the prior version.

4 Is that correct?

5 MR. LINDNER: Objection to form.

6 A. I think you are misunderstanding
7 what I am saying.

8 That indicator is actually an
9 indicator that this is a change. And those
10 indicators are typically removed when
11 published. And a great example there would
12 be the document 1026 you were just looking
13 at. It says it's Version 2.1. Again,
14 assuming this was the actual published
15 document.

16 By definition Version 2.1 means
17 there were prior versions, including a 2.0,
18 which means if what you are saying, it's
19 just an indicator they published to say, we
20 changed something since the last version,
21 then every one of these documents including
22 1026 would have to have some of those. You
23 can't have a Version 2.1 unless you changed
24 something since 2.0.

25 The fact that this only appears

1 in some documents in some places would
2 indicate that, no, this is not just a
3 published indicator of some change in the
4 standard, but rather, the PDF we are
5 looking at was created from an intermediate
6 document, a Word document that is likely
7 not the final standard.

8 BY MR. WILLIAMS:

9 Q. This raises an interesting
10 question about how the EMV documents are
11 prepared.

12 Are you at all familiar with how
13 the EMV Specification documents are
14 drafted?

15 A. You will have to clarify that
16 question because there is a whole lot of
17 ways I can determine it.

18 Q. Have you ever been involved in
19 drafting any part of the EMV
20 Specifications?

21 A. I have not drafted EMV
22 Specifications. I have worked on the draft
23 of numerous other standards, and all
24 standards follow certain guidelines.

25 For example, the glossary that we

1 talked about earlier, the difference
2 between the words "shall" and "should."
3 These are standard across EMV, NIST, IEEE,
4 ISO. There are certainly aspects of
5 standard creation that are simply common
6 for all standards bodies.

7 Q. So this document -- let's look at
8 document 1026 for a moment.

9 A. I have it in front of me.

10 Q. Do you have an understanding of
11 who is responsible for updating this
12 document?

13 A. EMVCo LLC, they say at the bottom
14 of every page that it's their copyright.
15 All rights reserved.

16 Q. And does this document apply to
17 any particular brand of payment cards, or
18 is it in general across all possible
19 payment brands?

20 A. That's interesting because "all
21 possible payment brands" is pretty broad,
22 some of which would have nothing to do with
23 any of these standards.

24 Q. Fair enough.

25 A. So it couldn't possibly be "all

1 possible."

2 Q. That was a terrible question.

3 Thank you for raising that.

4 Does this document apply to all
5 possible payment brands that are compliant
6 with the EMV, or is it specific to a
7 particular payment brand that's compliant
8 with EMV?

9 A. Can you define how you are using
10 the word "brand."

11 Q. Yes. I tell you what. Why don't
12 you turn to page 1 of the PDF.

13 It's page 1 of the document, so I
14 guess it's page -- we will use the
15 Mastercard applied numbers at the bottom.
16 It would be page 23.

17 A. Thank you for clarifying.

18 Q. Let's try that.

19 Have you read this section,
20 Purpose?

21 A. (Witness reviewing document).
22 I have.

23 Q. There is a reference in there to
24 the Mastercard brand.

25 Do you see that?

1 A. Correct.

2 Q. What's your understanding of what
3 that means? What is the Mastercard brand
4 as used in this document?

5 A. Well, first, the entire sentence
6 says, "This document defines the behaviour
7 of the Kernel used in combination with
8 cards supporting a MasterCard brand or
9 cards having a Kernel Identifier indicating
10 Kernel 2 as defined in EMV Book 2."

11 So in this case, they are using
12 the word brand in reference to a particular
13 issuer company, such as Mastercard, Visa,
14 Discover, AmericanExpress.

15 So they are stating that this
16 particular document is defining behavior
17 for either cards that support Mastercard,
18 which would mean Mastercard or cards that
19 are created according to the same structure
20 and specification or any cards having a
21 Kernel identifier indicating Kernel 2.

22 Q. And in your experience, what type
23 of cards would indicate Kernel 2?

24 A. Cards that were compliant in
25 using Kernel 2.

1 Q. Would that include any cards
2 other than cards that bore the Mastercard
3 payment brand on them?

4 A. Well, I can't possibly know every
5 single type of card that's out there
6 because in addition to the major bank
7 credit cards, we have debit cards, we have
8 gift cards, things of that nature. So I
9 don't know for a fact, but it appears to
10 indicate that in this section you directed
11 my attention to that it's certainly a
12 possibility there are cards that do not
13 have the Mastercard brand but do have a
14 Kernel Identifier indicating Kernel 2.

15 At least whoever wrote this
16 document saw that as a possibility needing
17 of addressing.

18 Q. What about -- would any card that
19 had a Visa logo on it ever have a kernel
20 identifier indicating Kernel 2 in your
21 view?

22 MR. LINDNER: Objection. Form.

23 A. Well, the terms "any" and "ever"
24 would indicate it's at least a possibility.
25 I don't have a recollection of a specific

1 card that meets those standards -- those
2 specifications, but I can't tell you
3 definitively it would be impossible.

4 BY MR. WILLIAMS:

5 Q. So now this document, Exhibit
6 1026, then, do you know if it is maintained
7 by Mastercard or by EMVCo?

8 A. Well, the copyright is EMVCo,
9 excuse me. Whether or not they internally
10 are working with Mastercard, I just don't
11 recall, sitting here.

12 Q. Do you know if changes to this
13 document could be made without Mastercard's
14 permission?

15 A. I am sorry. Could you repeat
16 that? I didn't hear part of the question.

17 Q. Sorry. Do you know if changes to
18 this document could be made without
19 Mastercard's permission?

20 A. Sitting here today, I don't have
21 that recollection one way or the other.

22 Q. Do you have Exhibit 1001, which
23 is the '171 Patent?

24 A. I do.

25 Q. Can you turn to Column 25 of that

1 document?

2 A. One moment. That requires a bit
3 of scrolling. I am there, Column 25.

4 Q. Do you see Table 4?

5 A. I do.

6 Q. What's your understanding of what
7 Table 4 is meant to reflect?

8 A. Well, Table 4 is giving
9 particular card specifications, and then
10 the cryptogram designator or name used
11 within that specification.

12 Q. Are all of these card
13 specifications then ones that were known to
14 a person of skill in the art as of the
15 priority date of this patent?

16 A. Well, define what you mean by
17 "known." Did they know it existed? Did
18 they have an in-depth knowledge? I am not
19 sure what you mean.

20 Q. Let's start with would a person
21 of ordinary skill in the art have known
22 that these standards existed?

23 A. Well, I don't know that one of
24 ordinary skill in the art would have known
25 they all existed. Very often, one of

1 ordinary skill in the art works with one
2 particular one. For example, someone
3 working with Discover might only be
4 familiar with Discover's standard.

5 Q. So in your view, it's possible a
6 person of ordinary skill in the art at the
7 time wouldn't have known, for instance,
8 that the Mastercard PayPass standard
9 existed?

10 A. It's certainly possible they
11 might not know about EMV as well, depending
12 on what their job requirements are.

13 Q. So a person of ordinary skill in
14 the art could be someone working with
15 Discover; is that right?

16 A. That's one possibility. Say
17 someone of ordinary skill in the art who
18 works with Discover, either perhaps for
19 Discover, or a bank that issues Discover
20 cards or something of that type.

21 Q. So such a person, it's possible
22 in your view, that they could be familiar
23 with the Discover standard but not familiar
24 with the EMV standards, right?

25 A. That's absolutely possible.

1 Q. Can you explain how?

2 A. Well, quite simply -- and this is
3 something I think is wrong -- but
4 throughout the technology industry, people
5 tend to get -- and there is a term for it
6 -- it's called being "siloed." They know
7 one specific area, but literally know
8 nothing else and I encounter it frequently
9 even with people that are more than
10 ordinary skill in the art. People that,
11 for example, know Oracle database like the
12 back of their hand but don't even know how
13 to install Microsoft sequel server
14 database. They are both competing
15 databases. They both have the same
16 function, but I've encountered even people
17 with doctoral degrees who know one aspect,
18 but they never look left to right.

19 They simply know what's in front
20 of them. So not only is this possible,
21 it's common. Now, I think that's a bad
22 idea. I think if you are in an industry,
23 you should probably try to know the entire
24 industry, which is what I do. But,
25 unfortunately, that is not common, and it's

1 not what one of ordinary skill in the art
2 would normally do.

3 Q. Let's take -- let's turn away
4 from Discover for a moment because I am
5 less familiar with Discover.

6 What about -- let's look at --
7 the first thing on the table that's listed
8 there is Mastercard PayPass, correct?

9 A. That is correct.

10 Q. So is it possible the person of
11 ordinary skill in the art would have been
12 familiar with Mastercard PayPass standards
13 but not the EMV standards in your view?

14 A. It's possible, but I would call
15 that less likely because, as you pointed
16 out, Mastercard has some relationship
17 involved with EMV standards. So it's more
18 likely that someone working with Mastercard
19 would at least have heard of EMV. How
20 familiar they are with it would depend on
21 the individual.

22 Q. Next to the Mastercard PayPass
23 identifier, there is a cryptogram
24 designator CVC3.

25 Do you see that?

1 A. I do.

2 Q. So what's your understanding of
3 what CVC3 means in this context?

4 MR. LINDNER: Objection. Vague.

5 A. Sorry. I never give him enough
6 time.

7 CVC is commonly used in credit
8 cards. It's the -- it's a designator for
9 the card. I don't remember off the top of
10 my head, and I should know the specific
11 acronym there, but basically it was a
12 standard or specification for the
13 information on the card that's being
14 transmitted to a point-of-sale device. And
15 if I recall, it's something to do with card
16 verification code. They also have a CVV --
17 card verification value. Basically, it's a
18 way to use cryptography to ensure the
19 content of the payment card is what it
20 claims to be.

21 BY MR. WILLIAMS:

22 Q. So are CVC and CVV different?
23 Sorry. I should back up. You said card
24 verification values. So what is the
25 difference between a card verification

1 value and a CVC?

2 A. Well, they accomplish the exact
3 same goal, and some people use them
4 interchangeably. In fact, a lot of sources
5 will simply say CVC/CVV. Basically, its
6 primary thing is to confirm the data of the
7 card. Let's say your expiration date, your
8 personal account number, your PAN, things
9 like that.

10 Q. How does the CVV confirm your
11 PAN?

12 A. Well, there is a few ways you
13 could calculate -- well, actually, there's
14 quite a few. But I think Table 4 actually
15 tells us. The CVC is a cryptogram
16 designator. It's a name for a specific
17 type of cryptogram that's used to validate
18 information like the PAN and the expiration
19 date, and, perhaps, additional data, but at
20 least the PAN and expiration date.

21 Q. So that's how -- you think that's
22 how Mastercard PayPass computes the CVC3,
23 then, is using information about the PAN
24 and expiration date?

25 MR. LINDNER: Objection. Form.

1 A. What I actually said was, in
2 general, the term CVC or CVV is something
3 that's used to confirm things such as your
4 PAN and your expiration date.

5 BY MR. WILLIAMS:

6 Q. What's a PAN?

7 A. Personal account number, and in
8 the case of credit cards, it's usually your
9 credit card number.

10 Q. The next line in that table is
11 Visa Contactless.

12 Do you see that?

13 A. I thought that was the one we
14 were just talking about, but, yes. I see
15 it.

16 Q. Then maybe I should go back
17 because what I was talking about was the
18 Mastercard PayPass line. So with that
19 understanding, did you need to change any
20 of your prior answer?

21 A. Well, no, in fact, this
22 illustrates what I was saying. CVC and CVV
23 are used interchangeably. Mastercard used
24 the word CVC3. Visa uses dCVV.

25 Q. What is a dCVV?

1 A. Well, there is an acronym there
2 that I am trying to recall. It's obviously
3 a version of CVV, but sitting here right
4 now, I believe it's dynamic. But I am not
5 100 percent sure.

6 Q. Is the CVC3 also dynamic?

7 A. Well, sitting here right now, I
8 don't recall if it's dynamic or not. I
9 know quite a few of these are. So I
10 wouldn't be surprised if it was also
11 dynamic.

12 Q. As a person of ordinary skill in
13 the art, where would you go to determine if
14 CVC3 was dynamic at the time?

15 A. I would simply look up CVC3.

16 Q. Where would you look?

17 A. Literally, Google it.

18 Q. But would there be a definitive
19 place you could go to, to find out what
20 CVC3 was at the time?

21 A. Well, it depends on the context
22 you are using it in. For example, if I was
23 wanting to work with Mastercard PayPass, I
24 would want to look at Mastercard's exact
25 definition, which is probably the same as

1 the common definition, but just to make
2 sure I am on the right page here, if I am
3 working for specific implementation, that
4 implementation would be my primary source
5 of data.

6 Q. Right. Were there, at the time,
7 Mastercard PayPass specifications that a
8 person of ordinary skill in the art could
9 have looked to?

10 A. Well, sitting here today, I don't
11 have an exact recollection of everything
12 that was 14 years ago, but, in general, I
13 would expect, yes, any sort of
14 specification you want people to adhere to,
15 you have to publish some guidelines or else
16 there is no way they could possibly adhere
17 to it.

18 Also, we are approaching a little
19 over an hour.

20 MR. WILLIAMS: Sure. We can take
21 a break now. Five minutes enough?

22 THE WITNESS: Five minutes is
23 plenty.

24 MR. WILLIAMS: Great. Off the
25 record.

1 (Recess: 11:00 a.m. to 11:08 a.m.)

2 BY MR. WILLIAMS:

3 Q. Can I ask you to turn,
4 Dr. Easttom, to your declaration, paragraph
5 37.

6 A. I have it in front of me.

7 Q. Okay. In paragraph 38, you have
8 a chart.

9 Do you see that?

10 A. I do.

11 Q. Can you describe for me what this
12 is showing?

13 A. Certainly. First of all, this
14 particular chart is talking about EMV
15 adoption as of a specific date, and I
16 believe it's 2014. And what it's showing
17 is that in Europe, we had zone 1 that had
18 96.33 percent, but zone 2 had 50 percent,
19 and the United States 0.03 percent
20 adoption. So that by this time, in the
21 United States, EMV adoption in 2014 was
22 still less than one half of 1 percent.

23 Q. What do you mean by "adoption"?

24 A. Adoption means those companies
25 that are now using that standard

1 implemented data.

2 Q. This is a chart showing
3 transactions, correct?

4 A. One moment, please. Yes. How
5 many transactions are actually using EMV.

6 Q. So does this tell us anything
7 about how many cards were available in the
8 United States that were compliant with EMV?

9 A. Yes, it does because if you have
10 a card that's compliant, and you are using
11 it in an EMV compliant transaction, it
12 would show up. However, I would not say
13 that this by itself is a one-to-one
14 relationship, which is why I also cite
15 other sources. There is -- before this, in
16 paragraph 37, I discuss bank rates, stating
17 that by 2015, they want to reach compliance
18 with EMV and a deadline by 2021.

19 Another reference that says even
20 at that point, you don't have to implement
21 all of EMV, just a subset. And then I also
22 cite another source which has yet another
23 image right after it, showing EMV adoption,
24 all sources here all pointing to the same
25 fact that adoption of EMV was certainly not

1 common in the United States. In fact, it
2 was very uncommon. What I say in 2012, I
3 use Dr. Fiske's data.

4 Q. Let me ask about the chart we
5 were just talking about, showing by
6 December of 2013, the United States had
7 less than 1 percent adoption, correct?

8 A. Yes.

9 Q. If in the United States, I -- if
10 I, as a resident of the United States, had
11 a card that was EMV compliant and used a
12 terminal that was not EMV compliant, would
13 it show up on this chart?

14 A. Well, no. That's why I stated
15 that this is not a one-to-one correlation,
16 and that's also why I used multiple sources
17 all saying the same thing. EMV compliance
18 in even August 2012, which is Dr. Fiske's
19 date, was incredibly low. And in fact, my
20 first citation, paragraph 37, is bank rate
21 saying, Our goal is to get there by 2015
22 and, certainly, absolutely by 2021. Well,
23 if your goal is to get there by 2015, that
24 alone in and of itself would show that you
25 are certainly not there in 2012.

1 Q. Okay. And that goal you are
2 talking about has to do with the United
3 States, correct?

4 A. That's correct.

5 Q. Now, do you have an understanding
6 of the difference between Europe, zone 1,
7 and Europe, zone 2, on this chart?

8 A. Off the top of my head, I could
9 not tell you the exact countries involved,
10 but my understanding is Europe, zone 1,
11 would include more of Western Europe, like
12 France and Germany, England.

13 Zone 2 would be more of Eastern
14 Europe, Bulgaria, Czechoslovakia, Hungary,
15 that sort of thing.

16 Q. By this time, 96 percent -- over
17 96 percent of transactions in Europe, zone
18 1, were EMV compliant, correct?

19 A. That's correct.

20 Q. On paragraph 40, you cite to
21 Exhibit 2018 in a footnote.

22 Do you see that?

23 A. I do.

24 MR. WILLIAMS: Let me put that
25 exhibit into the chat. I think it's

1 this one.

2 (Exhibit 2018 was referenced for
3 identification)

4 THE WITNESS: One moment. I
5 have it.

6 BY MR. WILLIAMS:

7 Q. And this is an exhibit that --
8 where did this exhibit come from?

9 A. There is a website URL in my
10 declaration listed where I got it.

11 Q. This is a PDF, though, that was
12 available at the website.

13 Is that correct?

14 A. It appears to be, yes.

15 Q. And you are citing this exhibit
16 to show that -- can you explain why it is
17 that you are including this exhibit in your
18 declaration?

19 A. Well, to begin with, the date of
20 this website was November 2011, and if you
21 scroll down to Section 3, "Implementation,"
22 there are various details given, but
23 towards the bottom half of the page, you
24 will see a section that specifically says,
25 "The scheme has the responsibility to

1 define the payment instruments that carry
2 its logo and to set the business rules and
3 technical frameworks that govern the
4 issuance of these instruments:

5 Specifications: EMV-compliant or
6 proprietary non-EMV."

7 So among other things, this
8 document shows that toward the end of 2011,
9 issuers and vendors were still looking to
10 how do we support non-EMV cards.

11 Q. You cited this document because
12 you think it helps support the point you
13 are making here that there were non-EMV
14 approaches to payment cards.

15 Is that correct?

16 A. Well, that's certainly one
17 reason, and it says it again, by the way,
18 on page 14 at the top. "The issuer must
19 offer its customers the payment instruments
20 supported by the Private Label payment
21 scheme. Whether it issues an EMV or
22 non-EMV payment proprietary card."

23 Q. So what is the relevance of that
24 to the point you are making in paragraph
25 40?

1 A. Well, just to be clear, paragraph
2 40 does not stand alone. There is an
3 entire section starting with paragraph 37,
4 and there are five, six, seven, eight, nine
5 -- nine different citations for everything
6 from PCI, to websites to charts, and they
7 all say the same thing. That even if we
8 use Dr. Fiske's date of August 2012, at
9 that point, at least in the United States,
10 EMV simply was very optional. It was not
11 used in a lot of situations. Wasn't being
12 widely used.

13 So frequently Dr. Fiske opines
14 that it would have been obvious to one of
15 ordinary skill in the art to comply with
16 EMV. Well, given that EMV was very low
17 adoption rates at that time, it would have
18 not only not been obvious, it would have
19 been counterintuitive. If I am one of
20 ordinary skill in the art, I could show you
21 multiple citations from the timeframe that
22 actually say I need to be supporting
23 non-EMV cards.

24 Q. Did you include those in your
25 declarations?

1 A. I am sorry. Could you state that
2 again? I didn't hear the words.

3 Q. Yes. You said you could show me
4 multiple citations that say you need to
5 support non-EMV cards, and I am asking you,
6 do you cite any of those in your
7 declaration?

8 A. Well, yes, I just mentioned
9 several of them. You had me look at one.
10 If we go on to paragraph 41, we cite the
11 PCI, which is the definitive defacto
12 standard for all bank cards. They state in
13 2010, most environments couldn't even
14 process EMV or hybrid. Then we have yet
15 another citation that says non-EMV cards
16 work like magnetic stripe cards and this is
17 common in the U.S.

18 We also see in 42, citing
19 Dr. Fiske's deposition testimony, when he
20 specifically said in the U.S., which in
21 2012, was not a country that had yet
22 migrated to EMV. So this isn't just my
23 opinion. Even Dr. Fiske agrees that even
24 as late as 2012, the U.S. simply was not an
25 EMV country.

1 Q. This is what I want to understand
2 more because you are saying you are relying
3 on this statement that they weren't an EMV
4 country. Is it your view that then that
5 means none of the transactions in the U.S.
6 were EMV compliant?

7 A. Well, that's not what I have said
8 at all. And as we have talked about, there
9 is a chart that actually shows that there
10 are some EMV compliant transactions, and
11 that's in my declaration.

12 Q. Let me ask about -- so before the
13 break, we looked at the patent-in-suit, and
14 it referred to Mastercard PayPass as being
15 a specification that was around at the
16 time, correct?

17 A. Correct.

18 Q. Would a PayPass Magstripe
19 transaction have appeared on the chart that
20 you included in your paragraph 38?

21 A. Not necessarily. I don't know if
22 it would have or would not. I just know
23 that the source that published that chart
24 says that these are the percentage of card
25 present transactions that are EMV.

1 Q. Do you know if the PayPass
2 Mastercard transaction is compliant with
3 EMV standards at the time?

4 A. Well, we looked back to the '171
5 Patent, Table 4, where MASTERCARD PAYPASS
6 MSD, at least, is listed separately from
7 EMV.

8 Q. What did that tell you?

9 A. That it's a separate standard.

10 Q. So there are standards, but I
11 guess the question is, is PayPass compliant
12 with EMV?

13 A. Well, whether or not it's
14 compliant or comparing every element of
15 PayPass to EMV, I don't believe was an
16 element of my declaration, nor did
17 Dr. Fiske address it. So off the top of my
18 head, I could not give a definitive answer
19 to that question.

20 Q. Let me -- go back to the patent
21 for a moment. So we were looking at
22 Table 4. If you go to the next column, 26?

23 A. I am there.

24 Q. There is a section beginning at
25 line 50 that begins, "The details of."

1 Do you see that?

2 A. I do.

3 Q. The next sentence says, "Examples
4 of these card specifications at the time of
5 this filing are MASTERCARD, PAYPASS-MAG
6 Stripe v3.3," and then there is others
7 listed.

8 A. "Contactless EMV, DISCOVER
9 NETWORK RF," radio frequency, yes.

10 Q. So have you looked at the PayPass
11 Magstripe Version 3.3 specification that
12 existed at the time?

13 A. I have certainly seen it before,
14 but I don't know that it was a particular
15 portion of my analysis. It's certainly not
16 in the declaration.

17 Q. When you say you have seen it
18 before, when would you have seen it?

19 A. At some point over my career,
20 I've certainly seen it. I can tell you
21 that. I couldn't tell you when.

22 Q. How do you know that you have
23 seen it at some point over your career?

24 A. I just recall having seen it at
25 some point in my career.

1 Q. Do you recall if you needed to
2 make use of it for any reason?

3 A. I don't recall.

4 I've seen so many documents over
5 a 30-year career. Many stand out in my
6 mind as having read them, but I don't
7 recall after 10, 15, 20 years, what the
8 exact context was.

9 Q. That's fine. Did you recall
10 having reviewed that document, whether the
11 EMV -- whether EMV is referenced in that
12 magstripe specification?

13 A. Sitting here today, I don't
14 recall.

15 Q. And do you recall whether that
16 Mastercard PayPass magstripe version 3.3
17 specification is compliant with the EMV
18 Specifications?

19 A. Sitting here today, I just don't
20 recall.

21 Q. Is it possible that it is?

22 A. Well, since I don't recall, it's
23 possible that it is. It's possible that it
24 isn't.

25 Q. So back to your paragraph 41,

1 then, when you talk about the hybrid
2 environments that handle both EMV and
3 non-EMV transactions, what would be an
4 example of a non-EMV transaction?

5 A. Any transaction that's not
6 compliant with EMV.

7 Q. So at the time, I think you just
8 said you are not sure whether PayPass would
9 fall into the EMV or non-EMV side of that
10 line, correct?

11 A. I don't have that specific
12 recollection sitting here.

13 Q. Let's turn to paragraph 53.

14 A. I am there.

15 Q. So, 53, you talk about Mastercard
16 M/Chip.

17 Do you see that?

18 A. I do.

19 Q. What is M/Chip?

20 A. Well, M/Chip was a specific
21 technology used by Mastercard. It was used
22 in payment card processing. It was just
23 their way of doing specific -- I believe
24 they use it for mobile transactions
25 primarily, and that's the M in the

1 M/Chip -- or there was an M/Chip mobile
2 version, at least.

3 Q. In 2012, your understanding of
4 the Mastercard M/chip specs, were that they
5 were mobile?

6 A. No. I said there was a mobile
7 version of it.

8 M/Chip was basically a
9 contactless chip technology.

10 Q. So Mastercard M/chip
11 specifications in 2012 were contactless; is
12 that correct?

13 A. I don't know if by 2012, they
14 were. I know they eventually were
15 contactless, but it was basically using a
16 chip to contain all the data that was
17 necessary for verifying, that what's on the
18 card is correct.

19 Q. In the sentence, you say, "The
20 technology supports contact and contactless
21 payments."

22 The question is, is it true that
23 in 2012 Mastercard M/chip was contactless?

24 A. I don't recall the specifics
25 here.

1 Q. What about paragraph 54, you talk
2 about Visa qVSDC.

3 Do you see that?

4 A. Yes.

5 Q. In 2012, was that contactless?

6 A. I know they used a chip embedded
7 in payment cards that used authorization.
8 It was designed for tap-and-go
9 transactions, which isn't really
10 contactless. You touch it.

11 So I don't think that one was
12 actually contactless, at least at that
13 point. It was a tap-and-go process.

14 Q. Were either of the Mastercard
15 M/chip or Visa qVSDC specifications
16 compliant with the EMV standard in 2012?

17 A. Could you please define what you
18 mean by "compliant."

19 Q. Sure.

20 Did they comply with the EMV
21 standard in 2012?

22 A. Well, first of all, the standards
23 as I make a point of in my declaration have
24 large parts that are optional.

25 Now, I know for a fact that there

1 were instances at least later -- years
2 later -- where Mastercard's M/chip was used
3 in conjunction with EMV. I am not sure if
4 that meets your definition of "compliant."

5 And it wasn't happening, I don't
6 believe, at the time 2011, 2012. But there
7 was a point at which Mastercard M/chip
8 could be used in conjunction with EMV
9 processes.

10 Q. When you say, "used in
11 conjunction with EMV," what do you mean?

12 A. I mean both are used in the same
13 process.

14 Q. For instance, you could use a
15 Mastercard M/chip card to make a payment
16 and it would be compliant with EMV
17 standard.

18 Is that what you are saying?

19 A. Well, by 2015, 2016 -- my memory
20 isn't exact -- that's when they were really
21 pushing the mobile M/chip, and they
22 advertise that it could work with EMV. I
23 haven't done an in-depth analysis of that,
24 but that's what Mastercard was advertising.

25 What's being stated in this

1 section here beginning at paragraph 52 is,
2 none of these standards are EMV. So one of
3 ordinary skill in the art might say, I
4 wasn't to focus on being compliant with
5 Visa, Quick Visa Smart Debit/Credit card,
6 or I want to focus on being compliant with
7 Discover e-pass, or I want to focus on
8 being compliant with M/Chip.

9 The idea that it would have been
10 necessary, and the only way to go is to
11 comply with EMV simply does not match the
12 facts and data at the time.

13 Q. The premise of your answer there
14 is that it's possible to comply with
15 Mastercard M/Chip, but not comply with EMV.

16 Is that correct?

17 A. It's possible.

18 Q. And you think that's a
19 possibility that existed in 2012?

20 A. Yes.

21 Q. What's your basis for that?

22 A. Well, to begin with, they are
23 separate standards.

24 Secondly, as I stated earlier, it
25 was later in 2015 or 2016 that Mastercard

1 was explicitly advertising that M/Chip
2 could work with EMV.

3 That would be a strong indicator
4 that it wasn't clear and obvious to one of
5 ordinary skill in the art that M/Chip was
6 compliant with EMV. If that were obvious,
7 there would be no need to advertise it.

8 Q. Can you give me an example of how
9 a card could comply with the Mastercard
10 M/Chip standard but not be compliant with
11 EMV in 2012?

12 A. EMV is a whole host of literally
13 thousands of pages.

14 Can you tell me which part of EMV
15 you are specifically thinking about?

16 Q. Literally, if there is any part
17 that you are aware of that would not have
18 complied with by Mastercard M/Chip card, I
19 would be interested to know what it is.

20 A. Well, for example, if we look at
21 Exhibit 1026, we used -- we looked at
22 before, Section 1.2 says, This
23 specification is intended for use by
24 manufacturers of contactless readers and
25 terminals. But if you are using a tap and

1 pay, then you are not a contactless reader
2 or terminal.

3 So you would not be compliant
4 with this part of the EMV. You wouldn't
5 want to be.

6 Q. So before you were indicating
7 that M/Chip was contactless, but are you
8 saying now that it wasn't?

9 A. I said at some point, it became
10 contactless. I don't recall specifically
11 when, but maybe a better example is we have
12 looked at several elements in EMV today
13 that discuss magstripes.

14 M/Chip wouldn't have been
15 compliant with my magstripe aspects of EMV.

16 Q. Okay. Let's turn to paragraph 61
17 of your declaration. Let me know when you
18 find that.

19 A. (Witness reviewing document).

20 61, I am there.

21 Q. Okay. This is part of your claim
22 construction analysis, correct?

23 A. That's correct.

24 Q. So, Doctor, I think here you are
25 analyzing a part of Dr. Fiske's declaration

1 where he is interpreting one of the terms
2 of the '171 Patent.

3 Is that right?

4 A. Well, to be clear, the first
5 thing I say in this section is I view the
6 terms using their plain and ordinary
7 meaning to one of ordinary skill in the
8 art.

9 Then I direct my attention
10 specifically to Dr. Fiske's statement that
11 R-APDU is, and I quote, "Potentially
12 subject to at least two alternative
13 constructions."

14 Q. Yes. So what is the term
15 "R-APDU" that he is talking about here?

16 Is that a term in the patent?

17 A. APDU means application protocol
18 data unit. R is usually a response.

19 So yes, this is a term in a
20 patent.

21 Q. Let's look at the actual claim
22 term just so we make sure we are talking
23 about the same thing.

24 Actually I gave you Dr. Fiske's
25 declaration earlier, right? Maybe we could

1 start with that.

2 A. I believe you did.

3 Q. Let me find that again.

4 A. I think that's Exhibit 1006.

5 Q. Yes. Hang on a second. Let me
6 just get that up.

7 MR. LINDNER: I am not sure you
8 sent that one over. You did. I see it
9 there. Sorry.

10 MR. WILLIAMS: Okay.

11 BY MR. WILLIAMS:

12 Q. So I think his paragraph 67 has
13 the actual claim language. Let me know
14 when you see that. Page 34 of Exhibit
15 1006.

16 I am using the fixed number at
17 the bottom.

18 A. The paragraphs stay the same, so
19 paragraph 67?

20 Q. 67, correct.

21 A. I am there.

22 Q. He is quoting here which he
23 defines as, R-APDU is quote, "At least
24 one response application data protocol
25 unit containing the response cryptogram

1 and an account identifier for the
2 account."

3 Do you see that?

4 A. I do.

5 Q. So do you agree with him that
6 that is a quote from claim one of the '171
7 Patent?

8 MR. LINDNER: Objection. Form.

9 A. Well, I just refreshed my memory
10 looking at Claim 1 column.

11 The section he is discussing
12 says, "Responding to the at least one POS
13 command communication wherein responding to
14 the at least one command communication
15 comprises sending at least one device
16 response communication from the mobile
17 device to an electronic reader to the
18 communication channel via at least one
19 device response communication comprising at
20 least one response application data
21 protocol unit containing response
22 cryptogram and an account identifier for
23 the account."

24 I believe that's what he is
25 referring to.

1 BY MR. WILLIAMS:

2 Q. So do you agree he has quoted the
3 claim text there correctly?

4 A. Well, assuming that's the actual
5 section he is referring to, yes.

6 Q. So you were looking at the -- in
7 claim one the element that begins
8 responding to, correct?

9 A. That's correct.

10 Q. So the actual language in that
11 claim is at least one response application
12 data protocol unit.

13 Is that right?

14 A. Yes.

15 Q. And in your declaration, you say
16 that the term that's defined in ISO 15 is
17 APD, which I presume stands for application
18 protocol data unit?

19 A. That's correct.

20 Q. So that's two different -- the
21 issue -- so one issue I have is, that's two
22 different things.

23 So the spec seems to define the
24 term, APDU, and the claim talks about ADPU.

25 I guess the first question I have

1 for you is, do you think a person of
2 ordinary skill in the art reading the claim
3 would have understood that the inventor
4 when he said, application data protocol
5 unit actually meant application protocol
6 data unit?

7 A. Well, first of all, yes, is the
8 short answer.

9 The longer answer is, as I state
10 in my declaration, the patent itself
11 frequently says that this term comes from
12 ISO 7815. So there is no ambiguity.

13 There is nothing that one of
14 ordinary skill in the art would have to
15 decipher. And if you go to Section 12-1-1
16 of ISO 7816, it describes what these
17 application protocol data units are.

18 Q. To be clear, I don't think there
19 is any dispute with what an application
20 data unit is.

21 I think the question is, what
22 does an application data unit mean, which
23 is what the claim language says.

24 Do you think APDU and ADPU mean
25 the same thing?

1 A. Well, they clearly do in the
2 context of the patent.

3 Q. What's your basis for that?

4 A. Because that's how it's used in
5 the patent repeatedly.

6 Q. Where does it talk about
7 application data protocol unit other than
8 in the claim?

9 A. One second. I am searching the
10 patent.

11 (Witness reviewing document).
12 It's faster that way.

13 Q. Sure.

14 A. You are asking where it says
15 what?

16 Q. Application data protocol unit.

17 A. It uses it in the claim, and then
18 in another section. It's also in Claim 17.
19 It's also in its list of prior
20 publications, patent citations.

21 It cites to DP 212883081, which
22 is a method and electronic device for
23 transferring application data from a source
24 electronic device. So it uses application
25 data as opposed to application protocol.

1 Of course, there is the reference
2 to the standard ISO standard we talked
3 about it long ago.

4 Q. And the reference to the ISO
5 standard that you are alluding to is where?

6 A. One moment, please.

7 (Witness reviewing document).

8 Well, I am looking right now
9 under the detailed description. And
10 immediately it's talking about -- I will
11 just read the text here.

12 "A local I/O bus 520 is
13 controlled by a CPU 424 in the computer
14 512, so that when the telnet window opens
15 up" -- "the telnet window on the second
16 computer connects to that IP address and
17 port number on the first computer 512,
18 standard command/response communications
19 may be established by sending 7816-4
20 formatted data."

21 That's only one place, but as we
22 look throughout the patent, there are other
23 references to it. That's the first one I
24 came across.

25 Q. Let's try Column 6, line 15.

1 A. Column 6, line 15. One moment,
2 please.

3 It begins with, "Figure 1
4 describes a protocol level communication
5 between the reader and an SE. The protocol
6 layer is a standard protocol referred to as
7 APDU. APDU stands for Application Protocol
8 Data Unit and typically the protocol is
9 defined by ISO/IEC specification 7816."

10 Is that what you are referring
11 to?

12 Q. Yes.

13 There is a reference to 7816.
14 And as the patent explains, that standard
15 defines APDU, correct?

16 A. That is the phrase used here,
17 yes.

18 Q. It doesn't use the phrase ADPU
19 here, right?

20 A. Not at this point, no.

21 Q. But -- I just want to verify, I
22 think everyone agrees about this. But I am
23 trying to confirm that's the case. That a
24 person of ordinary skill in the art reading
25 Claim 1 would have understood that although

1 the applicant, height application, protocol
2 data unit, they were really referring to
3 there was an application protocol data
4 unit.

5 Is that correct?

6 A. I just want to make sure I
7 understand you.

8 You appear to be focusing on
9 Claims 1 and 17 where the words "data
10 protocol" or "inverted" instead of
11 "protocol data."

12 And that's your issue?

13 Q. Correct. Yes.

14 A. Your question being?

15 Q. The question being in the claims
16 when the applicant used the term,
17 "application data protocol unit," did they
18 really mean to say, application protocol
19 data unit?

20 A. Well, I can't tell what someone
21 else means, but I can tell you anyone
22 reading this probably would have never even
23 noticed the inversion of data protocol to
24 protocol data.

25 Basically a person of ordinary

1 skill in the art would look for the
2 content. It is discussing right here
3 communication from a mobile device to an
4 electronic reader.

5 Now, elsewhere in the patent
6 where we discussed communication between
7 the mobile device and the electronic
8 reader, it is application protocol data
9 unit.

10 So anyone who did notice that
11 trivial inversion of two words in two
12 places would have absolutely understood
13 that they mean the same thing.

14 Q. Okay. Let's turn to paragraph
15 70.

16 A. I am there.

17 Q. In that paragraph, you referenced
18 Exhibit 1019, which you describe as EMV
19 4.2, Book 1, correct?

20 A. Well, I don't describe it as
21 that. I am simply giving you what the
22 title is on Exhibit 1019. As we stated
23 many times, I don't know that these are the
24 actual published standards at that time,
25 and as we discussed somewhat earlier, there

1 is actually indicators that they are not,
2 that what was produced as the EMV standards
3 are actually some draft of an intermediate
4 version of the standard.

5 Q. That's fine. Do you ever list in
6 your declaration the exhibits -- you don't
7 have a list of the exhibits you actually
8 reviewed when preparing this, do you?

9 A. One moment, please.
10 (Witness reviewing document).
11 I believe that they are listed as
12 they are introduced. In other words, for
13 example, in paragraph 70, I now list
14 Exhibit 1019.

15 Q. How did you decide which exhibits
16 to review in preparing your declaration?

17 A. The ones that Dr. Fiske basically
18 utilized. He lists a bunch of them, but
19 some he depends on more than others. The
20 ones that he found most relevant are ones
21 that I obviously paid attention to.

22 Q. Do you have access to the entire
23 IPR petition record when you prepared your
24 declaration?

25 A. I do.

1 Q. Have you ever accessed yourself
2 the PTAB docket to look at filings?

3 A. You mean going on the web to
4 PTAB's docket?

5 Q. Yes. Correct.

6 A. No. I was provided with Exhibit
7 1001 through 1048 as well as 2001 through
8 2008. I was also provided with the actual
9 petitions. Several other documents such as
10 patent owner's mandatory notices, updated
11 mandatory notices, patent owner preliminary
12 response, all those things I was provided
13 with. In my report, I reference those
14 items that were utilized specifically to
15 discuss my response to Dr. Fiske of the
16 petition.

17 Q. So you said you were provided
18 with Exhibits 1001 through 1048, correct?

19 A. Yes. Among the other exhibits I
20 also just listed.

21 Q. But you didn't review all of
22 those exhibits before drafting your
23 declaration, correct?

24 A. That's incorrect.

25 Q. I am sorry?

1 A. That is not correct.

2 Q. So you did review all the
3 exhibits that you just mentioned before
4 drafting your declaration?

5 A. I did. It was a tremendous
6 amount of reading.

7 Q. Do you remember reviewing a
8 declaration of Brian Byrne?

9 A. It strikes me as familiar. What
10 was the exhibit number?

11 Q. 1018. I will put it in the chat
12 for you. How about that?

13 A. Okay. I am downloading it.

14 (Exhibit 1018 was referenced for
15 identification)

16 THE WITNESS: I have it, and yes,
17 I have seen it before.

18 BY MR. WILLIAMS:

19 Q. Do you think he is lying?

20 A. He is not lying. It's what he
21 actually states. If you read his
22 declaration, the first part is just telling
23 you that he worked with EMV. In paragraph
24 9, he states, "The Board approves all
25 specifications published." I certainly

1 don't disagree with that. In paragraph 10,
2 he talks about, "Since 2006, EMVCo has had
3 a facility to let the public subscribe to
4 website updates." I don't disagree with
5 that.

6 In 11, he says, This declaration
7 concerns the following documents. Now,
8 again, I have got to be very clear. I do
9 not have any reason to believe he is lying,
10 but let's read what he actually says.

11 In 13, he says, "All of the
12 Specifications have been published by EMVCo
13 on its website for download free of
14 charge." I don't disagree with that.

15 Then he says, "Based on my review
16 of past snapshots of EMVCo's website and my
17 recollection of the ordinary course of
18 business." Well, recollections are often a
19 little bit faded and fuzzy. You usually
20 don't -- unless he claims he does have an
21 eidetic memory. Then he states -- 14 is
22 where we get to the meat of it. "I also
23 personally received from EMVCo's backup
24 files, attached copies of quarterly
25 newsletters" -- and he gives those

1 exhibits -- "backup files" -- we don't know
2 exactly what date those files may have
3 turned into something published, if at all.
4 So he is not lying, but he never actually
5 says that he is authenticating that these
6 exhibits -- the ones we have been talking
7 about, like 1020 and 1026 and 1027, are the
8 versions that were published to the public
9 as of, say, 2012. He doesn't say that
10 anywhere in here.

11 Q. That's fine. So you considered
12 this in preparing your opinion, right?

13 A. What is the "this" in that
14 sentence?

15 Q. The exhibit that we just looked
16 at?

17 A. Oh, I certainly read it, yes.

18 Q. Let's turn back to paragraph 70
19 of your declaration.

20 A. I am there.

21 Q. And you reference Exhibit 1018
22 and I just put it in the chat.

23 A. Thank you. I have it open.

24 Q. Okay. What was the reason you
25 cited this exhibit at this point in your

1 declaration?

2 A. Well, it helps to read the
3 preceding section when I state I am looking
4 at Dr. Fiske's deposition here, and he made
5 a statement that the hash cannot be a
6 cryptogram, so, for example:

7 "QUESTION: Would a person of
8 skill in the art understand that MD5 is
9 an algorithm available to generate a
10 cryptogram?

11 "ANSWER: They would not. I
12 would not accept that definition, and I
13 don't believe a person of ordinary
14 skill in the art would accept that
15 definition.

16 "QUESTION: Why not?

17 "ANSWER: Because MD5 algorithm
18 is a hash algorithm, and it doesn't use
19 a key."

20 So I cite 1019, which Dr. Fiske
21 and the Petitioner put forth as the EMV
22 standard and it says a cryptogram is the
23 result of a cryptographic operation. It
24 does not say that there is a requirement for
25 a key. Then I go on to Exhibit 1020, which

1 specifically lists hashing algorithms as
2 approved cryptographic algorithms. When you
3 put those two together, Dr. Fiske is simply
4 factually incorrect.

5 (Exhibit 1020 was referenced for
6 identification)

7 BY MR. WILLIAMS:

8 Q. You then cite to Exhibit 1020 --
9 correct? -- in your next sentence?

10 A. That is correct.

11 Q. I can't remember if I put that
12 one in the chat yet. I don't think I did.
13 Let me grab that. Let me know when you
14 have that document.

15 A. I have it open.

16 Q. What was the reason you cited
17 this document at this point in your
18 declaration?

19 A. Well, in my declaration, I
20 specifically state Exhibit 1020 Annex B
21 Approved Cryptographic Algorithms. So if
22 one looks at 1020 Annex B Approved
23 Cryptographic Algorithms, it lists quite a
24 few there.

25 Q. What page are you on?

1 A. It says Mastercard -- right now
2 Mastercard page 152, but the PDF says page
3 140.

4 Q. Okay.

5 A. Under Section B, Annex B, which
6 are approved cryptographic algorithms, B3
7 are specifically hashing algorithms
8 including SHA-1, which is the primary one
9 that includes -- but that's just an example
10 of a hashing algorithm. So hashing
11 algorithms are indeed approved
12 cryptographic algorithms under the EMV
13 standard, at least what you are asserting
14 is the EMV standard, Exhibit 1020.

15 And Exhibit 1019 simply states
16 that a cryptogram is the result of a
17 cryptographic operation. Therefore, based
18 on that alone, Dr. Fiske is incorrect that
19 a hash could not generate a cryptogram.
20 Then of course in paragraph 71, I address
21 how the patent itself, the '171 Patent,
22 utilizes that term quite differently and
23 explicitly states a hash can be used.

24 Q. What can a hash be used for in
25 the EMV Specification that you are

1 referring to?

2 A. Well, we have to look through all
3 the document to give you a comprehensive
4 answer, but beginning with Appendix B3 of
5 Exhibit 1020, that is one approved
6 algorithm that can be used in various
7 places.

8 Now, if you look through other
9 issues -- other documents, for example,
10 1019 -- we see a definition of a hash being
11 given on Mastercard page 28. And then we
12 see specifically a hash being utilized --
13 and I am in Section 4.2, where it's showing
14 hashing, how it would appear in an
15 algorithm.

16 It refers to, in Section 2,
17 Normative References, the Federal
18 Information Processing Standard 180-2 for
19 the actual secure hash or SHA standard. It
20 refers to ISO 10118-3 for hash-functions.
21 And that's just one document. I am happy
22 to go through all of these if you like, and
23 they are permeated with the use of hashes.

24 Q. Okay. Let's talk in
25 Exhibit 1020, go to Section 8.1.2, which is

1 PDF page 101. That's the Mastercard
2 exhibit number at the bottom.

3 A. Yes. It begins with the title
4 Application Cryptogram Algorithm.

5 Q. Do you have an understanding of
6 what an application cryptogram is in the
7 context of this standard?

8 A. Well, there is actually some
9 variation of them, but it's cryptograms
10 used by an application. In this case, in
11 this specific instance, they are utilizing
12 a MAC algorithm specifically using DES.

13 Q. And it would have been used in
14 using a cryptographic key, correct?

15 A. This particular section in this
16 particular single document, it is using
17 DES, so it would have a cryptographic key.

18 Q. Does this document give an
19 example of calculating an application
20 cryptogram in any way other than a
21 cryptographic operation using a key?

22 A. One moment, please. I have to
23 refresh my memory.

24 The first place I see a hash
25 mentioned related to an application

1 cryptogram generation is A1.4 Master Key
2 Derivation. "This Annex specifies two
3 optional methods for the derivation by the
4 issuer of a 16-byte ICC Master Key for
5 Application Cryptogram generation." And in
6 A1.4.2, it specifically uses a hash, the
7 SHA-1 hash, for that purpose. Now that's
8 to generate the key, but that's one place a
9 hash has been used.

10 A.2 talks about digital
11 signatures, which are certainly using
12 hashes, and it specifically says,
13 "According to ISO 9796-2," and it goes into
14 great length on how hashes are used there.
15 We already talked about Section B-3. One
16 moment, please.

17 We also already talked about, I
18 believe 4.2, which is notations, which
19 shows the hashing of a message and how
20 that's represented in the algorithm. We
21 have got Section 5.1 which talks about Keys
22 and Certificates, but it has a hash
23 algorithm identifier.

24 Q. So far, none of the examples you
25 have shown me answer my question. I just

1 want to flag that for you.

2 Did you understand my question?

3 A. Perhaps you should repeat it.

4 Q. The question was, is there any
5 example in here of calculating an
6 application cryptogram using a hash without
7 encrypting using a key?

8 A. One moment, please. We begin
9 with the Definition Section 3, which is
10 Mastercard page 23 PDF page 11, where it
11 defines an application cryptogram. It
12 simply says, "A cryptogram generated by the
13 card in response to a GENERATE AC command.
14 See also: Application Authentication
15 Cryptogram; Authorisation Request
16 Cryptogram; and Transaction Cryptogram."
17 Now that's our starting point. That
18 doesn't completely answer your question.

19 When we get down a little
20 further, we are seeing -- just one moment.

21 In Section 6.6, Mastercard page
22 82, there is a statement: "It's applicable
23 to both the first and second GENERATE AC
24 commands." That indicates that there are
25 actually -- and in this case, it requires

1 the retrieval of the relevant public keys.
2 That's totally different than -- a public
3 key algorithm would be like RSA. So DES is
4 already not the only way to generate an
5 application cryptogram even in this simple
6 document. I am not quite there. I have
7 got a little bit more. Please bear with
8 me. I know this is tedious.

9 Q. It's not that it's tedious, I
10 want to make sure that you answer the
11 question. I didn't say it was limited to
12 DES. I just want to be clear about that.
13 I am asking about algorithms that don't use
14 a key for creating the application
15 cryptogram?

16 A. Well, the issue is the section
17 you pointed me to only mentions DES. Now
18 someone might claim that that means DES is
19 the only way to do this. But already in
20 this document, we are seeing that's not the
21 case. Simply DES at least we know that
22 that is not the only way. We have got to
23 go a little bit further.

24 Q. Sorry. I will let you finish
25 your answer, but RSA uses a key, correct?

1 A. RSA does use a key, but it's
2 completely different than DES. The
3 mathematics is different. It has two
4 different keys, a public and private key.
5 Unlike DES that has a single symmetric key.
6 So what we are seeing here, if we look at
7 1020 as well as the other documents I
8 referenced in my declaration, the PDF that
9 they put forward is the EMV standard --
10 although we know we can't verify that --
11 state that a cryptogram is simply the
12 product of a cryptographic operation.
13 That's it. That's all that's required.

14 We know that a hashing algorithm
15 is acknowledged as an approved
16 cryptographic algorithm. Then we have 1020
17 that uses the example of DES with the key
18 to generate the cryptogram, but then later
19 also says we can do it with RSA a totally
20 different algorithm with a different key
21 structure. So one of ordinary skill in the
22 art reading this, would in no way eliminate
23 hashes as a method for generating
24 cryptograms.

25 In fact, it's quite the opposite.

1 If you take these documents in total, it's
2 very obvious to one of ordinary skill in
3 the art that a hash certainly could be
4 used to generate a cryptogram, and then
5 as I state in '171 -- excuse me -- in
6 paragraph 71 -- more importantly the '171
7 Patent explicitly states that.

8 Q. So far, you haven't found an
9 example, though, of an application
10 cryptogram being generated without the use
11 of a key, correct?

12 A. In the document 1020, the
13 examples being provided in that particular
14 document utilize a key. I think they use
15 two specific examples, but nothing in that
16 document says these examples are exclusive.

17 Q. Let me just take you back to
18 paragraph 57 of your declaration.

19 A. One moment, please. I am there.

20 Q. You discuss requirements for
21 anticipation in that paragraph, correct?

22 A. Well, I quote Dr. Fiske's
23 discussion, yes.

24 Q. In paragraph 58, you say you
25 agree with that, right?

1 A. I agree that "a prior art
2 reference anticipates a challenged claim,
3 and thus renders the claim invalid, if all
4 limitations of the claim are disclosed in
5 that prior art reference, either explicitly
6 or inherently (i.e., necessarily present or
7 implied)."

8 Q. And you are quoting there from
9 Dr. Fiske's paragraph 13, I believe.

10 Is that right?

11 A. Yes, I actually state that.

12 Q. Dr. Fiske also has an analysis of
13 "obviousness" in his declaration.

14 Do you remember that?

15 A. I recall it being there. I don't
16 know what it is, verbatim.

17 Q. Did you perform any type of
18 obviousness analysis in this case?

19 A. Well, let's see, if we look at my
20 declaration, the word "obvious" comes up 65
21 times, so, yes.

22 Q. So what's your understanding of
23 what obviousness means then?

24 A. Well, obviousness -- one moment,
25 please -- obviousness is basically when one

1 of ordinary skill in the art looks at
2 various factors like the prior art, scope,
3 and content, what are the differences
4 between the prior art and the challenge
5 claims and using that level of ordinary
6 skill in the art looking at these, it would
7 have been just obvious that this is the way
8 one of ordinary skill in the art would have
9 done it.

10 So, for example, you have a
11 POSITA that looks at a prior art and maybe
12 there is an element that isn't explicitly
13 there that's in the challenge patent, but
14 based on the scope and content of the prior
15 art, based on what differences there are
16 between the prior art and those claims, and
17 based on the POSITA's skill, that person
18 would have looked and said, no, this is the
19 way to do it. This one missing element is
20 just obvious.

21 Q. Is that the understanding you
22 applied in your analysis?

23 A. Well, in my analysis, I responded
24 primarily to Dr. Fiske's assertions of
25 obviousness, but certainly that

1 understanding is in my mind.

2 Q. Let me ask you --

3 MR. WILLIAMS: Actually, I forget
4 when we started. I know we have been
5 going about two hours since we started.
6 Do you want to take a short break here?

7 THE WITNESS: Sure.

8 MR. WILLIAMS: Let's go off the
9 record.

10 (Recess: 12:11 p.m. to 12:18 p.m.)

11 BY MR. WILLIAMS:

12 Q. Let's turn to paragraph -- the
13 section beginning with paragraph 84 of your
14 declaration.

15 A. I am there.

16 Q. And you are analyzing this claim
17 element designated 1.A-3, correct?

18 A. That's correct.

19 Q. And this element generally
20 relates to requesting a digital credential
21 over a wireless network.

22 Is that right?

23 A. Well, it's best, probably, to
24 read what it actually says, which says,
25 "Configured to [1] request, from a remote

1 computer system hosting the corresponding
2 digital credential, over the wireless
3 network that is separate from the first
4 communication channel, data associated with
5 the account."

6 Q. And in your view, Collinge
7 doesn't do this.

8 Is that right?

9 A. That would be accurate, yes.

10 (Exhibit 1011 was referenced for
11 identification)

12 BY MR. WILLIAMS:

13 Q. Let me -- before I forget -- put
14 Exhibit 1011 into the chat and I'll also
15 put Exhibit 1009 in the chat, and let me
16 know when you have both of those.

17 A. I have them both open in front of
18 me.

19 Q. Can you tell me what Exhibit 1011
20 is?

21 A. Exhibit 1011 says, "United States
22 Patent Application Publication - Collinge
23 et al."

24 Q. And this is the Collinge prior
25 art that you are analyzing, correct?

1 A. That's correct.

2 Q. Are you familiar with any of the
3 named inventors on this patent?

4 A. Not to the best of my
5 recollection. I don't recall having ever
6 even heard of them.

7 Q. Is it your understanding that the
8 Collinge patent -- you have a summary of
9 Collinge that starts in paragraph 74 of
10 your declaration, correct?

11 A. That's correct.

12 Q. I guess let's back up to
13 paragraph 74. You explain that, "Collinge
14 discloses a processing device generating a
15 card profile."

16 Do you see that?

17 A. Yes.

18 Q. And then in paragraph 75, you say
19 that Collinge disclosed that "a mobile
20 device sends a key request that includes at
21 least a PIN number and the profile
22 identifier."

23 Do you see that?

24 A. Yes. You read it exactly
25 correct.

1 Q. So if Collinge sends a key
2 request under -- as you understand it, then
3 why doesn't Collinge practice this claim
4 element 1.A-3 that you are analyzing
5 beginning with paragraph 84?

6 A. Well, what this says is,
7 "Configured to request from a remote
8 computer system hosting the corresponding
9 digital credential, over a wireless network
10 that is separate from the first
11 communication channel, data associated with
12 the account."

13 Data associated with the account
14 and a cryptographic key are two different
15 things.

16 Q. So the issue isn't whether it
17 makes a request for a key; the issue is the
18 thing that requests the data associated
19 with an account.

20 Is that what the dispute is
21 about?

22 A. Well, no. Because in this
23 section, beginning in 84, I am actually
24 responding to what Dr. Fiske asserts meets
25 this limitation. He asserts that

1 transmitting a CAP token to the remote-SE
2 system meets this claim limitation, and
3 that's what I am responding to.

4 Q. I see. All right. Well, then,
5 back to your paragraph 75, then, where in
6 Collinge does it disclose the mobile device
7 sending key request?

8 A. One moment. I am just trying to
9 be honest with you here. You maybe want to
10 send me a different Exhibit 1011. This one
11 has comments in it.

12 Q. Okay.

13 A. So I am going to close that, and
14 let you send me a clean one because it
15 would be unethical for me to look at
16 whatever comments you and your colleagues
17 may have put in there.

18 Q. It's interesting. The one I am
19 opening doesn't have comments in it. So
20 I'm wondering...

21 A. I just opened it direct from the
22 chat room again. In the comments, there is
23 a name, Ed Will. I don't know who that is.
24 I guess -- could that be you? I don't
25 know.

1 Q. It could be me.

2 A. But, again, it would be unethical
3 for me to read your comments during this
4 deposition.

5 Q. I appreciate that. Although, I
6 am just trying to figure out where that
7 even is because there are some highlighted
8 portions.

9 Is that what you're talking
10 about?

11 A. Well, there is actually PDF
12 comments.

13 MR. WILLIAMS: I will just get
14 you a clean one. Just give me one
15 second.

16 THE WITNESS: Of course.

17 BY MR. WILLIAMS:

18 Q. Actually, do you have a copy of
19 -- I think you said you had a copy of
20 Collinge when we started. Do you have
21 that?

22 A. One moment. I have a clean copy
23 I have open, yes.

24 Q. Exhibit 1011?

25 A. Correct.

1 Q. Why don't you just use that one,
2 then.

3 A. I am sorry. I don't remember
4 your question.

5 Q. Going back to your paragraph 57
6 where you say, Collinge discloses that a
7 mobile device sends key requests, and I am
8 wondering what it is that you are referring
9 to in Collinge that corresponds to the key
10 request?

11 A. One moment, please.
12 (Witness reviewing document).

13 Well, I actually cite to
14 paragraph 007 of Collinge.

15 It says, "A method for generating
16 and provisioning payment credentials to a
17 mobile device lacking a security element
18 including generating by a processing
19 device, a card profile, associated with the
20 payment account, wherein the card profile
21 includes at least payment credentials to
22 the associated payment account, and a
23 profile identifier provisioning to a mobile
24 device that generates a card profile
25 receiving from the mobile device a key

1 request wherein the key request includes at
2 least a mobile identification number or
3 pin."

4 And my paragraph 75 says Collinge
5 discloses that a mobile device sends a key
6 request. It includes at least a pin. And
7 basically paraphrased that paragraph of
8 Collinge.

9 Q. Got it.

10 Let me ask you to turn to
11 paragraph 92 of your declaration.

12 A. Certainly.

13 (Witness reviewing document).

14 I am there.

15 Q. There it makes reference to
16 Dr. Fiske and the petition citation to
17 Claim 19 of Exhibit 1009.

18 Do you see that?

19 A. I do.

20 Q. Have you reviewed Exhibit 1009?

21 A. I have.

22 Q. And I put that in the chat, I
23 think so.

24 Open that up.

25 A. You did, and I have already

1 downloaded it.

2 Q. Okay. Great.

3 A. And there is no comments in this
4 one.

5 (Exhibit 1009 was referenced for
6 identification)

7 BY MR. WILLIAMS:

8 Q. Let me know if you see any more
9 because they are not popping up on my
10 screen.

11 A. Sure.

12 Q. So I think I must have comments
13 disabled in a way that I can't easily put
14 them on.

15 This is the provisional
16 application, correct?

17 A. That is my understanding, yes.

18 Q. That's what you -- you describe
19 it as a provisional patent application that
20 preceded Collinge. And you reviewed this
21 document, but you note here that there were
22 some subject matter that you say was "not
23 carried forward."

24 Do you see that?

25 A. I do.

1 Q. What do you mean by "not carried
2 forward" here?

3 A. There are items in Exhibit 1009
4 that simply don't appear anywhere in 1011.

5 As I discussed earlier -- and,
6 again, I am not rendering a legal opinion,
7 just my technical opinion. And not only
8 having worked a great deal of patent cases,
9 but having 26 patents of my own and another
10 one going through the process now, you
11 might file a provisional patent
12 application.

13 Some people skip that part, but
14 if you do, and then you later file a full
15 patent -- a real patent application, such
16 as a utility patent application, if there
17 are elements in your provisional patent
18 that you don't put in the actual patent
19 application, then you abandon them. For
20 some reason, you decided they weren't
21 important when you filed for the actual
22 patent.

23 Just to be clear for the record,
24 although I am certain you are aware of
25 this. Provisional patents are the easiest

1 thing in the world to get. Anyone can file
2 almost anything and get a provisional
3 patent. There is no prior art search.
4 There is no nothing. So it's pretty common
5 for people to put a lot of stuff in a
6 provisional patent. Then when they are
7 ready to file the actual, say, utility
8 patent application, realize, I need to take
9 a lot of that stuff out. It just doesn't
10 work.

11 So the person made a conscious
12 decision to not take certain elements from
13 1009, and to not carry them forward to
14 1011.

15 Q. If you look at -- using the
16 Mastercard-affixed page number is 47.

17 A. Of what?

18 Q. Of this Exhibit 1009. Sorry.

19 A. (Witness reviewing document).

20 Q. Are you at page 47 now?

21 A. Trying to get there.

22 (Witness reviewing document).

23 I am there. It appears to be an
24 electronic acknowledgement receipt.

25 Q. Yes. That's correct.

1 And if you look at the top,
2 towards the top of that page, I guess the
3 second piece of information listed is
4 application number.

5 Do you see that?

6 A. I do.

7 Q. And there is a number there,
8 61619095, correct?

9 A. That's correct.

10 Q. Do you have an understanding of
11 what that means?

12 A. It's a number that the patent
13 office assigns to this provisional patent
14 application.

15 Q. And if you flip back to now the
16 Collinge publication, Exhibit 1011.

17 A. I am there.

18 Q. If you go to the first paragraph,
19 paragraph 00001 of that document, do you
20 see that provisional application number
21 listed anywhere?

22 A. One moment, please.

23 Q. Sure.

24 A. There is a lot of figures at the
25 beginning of Collinge I have to scroll

1 past.

2 (Witness reviewing document).

3 Please repeat your question now
4 that I am there.

5 Q. I want to confirm that the first
6 provisional application priority number
7 listed there is the one we just looked at,
8 correct?

9 A. That's correct.

10 Q. Okay. So there's a reference
11 made here in the section called Related
12 Applications to that provisional
13 application.

14 Is that right?

15 A. There is a reference made.

16 Q. And the very end of that
17 paragraph says, "Which are each herein
18 incorporated and referenced in their
19 entirety."

20 Do you see that?

21 A. One moment, please.

22 (Witness reviewing document).

23 I see that.

24 Q. Do you have an understanding of
25 what the effect of that language is?

1 A. Well, I am not an attorney. I
2 can't give you a legal answer. But as a
3 technical person, again, as an inventor
4 myself, the person is attempting to
5 incorporate everything in all of those
6 prior documents which would include several
7 different provisional patent applications.

8 Now, none of those other ones
9 except for 1009 have been presented in this
10 case. So I haven't done an analysis of
11 these other ones.

12 Q. Okay. That's fine.

13 Towards the end of paragraph 93,
14 you make an analogy between -- involving
15 food ordering, I think.

16 Do you see that?

17 A. I do.

18 Q. Can you explain what this analogy
19 is attempting to show?

20 A. Well, there are several claim
21 points I make during this whole section. I
22 begin by simply, sending a cap token is in
23 no way a request for anything.

24 But then in 93, I address the
25 fact that Dr. Fiske now claims that, "To

1 the extent Collinge does not explicitly
2 disclose that the application would request
3 a first set of data from the remote
4 computer system, in light of the fact that
5 such data is retrieved from a remote
6 system, a POSA would have found it obvious
7 to configure the mobile application to
8 request it as one of a finite number of
9 predictable ways to retrieve data."

10 Now, in my analysis, I state that
11 Dr. Fiske appears to be asserting that
12 since data is eventually sent from a remote
13 system that data must have been retrieved
14 by the mobile application. That's when I
15 use my analogy.

16 Retrieving means to get
17 something. I am going to retrieve this
18 glass on my desk so I may take a drink. A
19 request is, I am asking for something, and
20 that something may or may not be delivered
21 to me.

22 Retrieve and request are not
23 synonyms.

24 Q. I see. Okay.

25 But you agree in your analogy to

1 retrieve the food, you have to have first
2 requested it, right?

3 A. Not necessarily. I can literally
4 retrieve it without requesting. I didn't
5 request that glass right now. I just
6 reached out and retrieved it.

7 Q. Okay. You put the water on your
8 desk. But the analogy you give is food is
9 delivered to your home, you haven't
10 requested it.

11 And I guess I am trying to
12 understand how you could go and get the
13 food yourself from a vendor without first
14 requesting that food?

15 A. Well, assuming we weren't in the
16 middle of a deposition, I could get in my
17 car right now, drive over to Subway, and
18 purchase a sandwich, or perhaps I would go
19 to the grocery store, select some items.
20 You could go to a self-checkout line.
21 Never request anything from anybody, and
22 walk out with the food.

23 Q. I see.

24 A. That's retrieving it.

25 Requesting it is me calling

1 Grubhub and asking them to bring it over.

2 Q. In the Subway example, if you
3 were going to get a sandwich, you would
4 have to make a request to the person making
5 the sandwiches first?

6 A. In the Subway example, I would.
7 In the grocery store, I would not.

8 Q. And the difference is in the
9 grocery store, the food was pre-made,
10 right?

11 A. Well, it may just be the
12 ingredients for me to make my own food, but
13 the things that I am picking up with
14 already there waiting for me to pick them
15 up at my convenience.

16 Q. I understand.
17 In paragraph 94, you point out
18 there is other ways -- well, let me ask you
19 this.

20 First of all, in paragraph 94,
21 there is a sentence that seems incomplete.
22 The very first sentence I didn't
23 understand.

24 Is there some phrase missing
25 there?

1 A. Well, this is one of the typos
2 that unfortunately exists.

3 "A POSITA would easily understand
4 that there are many ways that the data
5 could arrive at the mobile device
6 application that did not involve a
7 request."

8 Q. A request. I gotcha.
9 Instead of "was," you meant to
10 say, "a request," right?

11 A. I am relying way too much on
12 Microsoft Word to do my grammar, spell
13 checking. That much is clear.

14 Q. And you list some options to do
15 this without a request.

16 The second one, or the one that
17 starts letter B, is that the remote system
18 could send data over a wireless network not
19 separate from the first communication
20 channel in response to a request.

21 And I wasn't understanding --

22 A. Well, yes.

23 Q. -- that one.

24 Go ahead. Sorry.

25 A. Well, the entire claim limitation

1 is a request over a separate communication
2 channel. So we could accomplish the same
3 goal without meeting the claim limitations.

4 When Dr. Fiske says, it would be
5 obvious to do it a particular way, I am
6 listing several other possibilities, and
7 these are just examples, not an exhaustive
8 list of how the same data could arrive at
9 the mobile device without being over a --
10 without a request from a remote computer
11 over a wireless network that's separate
12 from the first communication channel.

13 Q. Okay. And in that example,
14 though, I wasn't clear if you were saying
15 there was no request at all or that the
16 request came in, but the information was
17 delivered in a way that didn't meet the
18 claim?

19 A. There is a request, but the
20 information does not meet the claim because
21 there is not a separate network.

22 Q. I understand. Okay.

23 So in that -- in other words,
24 here the information would have to be
25 conveyed over the channel that's used for a

1 point-of-sale communication, correct?

2 A. Everything is going over one
3 channel, basically.

4 Q. So the payment information that's
5 being used to conduct the payment as well
6 as this information are all going over the
7 same channel.

8 Is that what you are saying?

9 A. That's correct.

10 Q. The fourth possibility, which you
11 labeled D -- I'm not sure I understood that
12 one either.

13 So here, the information is going
14 to the point-of-sale device, but not to the
15 mobile device.

16 Is that what you are saying?

17 A. That's correct.

18 In other words, the mobile device
19 is trying to make a transaction, but all of
20 the verification that's happening between
21 the payment processing service and the
22 point-of-sale device, the mobile device
23 doesn't have to know anything other than,
24 yes, you can make this purchase.

25 Q. In Collinge's mobile device --

1 the example he gives is the cellular phone.

2 Is that correct?

3 A. One moment so I can refresh my
4 memory.

5 (Witness reviewing document).

6 Well, I am not sure that's
7 accurate because as I search Collinge,
8 there is simply one reference to cellular.

9 It says, "The signals may travel
10 via a communications path which may be
11 configured to carry the signals and may be
12 implemented using a wire, cable,
13 fiberoptics, a phone line, a cellular phone
14 link, a radio frequency link, et cetera."

15 That's paragraph 154 of Collinge.

16 Q. I am sorry. I think maybe you
17 are reading too much into cellular phone.
18 It's a phone, right?

19 He talks about mobile phones in
20 paragraph 3 as being kind of an example?

21 A. One moment.

22 (Witness reviewing document).

23 Yes. Number 3, paragraph 3 says,
24 In order to achieve this mobile phones with
25 secure element hardware -- a secure element

1 chip -- are used to securely store payment
2 account credentials.

3 Now, the problem is this is
4 actually in the background. This is not
5 actually a summary of the invention yet.

6 Q. Right.

7 In paragraph 5, he explains what
8 his invention is going to do, which is take
9 that mobile device and now make it work
10 without the secure element, right?

11 A. One moment, please.

12 (Witness reviewing document).

13 Well, he does say in paragraph 5,
14 "Thus, there is a need for a technical
15 solution to enable a mobile device lacking
16 a secure element to conduct contactless
17 payment transactions."

18 But, again, I am not seeing
19 anywhere where he says a mobile phone is an
20 example of this mobile device.

21 Q. Let's go to paragraph 38.

22 A. Okay.

23 Q. Read that paragraph, and let me
24 know if you see anything there that sheds
25 light on the question.

1 A. One moment, please.
2 (Witness reviewing document).
3 Now, here he actually states that
4 "A payment card may be a physical card that
5 may be provided to a merchant or may be
6 data representing the associated payment
7 account, e.g., as stored in the
8 communication device, such as a smartphone
9 or computer."

10 Q. So an example of a mobile device
11 that Collinge has in mind is a smartphone.
12 Do we agree?

13 A. Yes.

14 Q. So how is data communicated
15 between a smartphone and a point-of-sale
16 terminal in Collinge's implementation?

17 A. One moment.

18 MR. LINDNER: Objection. Vague.

19 A. (Witness reviewing document).
20 Excuse me. There are several
21 places.

22 Paragraph 44 is one. "The mobile
23 device 104 may be further configured to
24 transmit a generated payment cryptogram and
25 payment credentials to a point-of-sale

1 terminal 120 at a merchant."

2 Now, "point of sale" appears 45
3 times in Collinge. I am not sure how many
4 of these you would like me to look at.

5 Q. I guess the question is, what is
6 the actual communication medium that is
7 used to communicate?

8 Is this a wireless communication
9 that's being discussed between the device
10 and the terminal?

11 A. Well, in paragraph 44, it states,
12 "The point-of-sale terminal may be any type
13 of point-of-sale terminal or device
14 suitable for receiving payment credentials
15 via near field communication."

16 In that specific paragraph, near
17 field communications are being used as an
18 example.

19 Q. Paragraph 44. Can you explain to
20 me what a near field communication is?

21 A. Near field communication uses a
22 transmission that, as the name suggests, is
23 usually very, very close.

24 So, for example, within a few
25 centimeters away. You don't have to

1 actually touch. You just have to be nearby
2 in order to be able to communicate.

3 Q. Is that a technology you were
4 familiar with at the time of this patent --
5 the '171 Patent, I should say?

6 A. Yes.

7 Q. So then to communicate then,
8 based on what you just said, I assume that
9 means that the user has to ensure the phone
10 remains close to the reader during the
11 communication process?

12 A. In that specific paragraph, in
13 reference to near field communication, yes.

14 Q. And what happens if the user
15 moves the device too far away from the
16 point-of-sale device while it's trying to
17 communicate?

18 A. In that specific paragraph, and
19 that specific example, the communication is
20 interrupted.

21 Q. Let me ask you to turn to
22 paragraph 96.

23 A. Of my declaration?

24 Q. Yes. Correct.

25 A. I am there.

1 Q. The second sentence says,
2 "Dr. Fiske has not shown that Collinge's
3 method of provisioning data to the mobile
4 device operates to 'push information
5 regardless of the status of the user
6 device.'"

7 Do you see that?

8 A. I do.

9 Q. What are you quoting from there?

10 A. One moment, please.

11 If you look, first of all, at
12 Dr. Fiske's declaration, paragraph 88. "To
13 the extent Collinge does not explicitly
14 disclose that the application would request
15 a first set of data from the remote
16 computer system, in light of the fact that
17 such data is retrieved from a remote
18 system, a POSA would have found it obvious
19 to configure the mobile application to
20 request it as that was one of a finite
21 number of predictable ways to retrieve
22 data. Moreover, it would be a waste of
23 bandwidth and resources for the issuer to
24 push information regardless of the status
25 of the device."

1 Q. Okay. So your criticism there in
2 paragraph 96 is that Fiske hasn't shown
3 Collinge's method would push information
4 regardless of the status of these requests.

5 But isn't he saying -- it seems
6 like you are agreeing with him there
7 because he is saying the same thing. That
8 it would be a waste to do it that way?

9 A. Well, not quite. What he is
10 talking about -- he is claiming it would be
11 obvious to modify Collinge in a particular
12 way. He says that because it would have
13 been a waste of bandwidth and resources for
14 the issuer to push information regardless
15 of the status of the user device.

16 In other words, the modification
17 -- and he says, "A POSA would have found it
18 obvious to configure the mobile application
19 to request it as that was one of a finite
20 number of predictable ways to retrieve
21 data." Basically, because it would have
22 been a waste of bandwidth.

23 Well, if Collinge is already not
24 doing this, already not wasting this
25 bandwidth, then a POSITA would have seen no

1 reason to modify Collinge. What he is
2 saying here is that this weakness would
3 cause someone to modify Collinge, but he
4 hasn't shown that Collinge actually has
5 that weakness.

6 Q. I see.

7 Putting that question aside, now,
8 I guess, I want to ask you a related
9 question. Do you agree that it would be a
10 waste of bandwidth or resources to push
11 information to a device that wasn't ready
12 to receive it?

13 A. I don't simply because the amount
14 of information we're talking about is so
15 small, the bandwidth is negligible at all.
16 Even with near field communication. There
17 are situations where data is simply
18 beacons out whether anyone is ready to
19 receive it or not, and when you are ready,
20 you will receive that transmission.

21 Now is that optimal? Probably
22 not. But given the amount of information,
23 the waste of bandwidth is negligible, and
24 it's unclear that it would cause any issue
25 at all. For example, right now, we are

1 using a lot of bandwidth for video. For
2 someone to send a message containing three
3 words would not have any impact on our
4 bandwidth.

5 Q. Let me ask you to turn to
6 paragraph 101.

7 A. I am there.

8 Q. I think the last sentence of that
9 paragraph reads, I disagree -- I am sorry.
10 It's not the last sentence, it's the
11 penultimate sentence.

12 "I disagree that this optional
13 technique for generating a cryptogram was a
14 standardized operation."

15 Do you see that?

16 A. That's correct.

17 Q. What's your basis for saying
18 that?

19 A. Well, let's first back up and see
20 what we are referring to.

21 Q. Okay.

22 A. It begins with, Dr. Fiske then
23 asserts, "A POSA would also have found it
24 obvious to implement Collinge in the manner
25 described above because using a 'Session

1 Key' generated from ATC (hence, unique to
2 each transaction and non-permanent) to
3 generate a cryptogram in a transaction was
4 a standardized operation in secure payment
5 transactions, and thus, entailed applying a
6 known technique (changing a cryptographic
7 key) to yield predictable results (improved
8 resistance to security attacks)."

9 I go on to say I disagree with
10 Dr. Fiske. "I disagree. Dr. Fiske relies
11 on 1020 Section 8.1.2.2. Section 8
12 Application Cryptogram and Issuer
13 Authorization." That actually states,
14 "Note that the matters provided in this
15 specification are not mandatory. Issuers
16 may decide to adopt other methods for these
17 functions."

18 Now, I would first say that this
19 is replete throughout the documents that
20 have been purported to be EMV standards.

21 So just to be clear, there is
22 good reason to think that these exhibits
23 are not the actual published standards we
24 talked about before. But even if they
25 were, large parts of it, including parts

1 Dr. Fiske relies on, are not mandatory.
2 They are optional. They say there is lots
3 of different ways to do it.

4 So obviously this is not a
5 standardized operation because even these
6 documents that are purported to be EMV
7 standards are telling you, issuers may
8 decide to adopt other methods for these
9 functions.

10 Q. Okay. Are you denying though
11 that the EMV standards disclose this
12 technique for generating a session key?

13 MR. LINDNER: Objection. Form.

14 A. Well, first, we're talking about
15 Exhibit 1020, which we already know has
16 some indicators. It might not be the
17 actual standard.

18 He is simply stating all that
19 section states is this is one example of
20 something that could be done, and then
21 explicitly states, you could do it any way
22 you want. So that's not a standard, that's
23 a suggestion, even if one ignores the
24 substantial evidence that Exhibit 1020 is
25 not the actual published standard.

1 BY MR. WILLIAMS:

2 Q. So it's not a standard because
3 it's described as optional.

4 Is that what I understood you to
5 say there?

6 A. Not quite. Dr. Fiske is stating
7 that this specific method is a standardized
8 option. We have two issues.

9 First, the document he refers to,
10 has many of those indicators we talked
11 about earlier, that it's not the published
12 document. So we don't even know if that's
13 what was published at the time. But even
14 if you ignore that, and assume it was.

15 What's in that section is,
16 literally, just one suggested way of doing
17 things. And that's probably best
18 understood by looking at that exact
19 section.

20 So if we go over to that
21 document, we are starting in the overall
22 section, 8.1.2, which is discussing
23 application cryptograms in general. And as
24 we go down a little bit further, there is a
25 Section 2 that says, "Generate 8-byte

1 application cryptogram by applying a MAC
2 algorithm."

3 Well, that's one way you might do
4 this, but if we continue to 8.2.2, we see
5 another method disclosed. So throughout
6 this standard, what we are seeing, assuming
7 this document were the actual standard, are
8 various ways that are shown you might do
9 something. Saying something is
10 standardized is not saying you might do it
11 this way. It's saying you need to do it
12 this way.

13 If I tell you that I would like
14 to go pick up a sandwich and I could care
15 less if you drive over there and get it,
16 use Grubhub, use DoorDash, ask a friend to
17 bring it as they come by, then this
18 certainly isn't something that is
19 standardized. I just want it done. I
20 don't care how you do it.

21 Q. You make reference in paragraph
22 102 to Dr. Fiske's deposition.

23 Do you see that?

24 A. One moment, please.

25 (Witness reviewing document).

1 I do.

2 (Exhibit 2035 was referenced for
3 identification)

4 BY MR. WILLIAMS:

5 Q. So you have reviewed his
6 deposition transcript, I assume?

7 A. I have.

8 Q. I will put that in the chat. I
9 think I am putting it in the chat.

10 Let me know when you have that.

11 A. I have it open in front of me.

12 Q. Okay. So I have a question about
13 a cite.

14 So in paragraph 102, the last
15 sentence says, "Indeed during his
16 deposition, Dr. Fiske admitted that there
17 are items in Collinge that are not in the
18 standard."

19 And you cite to Exhibit 2035 at
20 page 42.

21 Do you see that?

22 A. One moment, please. I am
23 scrolling.

24 (Witness reviewing document).

25 Yes, I see that. I am scrolling

1 to that page.

2 Q. That particular citation appeared
3 to be unrelated to the point you are making
4 here.

5 So I am just wondering where it
6 is that Dr. Fiske admitted that there are
7 items in Collinge that are not in the EMV
8 standard.

9 A. One moment, please. Because,
10 obviously, the citation I put there was
11 inaccurate given that's someone saying it's
12 a good time for a break. As I stated
13 before, I am not going to be surprised if
14 you find a few typos.

15 (Witness reviewing document).

16 Bear with me just a bit.

17 Q. Take your time.

18 A. (Witness reviewing document).

19 Well, I found one place already.
20 My apologies for the typo. I am looking at
21 page 78 of Dr. Fiske's deposition.

22 He starts -- and this is part of
23 his answer: "What is then defined in
24 EMV is a mechanism where you take the
25 card key and you operate over the

1 application transaction counter, and
2 that generates the session key. And
3 that mechanism is in EMV, and it's also
4 in Fiske.

5 "What Collinge does is, instead
6 of just iterating -- or encrypting
7 the --

8 "No, instead of deriving the
9 session key using just the application
10 transaction counter, they also use what
11 is called UNCLOUD, which is the result
12 of the random number generator."

13 Now, that's a place where he is
14 stating that Collinge does something
15 differently than the EMV standard, and, in
16 fact, he goes on to say on the same page
17 starting at line 21:

18 "No, because as I said earlier,
19 when I read Collinge I found the use of
20 UNCLOUD confusing."

21 So I am not sure how I could make
22 definitive statements about it. But he did
23 just state that this is something Collinge
24 does that is different than EMV standards.
25 And there is a few more in there. I am

1 happy to read them to you, if you would
2 like.

3 Q. Where are those other ones you
4 are talking about?

5 A. One moment, please.

6 (Witness reviewing document).

7 I am looking at page 97. It
8 begins at line 1:

9 "But I'm going to try to answer
10 it, if I may, by saying that I have
11 knowledge of the PayPass card
12 specification. So when I looked at
13 Collinge, and in particular at some of
14 the diagrams to show flows between card
15 and reader, I recognized those flows as
16 complying with the PayPass
17 specification."

18 Which, as we have already
19 established, is not the EMV Specification.
20 There is a few others. I will keep looking.

21 Not related to the question at
22 hand, but I just came across this on page
23 98, beginning at line 6. Dr. Fiske says:

24 "So the detail of this is in the
25 provisional, again. And this was one

1 of the areas where I, in just reading
2 Collinge, had maximum confusion,
3 particularly around the use of
4 UNCLOUD."

5 I am not sure how someone can
6 provide analysis that something anticipates
7 or renders obvious when someone themselves
8 does not understand parts of the prior art.
9 But continuing on...

10 (Witness reviewing document).

11 Those are the only two I can find
12 right now that are clearly Dr. Fiske
13 identifying some part of Collinge, which is
14 not compliant with EMV standards.

15 Q. Okay. So let's start with the
16 first one on page 78, I think you said.

17 A. I am there.

18 Q. What is it about the use of
19 UNCLOUD in the session key derivation that
20 would make it not compliant with EMV
21 standard?

22 A. Well, again, I am just literally
23 reading what Dr. Fiske said. He first
24 describes the EMV mechanism -- and I won't
25 read that again, it's already on the

1 record -- then states:

2 "No, instead of deriving the
3 session key using just the application
4 transaction counter, they also use
5 what's called UNCLOUD, which is the
6 result of the random number generation.
7 So that's why they call it a session
8 key unpredictable number, to
9 differentiate it from a normal EMV
10 session key. That's how I would
11 understand it."

12 So I am not the one saying this.
13 This is Dr. Fiske stating that the UNCLOUD
14 is different than the EMV session key.

15 Q. Where does he say it's not
16 compliant with the EMV Specification?

17 A. Well, if you are different from
18 something, you are not compliant with it.
19 If there is a standard for how to -- I
20 don't know -- how to build a roof so that
21 it doesn't collapse, there are city
22 standards on that. If I do it differently,
23 then I am not complying with those
24 standards.

25 Q. Okay. What do you mean "if you

1 do it differently"? I guess is there
2 something about adding the unpredictable
3 number to the session key that you think
4 takes that algorithm outside the scope of
5 compliance with EMV?

6 A. Again, I am simply reading
7 Dr. Fiske's own words. He says it's
8 different.

9 Q. He doesn't say it's not compliant
10 with, though, right?

11 A. He doesn't use those words. He
12 says "it's different." But he also says
13 more than once that he is confused by the
14 whole UNCLOUD. So I am really unclear as
15 to how he can assert anything about it when
16 he repeatedly states he is confused by it.

17 Q. We will come back to that one.
18 That was the next one. I just want to
19 finish this one.

20 In your view, is there something
21 in the EMV Specification that makes the way
22 Collinge calculates the session key be no
23 longer compliant with the EMV
24 Specification?

25 A. Well, no such analysis appears in

1 my declaration. I did not do such an
2 analysis. I am simply stating what
3 Dr. Fiske stated in his deposition. If he
4 misspoke, that would be up to him to state.

5 Q. Let's go to the next thing you
6 mentioned which was page 97, I think.

7 A. I am there.

8 Q. So here, he mentions the PayPass
9 specification.

10 Is that right?

11 A. He -- well, he doesn't just
12 mention. His exact wording with the
13 PayPass specifications, he said nothing
14 about them complying with EMV.

15 Q. Sorry. I think I lost you for a
16 second in that answer. Could you just give
17 it -- I heard, "He doesn't just mention
18 it."

19 A. He doesn't just mention it. He
20 actually says, and I am quoting:

21 "So when I looked at Collinge,
22 and in particular at some of the
23 diagrams to show flows between card and
24 reader, I recognized those flows as
25 complying with PayPass specifications."

1 Q. So from that, you took it to
2 understand that Collinge doesn't comply
3 with the EMV Specifications.

4 Is that correct?

5 A. Well, again, we need to be clear.
6 I am not saying anything about that. I
7 have said nothing in my declaration. What
8 I am saying right here is that Dr. Fiske
9 has identified that Collinge, in his
10 opinion, is compliant with some other
11 specification, not EMV. And the thing we
12 need to keep in mind that Dr. Fiske
13 misspoke during his deposition. I am sure
14 it's just a minor mistake. EMV is never
15 mentioned in Collinge. Collinge never says
16 the word EMV. It doesn't say anything
17 about it. Other references do, but
18 Collinge doesn't.

19 Q. When did he misspeak about that
20 in his deposition?

21 A. One moment, please, and I will
22 tell you right where that is.

23 (Witness reviewing document).

24 One moment. I am still looking.
25 Just letting you know I haven't lost my

1 internet connection.

2 Q. I can hear the clicking.

3 A. Well, in the modern day, we have
4 to make clear that some of us are still on
5 the line.

6 (Witness reviewing document).

7 Well, at this point, I am unable
8 to find that. I believe I watched his
9 deposition live, and I seem to remember,
10 but I am unable to find it at this time.

11 MR. WILLIAMS: Okay. Is this a
12 good time to break for lunch?

13 THE WITNESS: Sure.

14 MR. WILLIAMS: Why don't we go
15 off the record.

16 (Lunch recess: 1:22 p.m.)

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1 AFTERNOON SESSION

2 2:00 p.m.

3

4 EXAMINATION CONTINUED

5 BY MR. WILLIAMS:

6

7 Q. I am going to ask to go back to
8 your declaration and look at paragraph 112.

9 A. One moment before we continue. I
10 have to amend an answer prior to the break.

11 We were looking at Exhibit 35 or
12 2035, I looked at it over lunch and noticed
13 that this exhibit is not the full
14 deposition transcript. That's why I wasn't
15 able to find the section which indeed is on
16 page 64 of the actual full deposition
17 transcript, where Dr. Fiske actually says
18 "Collinge references the EMV
19 Specifications," but that's for some reason
20 not in Exhibit 2035. So that's not a
21 mistake in my declaration. For some
22 reason, this exhibit is abbreviated, and I
23 do not know why.

24 Q. So what are you looking at to see
25 the -- this testimony?

1 A. It's not an exhibit, but it's the
2 full transcript that I was sent of
3 Dr. Fiske's deposition, on page 64, as I
4 state in my declaration.

5 Q. What is the question and answer
6 that you see?

7 A. "QUESTION: So when you analyzed.
8 Collinge, is it fair to say that you
9 looked at Collinge and the EMV
10 specifications as you have defined
11 them as a separate prior art references
12 and that you determined that they would
13 be -- there would be a motivation
14 to combine them?"

15 There was an objection to form,
16 which, I believe, was you, sir.

17 And then the answer:

18 "Collinge references the EMV
19 Specifications, and a person of skill
20 in the art would understand Collinge
21 because they understand the EMV
22 Specifications."

23 And that's just not correct.

24 Collinge does not reference EMV

25 Specifications.

1 Q. You are looking at a document
2 that was sent to you by counsel, I am
3 assuming?

4 A. Correct. You were the attorney
5 there, so I am sure you recall this and
6 knew this was what he actually said in his
7 deposition.

8 Q. Does it have an exhibit number,
9 the thing you are looking at?

10 A. I just said this was not an
11 exhibit, and the Exhibit 35 is for some
12 reason truncated. I do not know why.
13 Again, Mr. Williams, you were actually the
14 -- one of the attorneys there. You
15 actually knew this was actually his
16 deposition testimony. When you asked me
17 those questions, you knew for a fact he had
18 actually said that during his deposition.

19 MR. WILLIAMS: Move to strike as
20 nonresponsive, argumentative.

21 BY MR. WILLIAMS:

22 Q. Let me ask you to turn -- is
23 there anything else you wanted to correct
24 about your prior testimony before we
25 resume?

1 A. Nothing that requires correction.
2 Just adding that Dr. Fiske did indeed say
3 what I say he said in my declaration, and
4 that you were indeed present and knew he
5 said it.

6 Q. How do you know what I know?
7 Let's talk about that.

8 A. It's in the actual transcript.
9 You are the one making the objections. You
10 were there.

11 Q. So you are assuming I remembered
12 everything that the witness said at his
13 deposition.

14 Is that what your testimony is?

15 MR. LINDNER: Objection to form.

16 A. You have a point there. I
17 apologize. I do not know. You might have
18 some medical condition limiting your
19 memory. If you do, my apologies.

20 BY MR. WILLIAMS:

21 Q. Can you turn to paragraph 111 of
22 your declaration?

23 A. Absolutely. It starts with "The
24 Petitioner asserts"?

25 Q. Yes. That's the one.

1 A. I am there.

2 Q. And the second sentence there
3 says you disagree that "Collinge's session
4 key (KSUN) is 'associated with the
5 account.'"

6 Do you see that?

7 A. I do.

8 Q. What is your interpretation of
9 what "associated with the account" means?

10 A. Well, as we stated at the
11 beginning of today and is stated in my
12 declaration, I use the plain and ordinary
13 meaning that one of skill in the art would
14 use. There has to be some direct
15 correlation between whatever you're
16 referring to and the account. Put in
17 another way, as an example, you could go
18 from one to the other. So, for example, I
19 believe Dr. Fiske and I both agree that a
20 PAN is associated with the account because
21 you could get the PAN and from there you go
22 get the account. They are clearly
23 associated.

24 Q. What is an account in this
25 context?

1 A. In this account -- in this
2 context, we are referring to credit card
3 accounts. So, for example, that would
4 include who owns the account, the interest
5 rates, probably information the issuer
6 knows as well as the available balance.

7 Q. Now do you know how in Collinge
8 the KSUN is generated?

9 A. I do.

10 Q. What's your understanding of how
11 it's generated?

12 A. One moment. That would be best
13 answered by looking at Collinge instead of
14 trying to use just memory. One moment,
15 please.

16 (Witness reviewing document).

17 Well, the first place we see some
18 reference to the generation of this does
19 not fully answer the question, but begins
20 to. It's in paragraph 83 of Collinge. The
21 second sentence begins, "But as part of the
22 encrypted payload, the payment credentials
23 management system may generate a session
24 key unpredictable number."

25 So that doesn't tell us yet how

1 it generates it, but it does tell us what
2 is generating it. And I am going to
3 continue on just a bit.

4 (Witness reviewing document).

5 Now I am referring back to parts
6 of my declaration. In paragraph 78, again,
7 this is a partial answer, I cite Collinge,
8 "In step 1710, a session key unpredictable
9 number may be generated by a processing
10 device (e.g., the cloud system 302)."

11 In paragraph 91, I am referring
12 -- I actually cite to Collinge here. It
13 states -- this is paragraph 33 of Collinge
14 which is cited by Dr. Fiske, it states, "At
15 stage 7, the payment credentials management
16 system 704 may generate an encrypted
17 payload. As part of the encrypted payload,
18 the payment credentials management system
19 705 may generate a session key
20 unpredictable number, a cloud unpredictable
21 number, and may identify and/or store a
22 plurality of dynamic card validation keys."

23 Continuing on, in paragraph 114,
24 responding to the petition, I discuss the
25 fact that the ATC is mentioned only once in

1 Collinge, where it indicates, "The single
2 use key may include an application
3 transaction counter and a generating key
4 (i.e., KSUN)," which would indicate that the
5 generated key is not and does not include
6 the application transaction counter.

7 (Witness reviewing document).

8 Well, the direct answer to your
9 question comes from paragraph 155 of my
10 declaration in reference to claim 16. "The
11 Petitioner has not shown that Collinge
12 discloses this limitation. First,
13 Petitioner alleges that KSUN (i.e., the
14 alleged 'cryptogram') is 'generated using
15 an intermediate key (using KDUN), which
16 itself is generated from an issuer master
17 key IMK." That is from Petitioner's 52.

18 "However, as a POSITA would
19 recognize, Collinge does not specify how
20 KSUN is generated. Petitioner cites to
21 paragraph 83 of Collinge, but that
22 paragraph says that 'methods and systems
23 for the generation of unpredictable numbers
24 will be apparent to persons having skill in
25 the relevant art,' and does not mention an

1 'intermediate key' 'KDUN,' or the 'issuer
2 master key' that Petitioner says are
3 used to generate KSUN, Exhibit 1011,
4 paragraph 83."

5 Q. So if I read the testimony at
6 paragraph 125 correctly, what you are
7 saying is that the Collinge publication
8 doesn't actually tell you the formula for
9 generating KSUN; is that correct?

10 A. That is mostly correct. It
11 simply states that methods for generating
12 unpredictable numbers would be known, and
13 then the Petitioner, yourself, along with
14 Dr. Fiske, assume that multiple things are
15 involved in KSUN that simply are not
16 disclosed in Exhibit 1011.

17 Q. Let me ask you to turn to Exhibit
18 1009.

19 A. I have it in front of me.

20 Q. This is one of the Collinge
21 provisionals that we looked at earlier,
22 correct?

23 A. This is a provisional patent
24 preceding Collinge, yes.

25 Q. I am going to turn to -- I'm

1 going to use the Mastercard-affixed numbers
2 at the bottom of page 28.

3 A. I am there.

4 Q. And that shows a formula for
5 generating KSUN, correct?

6 A. Yes, it's one of the many things
7 that did not make it from the provisional
8 to the actual Collinge application.

9 Q. So let me ask the provisional
10 one.

11 Do you agree that this -- so
12 there is sort of three equations shown
13 under KSUN and ultimately they result in
14 KSUN being a concatenation of what's
15 described as UL and UR, correct?

16 A. That's what's known in Exhibit
17 1009.

18 Q. Both UL and UR are calculated by
19 doing a triple DES encryption of certain
20 data using the key that is designated KDUN,
21 correct?

22 A. Yes.

23 Q. And the data that's encrypted
24 there -- it would include the application
25 transaction counter, correct, ATC?

1 A. Yes.

2 Q. Then if we go back up to page 27
3 just before this one, at the top of that
4 page, there are some formulas for
5 generating KDUN.

6 Do you see that?

7 A. I do.

8 Q. And again here, KDUN is the
9 concatenation of two values, ZL and ZR,
10 correct?

11 A. Yes.

12 Q. And each of those is calculated
13 by doing a triple DES encryption over some
14 data using the key IMKUN, correct?

15 A. That's correct.

16 Q. Now the data there that's being
17 encrypted in the formulas for KDUN is
18 described as either Y or YX with a very
19 long hexadecimal value.

20 Is that correct?

21 A. That's correct.

22 Q. And then Y is shown on the page
23 before this as being the concatenation of
24 the PAN and the PSN together with
25 potentially some padding or truncation; is

1 that accurate?

2 A. Where are you seeing that?

3 Q. Going back to paragraph 69 on
4 page 26. Let me withdraw the question and
5 ask it this way.

6 What is the Y that's being
7 operated on to generate KDUN as shown on
8 Exhibit 1009?

9 A. One moment, please. I have to
10 scroll just as you did. Maybe I am just
11 missing it. I'm not seeing the paragraph
12 where it defines Y.

13 Q. Okay. If you read paragraph 70,
14 it says if the result X is less than 16
15 digits long, pad it to the left with
16 hexadecimal zeros in order to obtain an
17 eight-byte number Y in numeric format. Do
18 you see that?

19 A. I do.

20 Q. And then the next paragraph says,
21 "If X is at least 16 digits long, then Y
22 consists of the 16 rightmost digits of X in
23 numeric format," correct?

24 A. I do.

25 Q. So do you agree with me that the

1 Y that's referenced in the calculation for
2 KDUN is the Y that's described here in
3 paragraphs 69 through 71?

4 A. In Exhibit 1009 and not disclosed
5 in Exhibit 1011, yes.

6 Q. And that Y would include the PAN,
7 correct?

8 A. Not really, if you read the
9 algorithms. Let's go up to paragraph 69.
10 "Concatenate from the left to right the PAN
11 (without any 'F' padding) with the PSN (if
12 the PAN sequence number is not available,
13 then it is replaced by a '00' byte). If
14 the result X is less than 16 digits long,
15 we pad it to the left with hexadecimal
16 zeros to obtain an eight-byte number."

17 Right then we don't actually have
18 a PAN anymore. We have a PAN used to start
19 the process. Then, if it is at least 16
20 digits long, then we take the rightmost
21 digits which is going to exclude something.
22 Then we put it through this whole process
23 of using triple DES along with an IMK key.
24 And then exclusively orient it with items
25 such as this hexadecimal we created before.

1 That's going to give us KDCVC3.

2 Then we come down to KDUN where
3 we are going to generate this using, first
4 of all, triple DES of IMKUN with Y, again,
5 the exclusive ordering with the hexadecimal
6 number and put those two together.

7 If you are reading this
8 step-by-step, the PAN was used in the
9 beginning to concatenate, but by time we
10 have gone through this process, there is no
11 real relationship between the PAN that's
12 being used in the same fashion that a seed
13 is used in a random number generator. It's
14 just something to kick off the process, and
15 that's also consistent with exactly what
16 the exhibit is saying these specific things
17 are. Notice the phrase, unpredictable
18 number. These are meant to be
19 unpredictable. In other words, random. If
20 I can go from, say, one element of data to
21 this element of data, then it's not
22 unpredictable. So this isn't really
23 associated with a PAN. They just picked
24 something that was convenient to use as a
25 seed value, and as I said, that's common

1 in, I think, most random number generators.

2 Q. What's IMK CVC3 as used in that
3 formula?

4 A. I have to go back just a little
5 bit to get that for you. I haven't found
6 your answer just yet, but there is an
7 interesting sentence at the top of
8 Mastercard page 26, and it basically
9 validates what I said about these being
10 used as seeds. It also means that once the
11 value is discovered, you can reuse it for a
12 given PAN and PSN. The PSN, if available,
13 can be part of the KDCVC3 derivation
14 process. Derivation is basically how you
15 take some seed and generate a random
16 number, in this case to be used as a key.
17 So I haven't quite got the answer to your
18 question, but I saw that as I went through
19 and I didn't want to forget.

20 Well, it may be that this PDF is
21 not amenable to searching, but what I am
22 seeing on the IMK in general is paragraph
23 75 says this is a sure master key which is
24 what I recall it being, but I am not seeing
25 the specific generation yet of IMK CVC3.

1 (Witness reviewing document).

2 Q. Let me ask you to turn in the
3 Collinge provisional Exhibit 1009 to
4 paragraph 38.

5 A. I am there.

6 Q. So toward the middle of that
7 paragraph, it says, "In the exemplary
8 embodiment of Figure 1, the encrypted
9 information 113 has been encrypted using
10 Kstorage and includes Track 1 data and/or
11 Track 2 data."

12 Do you see that sentence?

13 A. I do.

14 Q. Is Kstorage an encryption key?

15 A. Yes.

16 Q. What are Track 1 or Track 2 data?

17 A. Well, when you are looking at the
18 credit card data, even if they don't still
19 use the old tracks, they still talk about
20 Track 1 and Track 2 data. It's just
21 different data that's being stored on the
22 credit card. It used to be exactly what
23 was in the magstripe.

24 Q. And would that include the PAN?

25 A. Well, one of those Track 1 or 2

1 would include the PAN. I don't recall
2 which one, but in reference to this 1009,
3 even if you assume they are, this is saying
4 that Track 1 and/or 2 may be there, and
5 then they will get basically scrambled up
6 so there's -- you are not actually
7 including the PAN. There is no way to
8 connect this number to the account, and
9 that's precisely how cryptographic keys
10 should be. If my cryptographic key can
11 easily be related to an account, then I
12 have a terrible, terrible cryptographic
13 key.

14 Q. And why is that?

15 A. Well, the idea of a cryptographic
16 key -- and this is actually in standards
17 for both the U.S. government, the National
18 Institute of Standards Technology, the idea
19 of a cryptographic key is it should be as
20 random as possible. Randomness -- and this
21 is actually mentioned in a few of the prior
22 art elements when they talk about
23 unpredictable. Randomness should be
24 unpredictable. If I can relate two things
25 together, then they are not unpredictable,

1 and therefore, they're not random enough
2 for cryptographic purposes.

3 Q. What's the point of making the
4 key random? What does that give you by
5 doing that?

6 A. Sure. Whenever you are using an
7 algorithm, be it a symmetric cipher such as
8 BES, AES, serpent, blowfish or an
9 asymmetric cipher, such as RSA, elliptic
10 curve, that sort of thing. The concept is
11 that key is going to be integrated into the
12 process of encryption.

13 Since DES is referenced
14 frequently by Dr. Fiske, let's focus on
15 there. That symmetric key that you
16 exchange is then going to be submitted to a
17 key shed door algorithm which will generate
18 separate keys for each round function. One
19 of the principles we have for information
20 here in cryptography, is we want to achieve
21 two things: Diffusion and confusion.

22 Confusion means the relationship
23 between the plain text, the key in the
24 cipher text, cannot be discerned. Well,
25 that's immediately better accomplished

1 using very random keys.

2 But then diffusion means a small
3 change in the plain text such as one bit
4 leads to multiple changes in the cipher
5 text, more than one bit. Well, if we take
6 a very random key and use that to generate
7 round keys, we are automatically going to
8 get that diffusion.

9 Put another way, you could take a
10 very secure algorithm. Let's say AES,
11 256-bit, which government standards,
12 Federal Information Processing Standard
13 140, I believe, says AES 256-bit is good
14 enough for top secret classified documents.

15 So you take that algorithm, but
16 you use a not random key, say, all 1s. It
17 just became tremendously less secure, and
18 it's easier to crack the cipher text. It's
19 interesting you ask that because every
20 semester I teach a cryptography graduate
21 course in Georgetown, and I actually
22 demonstrate that exact thing to explain why
23 random number generators are so important.
24 I use AES. I use a really good random key
25 and generate a cipher text. Then I take

1 AES and use a really not very random and
2 very ordered key. Generate the same cipher
3 text and the same plain text. Yet the
4 second example is immediately failing
5 various security tests established by the
6 National Institute of Standards and
7 Technology.

8 Put another way -- and this would
9 be obvious to anyone who knows cryptography
10 -- if you are using a key and it's not
11 very, very random, you are undermining your
12 entire approach to cryptography.

13 Q. Let me ask you to turn to your
14 declaration, paragraph 154.

15 A. I am there.

16 Q. Just before that, there is a
17 heading with the text from claim 15.

18 Do you see that?

19 A. Yes. "The method of claim 1,
20 wherein the application is configured to
21 generate the response cryptogram according
22 to a card specification."

23 Q. Right. What's your understanding
24 of what "response cryptogram" means there?

25 A. A cryptogram that's sent in

1 response.

2 Q. Sent in response to what? Does
3 it matter?

4 A. Well, it depends on the context
5 you are using it in.

6 Q. In the context of this claim?

7 A. Well, then it's best to actually
8 look at the patent itself. Now, if we're
9 looking at claim 15, and I go down there in
10 the '171, we start with the fact that it
11 says, "The method of claim 1." So we need
12 to go back to claim 1 to fully understand
13 this. And when I look at claim 1, it's a
14 long claim -- one moment, please. Rather
15 than reading the entire claim 1 into the
16 record, I am just refreshing my memory by
17 reading it.

18 (Witness reviewing document)

19 If you look at claim 1, and if we
20 are looking at about line 35 -- I think
21 it's actually 36 -- "Generating a response
22 cryptogram based on a set of inputs and the
23 local cryptographic key associated with the
24 account, wherein the response cryptogram
25 does not include the local cryptographic

1 key associated with the account used to
2 generate the response cryptogram."

3 Just before that, it's stating
4 "receiving at least one POS command
5 communication sent by the POS terminal over
6 the first communication channel, where the
7 at least one POS command communication
8 comprises a request for digital credential
9 data to authorize a transaction against the
10 account, the request for digital credential
11 data including a cryptogram request" -- and
12 then it talks about generating a response.
13 So it's a response to the preceding
14 request.

15 Q. Let me ask you to turn to the
16 section beginning at paragraph 173 of your
17 declaration.

18 A. 173. This is in reference to
19 claim 17?

20 Q. I believe so.

21 A. I am there.

22 Q. In paragraph -- you probably
23 should look at the claim that is being
24 discussed here because I want to ask you
25 about paragraph 176. You say, "A POSITA

1 would readily recognize that this is part
2 of the same transaction," and I don't
3 understand what the "this" is that you are
4 referring to there.

5 A. Well, if we go back to the
6 beginning, first of all, claim 17,
7 "Subsequent to the interrogation request
8 from the remote computer system, over the
9 wireless network, a second set of data
10 associated with the account." Now I state,
11 "For this claim limitation, the Petitioner
12 and Dr. Fiske merely refer to claim 1.F.
13 In the petition, the Petitioner and
14 Dr. Fiske combine 1.F and 1.G. This was
15 discussed in this declaration regarding
16 claim 1.F, but that discussion is repeated
17 here.

18 "For this limitation Petitioner
19 and Dr. Fiske state 'In other words, the
20 "second set of data" in a given transaction
21 may correspond to the "first set of data"
22 of a subsequent transaction.'" In other
23 words, a second transaction.

24 "The only basis they provide for
25 this is Dr. Fiske's declaration which

1 simply repeats the exact phrasing in the
2 petition. There is no basis for the
3 opinion -- for the Petitioner nor
4 Dr. Fiske's opinion that the second set of
5 data is just the first set of data of a
6 subsequent transaction."

7 Does that clarify it for you?

8 Q. Somewhat. I have a follow-up,
9 then. So what is the second set of data
10 that's being claimed here, then?

11 MR. LINDNER: Objection to form.

12 A. One moment, please. I am trying
13 to find the best description of the '171
14 because it's mentioned several times.

15 (Witness reviewing document).

16 The first time is in claim 1
17 where, "Subsequent to the interrogation
18 requesting by the application, from a
19 remote computer system, over the wireless
20 network, a second set of data associated
21 with the account."

22 So we're still talking about the
23 same account. We just want a second set of
24 data associated with the account. This is
25 reiterated in the next section of claim 1.

1 (Witness reviewing document).

2 In claim 2, we have a similar
3 statement, the method of claim 1, "Wherein
4 the mobile device is an NFC-emulating
5 device, wherein the first communication
6 channel is an NFC communication channel and
7 the first set of data associated with the
8 account and the second set of data
9 associated with the account are received
10 via a data connection over the internet."

11 Now, the salient point here is
12 the first and second set of data are both
13 associated with the same account. This
14 isn't a different account. This isn't a
15 different transaction.

16 We continue on. We get into
17 claim 17, which we were just talking about,
18 and we have the exact same thing.

19 "Subsequent to the interrogation, request
20 from a remote computer system, over the
21 wireless network, a second set of data
22 associated with the account."

23 So what we have here is a single
24 transaction wherein there is a first set of
25 data sent at some point in the processing,

1 and then at a later point in the
2 processing, there is a second set of data
3 associated with the account sent.

4 BY MR. WILLIAMS:

5 Q. What do you mean by "transaction"
6 in that last answer?

7 A. Well, we are talking about doing
8 a financial transaction, a purchase, using
9 some device for the credit card issuer.
10 So, for example, if we go back to my
11 previous pre-lunch analogy, and I go to
12 Subway, when I am finalizing my purchase,
13 making the actual purchase would be a
14 transaction.

15 Q. Okay. So we can go back to
16 claim 1, which is where you started in
17 looking at this question. So in claim 1,
18 the second set of data is requested and
19 received after the interrogation at the
20 point-of-sale terminal, correct?

21 A. It says, "Subsequent to the
22 interrogation requesting by the
23 application, from the remote computer
24 system, over the wireless network, a second
25 set of data associated with the account."

1 Q. So is that second set of data
2 used during the payment transaction that's
3 occurring at the point-of-sale terminal?

4 A. Well, the interrogation process
5 is only part of the process, and you can
6 get the answer to your question by just
7 reading the rest of claim 1 which I will do
8 now.

9 "Receiving by the application,
10 from the remote computer system, over the
11 wireless network, the second set of data
12 associated with the account, the second set
13 of data comprising a second non-permanent
14 cryptographic key associated with the
15 account; and storing the received
16 non-permanent cryptographic key as the
17 local cryptographic key associated with the
18 account to change the local key associated
19 with the account between at least two
20 interrogations." We are basically prepping
21 with a key that can be used later.

22 Q. So the claim doesn't actually say
23 how the -- what you do with the second set
24 of data after you store it, correct?

25 A. Which claim are you referring to?

1 Q. Which one -- you were just
2 reading from claim 1, I assume?

3 A. Yes. But we started with
4 claim 17.

5 Q. No, we did. Let's focus on
6 claim 1, then, if that's what you were just
7 reading. So does that claim tell you what
8 you do with the second set of data after
9 you store it?

10 A. Yes. It says, "Storing the
11 received second non-permanent cryptographic
12 key as the local cryptographic key
13 associated with the account to change the
14 local cryptographic key associated with the
15 account between at least two
16 interrogations."

17 Q. So does that mean that this
18 second key would be used during the next
19 interrogation?

20 A. Well, first of all, it is
21 certainly stored with that possibility in
22 mind, but, secondly, an interrogation is
23 not the entire transaction.

24 Q. So how many interrogations would
25 there be for a single transaction?

1 MR. LINDNER: Objection. Vague.

2 A. I apologize. I interrupted
3 there.

4 That's not actually what I am
5 saying here. What I am saying is that,
6 first of all, the second non-permanent
7 cryptographic key is going to be used as a
8 local cryptographic key, but our real
9 question that we started with was a second
10 set of data comprising a second
11 non-permanent cryptographic key. Now, that
12 doesn't mean that's the only thing in the
13 second set of data. It just includes at
14 least a second non-permanent cryptographic
15 key. And the real issue comes back to --
16 going back to my declaration, we're now
17 entering into arguments that neither the
18 Petitioner nor Dr. Fiske ever made.

19 They simply made a blanket
20 statement that the second set of data would
21 be the first set of data of a subsequent
22 transaction, but they never provided any
23 basis for that other than Dr. Fiske stating
24 the same thing. So what we're getting into
25 now are arguments that Dr. Fiske and the

1 Petitioner never made and that I didn't
2 respond to because they never made them.

3 BY MR. WILLIAMS:

4 Q. Well, do you agree with him that
5 the second set of data would be the first
6 set of data in a subsequent transaction?

7 A. Well, he hasn't given enough
8 information as to why he states that to
9 agree or disagree.

10 Q. I see. You have no opinion
11 either way?

12 A. Well, please allow me to finish
13 my answer. I wasn't quite done.

14 Q. Okay.

15 A. What's actually happening here --
16 and I believe the phrase you attorneys like
17 to use is ipse dixit -- Latin for "simply
18 because I said so." He gives no bases for
19 his opinion. So it's not that I have no
20 opinion. It's that this is a response to
21 what was stated in the petition and in
22 Dr. Fiske's declaration. My point is they
23 have given no basis for this, and that's
24 simply a fact. That's not an opinion.

25 Q. In paragraph 176, you do make an

1 affirmative statement that, "A POSITA would
2 readily recognize that this is part of the
3 same transaction," correct?

4 A. That is the exact wording in the
5 first sentence of 176.

6 Q. And that sounds like you are
7 disagreeing, then, with what Dr. Fiske is
8 saying about this, if I am reading this
9 correctly. Because it sounds like you are
10 saying, in this claim, the second set of
11 data has to be used during the first
12 transaction, not a subsequent one. Have I
13 misinterpreted what you are saying here?

14 A. You are adding some adjectives
15 that aren't in the wording. I said very
16 clearly a POSITA would readily recognize
17 that this is part of the same transaction.

18 The first set of data is useable
19 by the application to formulate an
20 application protocol data unit response
21 that is subsequent to the remote computer
22 system, a second set of data is requested.

23 Q. Let me take it out of the context
24 of this paragraph then.

25 Is it your view -- and we can --

1 this is about claim 17. So maybe let's
2 talk about claim 1 where we have the
3 similar language.

4 Is it your view that to practice
5 this claim, the second set of data has to
6 be used during the same transaction that
7 the first set of data is used?

8 A. That's an interesting question.
9 It's one that wasn't actually discussed by
10 myself or Dr. Fiske. So we are getting
11 well outside the bounds of my declaration
12 or his.

13 I would have to give that some
14 thought because you introduced the "has
15 to."

16 Q. So that's not an opinion that you
17 have given in this case yet; is that
18 correct?

19 A. Well, my declaration is a
20 response to the petition and Dr. Fiske. My
21 declaration is responding to their
22 assertions and claims.

23 Q. Okay. Let's go to paragraph 205
24 of your declaration.

25 A. I am there.

1 Q. Okay. I guess we should maybe
2 pause to note that this is a section that's
3 addressing the Fiske prior art document.

4 Is that correct?

5 A. Correct.

6 Q. You have reviewed that piece of
7 prior art in preparing your declaration; is
8 that correct?

9 A. Yes.

10 MR. WILLIAMS: Let me just put
11 that one into chat so the court
12 reporter has it. And make sure you
13 have it as well.

14 (Exhibit 1012 was referenced for
15 identification)

16 BY MR. WILLIAMS:

17 Q. I just want to verify that that
18 document that bears the Exhibit Number 1012
19 is the Fiske patent that you reviewed in
20 connection with this case?

21 A. It certainly appears to be
22 including the Mastercard page numbers at
23 the bottom.

24 Q. One thing you say -- this is on
25 page 96 of your declaration, but it's still

1 part of this paragraph 205. If you turn to
2 that page, it's about five lines down from
3 the top.

4 It begins, "As Dr. Fiske
5 acknowledged, a contactless transaction."

6 Do you see that?

7 A. Yes.

8 Q. You say, "As Dr. Fiske
9 acknowledged, a contactless transaction
10 could be compatible with EMV Specifications
11 without implementing 'EMV mode
12 transactions.'"

13 Do you see that?

14 A. I do.

15 Q. What does "EMV mode" mean in that
16 sentence?

17 A. Well, first of all, I am citing
18 Dr. Fiske, so I am using it however he used
19 it. That would be the first thing to note.
20 And just one second, please. And I will
21 give you a more substantive answer.

22 (Witness reviewing document).

23 Usually EMV mode is referencing
24 things that are done with the full EMV, I
25 guess, standard being used as opposed to

1 maybe implementing part of it, they are
2 implementing full EMV transactions.

3 Not partial EMV mode readers, for
4 example, are ones that can do the entirety
5 of the EMV transaction.

6 Q. Do you agree then with
7 Dr. Fiske's statement there that you could
8 have a contactless transaction compatible
9 with the EMV Specifications without
10 implementing the EMV mode transaction?

11 A. Let me pause for a moment to read
12 the entire paragraph, so I know what our
13 context is.

14 I won't read that for the record.
15 I will just read it silently. I am sure
16 the court reporter will appreciate that.

17 Q. Fine.

18 A. (Witness reviewing document).

19 Well, first, I do have to bring
20 up part of the earlier paragraph that we
21 are missing here.

22 Again, I won't read the full
23 thing. As you rightfully stated, it's
24 pretty long, but on the page 94, part of
25 the last sentence there. "A cryptogram is

1 only requested if the decision is to
2 authorize the transaction online (in which
3 case an Authorization Request Cryptogram is
4 requested) or decline the transaction (in
5 which case an Application Authentication
6 Cryptogram is requested)."

7 This is important because the
8 other sections that the Petitioner and
9 Dr. Fiske cite are part of a section
10 describing off-line authentication.

11 In fact, 3 is a discussion of digitally
12 signing using digital certificates. The
13 Section 3, 26 to 46, that the Petitioners
14 cite, actually states all of the data
15 necessary for an off-line transaction.

16 In other words, the part of Fiske
17 that's being cited isn't even relevant to
18 the discussion at hand. Let me go a little
19 further.

20 I state a POSITA would recognize
21 that what the petition and Dr. Fiske cite
22 is, first, not a part of the embodiment in
23 Exhibit 1012 that Dr. Fiske relies on.

24 And secondly, is not related to
25 cryptograms, but rather than to off-line

1 authorization that uses a digital
2 certificate rather than a cryptogram.

3 So my real point in this entire
4 paragraph is that the Petitioner and
5 Dr. Fiske are, first of all, not even
6 citing the appropriate portions of Fiske to
7 support their argument. They are citing
8 portions that aren't relevant to
9 cryptograms.

10 And then when we get down to the
11 portion in question, Dr. Fiske states that
12 a contactless transaction could be
13 compatible with EMV without implementing
14 EMV mode transactions. Now, what that
15 means in general is EMV, even if it's
16 implemented, is flexible. There are lots
17 of different things you might or might not
18 implement.

19 So even if one were to agree that
20 one would implement EMV mode, is that the
21 on-line or off-line mode? Is that the mode
22 that utilizes cryptograms? Is that the
23 mode that uses digital certificates? That
24 is the point of this section.

25 Q. Are you familiar with any

1 standards used to communicate payment
2 messages from the POS terminal through to
3 the issuer?

4 A. Am I familiar with any standards?
5 Yes.

6 Q. Can you give any standards that
7 would be applicable to such a
8 communication?

9 A. I think Mastercard -- I am
10 certain Mastercard, at least as of now, has
11 specific requirements related to
12 processing. Visa has point-of-sale
13 guidelines.

14 The payment card industry also
15 has security guidelines for those
16 transactions. The international standard
17 ISO 8583 relates to financial card
18 transactions and interchange messaging.

19 So there are quite a few out
20 there. I am not sure which one you would
21 like to discuss.

22 Q. We can start with ISO 8583.

23 Do you know if ISO 8583 would
24 require an authorization message that the
25 POS terminal provide the PAN?

1 MR. LINDNER: Objection to form.

2 A. Well, off the top of my head, I
3 don't recall that. I know that that ISO
4 standard, I don't believe was mentioned by
5 the Petitioner or Dr. Fiske. So we are
6 getting well outside the bounds of what's
7 in evidence in this proceeding.

8 But to answer your question, I
9 just don't recall.

10 BY MR. WILLIAMS:

11 Q. Okay. Do you know, in connection
12 with your work as a person of ordinary
13 skill in the art in the payment industry,
14 whether it was typical to include in the
15 payment authorization message from the
16 point-of-sale terminal to the issuer, a
17 PAN?

18 MR. LINDNER: Objection to form.

19 A. Well, let me state again that you
20 are bringing up arguments that neither the
21 Petitioner nor Dr. Fiske made. And I did
22 my analysis of the arguments that were
23 actually made.

24 My goal here today is to
25 truthfully and completely answer all of

1 your questions, but my role isn't really to
2 fill in the gaps that the Petitioner and
3 Dr. Fiske omitted.

4 So I really can't help you build
5 up the parts of your argument you wish you
6 had included.

7 MR. WILLIAMS: Move to strike
8 that last answer as nonresponsive.

9 BY MR. WILLIAMS:

10 Q. Let me ask you to turn to
11 paragraph 219 of your declaration. This is
12 in claim element 10B, I believe.

13 Is that right?

14 A. That's correct.

15 Determining a concurrent
16 nonpermanent cryptographic key associated
17 with the account using the account
18 identifier.

19 Q. So in claim 10, is this step
20 being performed by -- what component is
21 performing this step in Column 10?

22 A. Well, it's helpful to go back and
23 look at the entirety of claim 10.

24 "The method of claim one, further
25 comprising, at the remote computer system,

1 performing an authorization process
2 comprising: receiving an authorization
3 request to authorize the transaction from
4 the POS terminal, the authorization request
5 comprising authorization data, wherein the
6 authorization data comprises the response
7 cryptogram and the account identifier;
8 determining a concurrent nonpermanent
9 cryptographic key associated with the
10 account using the account identifier;
11 calculating a calculated cryptogram using
12 the current nonpermanent cryptographic key
13 associated with the account; verifying a
14 correctness of the response cryptogram by
15 comparing the calculated cryptogram with
16 the response cryptogram; and sending an
17 authorization response to the POS terminal,
18 wherein the data contained in the
19 authorization response is determined, at
20 least in part, by verifying the correctness
21 of the response cryptogram."

22 Now all of this begins with at
23 the remote computer system. So this is
24 being done at the remote computer system.

25 Q. So this is essentially the system

1 that's verifying that the payment
2 application correctly provided
3 authorization data.

4 Is that correct?

5 MR. LINDNER: Objection. Form.

6 A. Well, it's usually best to stick
7 to the clear language of the claim. We
8 have a remote computer system, which is
9 performing an authorization process
10 comprised of all the steps I just
11 discussed. That's the most accurate way to
12 describe what's occurring here.

13 MR. WILLIAMS: Why don't we take
14 a short break. Let's maybe take ten
15 minutes.

16 THE WITNESS: Sure.

17 MR. WILLIAMS: Off the record.

18 (Recess: 3:03 p.m. to 3:13 p.m.)

19 BY MR. WILLIAMS:

20 Q. At any point during any of the
21 breaks today, Dr. Easttom, did you discuss
22 the substance of your testimony with
23 anyone?

24 A. No.

25 Q. I didn't get your audio there,

1 but you shook your head. You said no?

2 A. No. Can you hear me okay?

3 MR. WILLIAMS: I do now. Yes.

4 You just cut out for a second.

5 That's all I have. No further
6 questions. I will pass the witness or
7 you can -- is Seth around? Did we lose
8 Seth?

9 MR. LINDNER: I am here. I do
10 not have any questions for Dr. Easttom.
11 He will review and sign.

12 MR. WILLIAMS: We can go off the
13 record.

14 (Proceedings concluded at 3:13
15 P.M. E.S.T.)
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ACKNOWLEDGMENT OF DEPONENT

STATE OF NEW YORK)
) ss.:
 COUNTY OF NEW YORK)

I, CHUCK EASTTOM, hereby certify, that
 I have read the transcript of my testimony
 taken under oath in my deposition of August
 13, 2024; that the transcript is a true,
 complete and correct record of what was
 asked, answered and said during this
 deposition, and that the answers on the
 record as given by me are true and correct.

 CHUCK EASTTOM

SUBSCRIBED AND SWORN BEFORE ME
 THIS _____ DAY OF _____ 2024.

 Notary Public

My Commission Expires: _____

1 C E R T I F I C A T E

2 STATE OF NEW YORK)

3) ss.:

4 COUNTY OF NEW YORK)

5 I, Christina Diaz, a Certified Realtime
6 Captioner, Registered Merit Reporter and
7 Certified Realtime Reporter and Notary Public
8 within and for the State of New York, do hereby
9 certify:

10 That CHUCK EASTTOM, the witness whose
11 deposition is hereinbefore set forth, was duly
12 sworn by me and that such deposition is a true
13 record of the testimony given by such witness on
14 August 13, 2024.

15 I further certify that I am not related
16 to any of the parties to this action by blood or
17 marriage and that I am in no way interested in
18 the outcome of this matter.

19 Dated: August 15, 2024

20

21

22 CHRISTINA DIAZ, RDR CRC CRR RMR CSR-NY/NJ CLR
23 NCRA Registered Diplomat Reporter
24 NCRA Certified Realtime Captioner
25 NCRA Certified Realtime Reporter
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NJ Certified Shorthand Reporter Lic. 30XI00244900
Certified LiveNote Reporter

1 E R R A T A S H E E T

2 Case Name: Mastercard Incorporated and
3 Mastercard International Incorporated
versus OV Loop, Inc.

4 Deposition Date: Tuesday, August 13, 2024
5 Deponent: Chuck Easttom

6 Page/Line Now Reads Should Read Reason
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25 Date Signature

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