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Transcript of Dr. Randal Direen

Date: August 6, 2024

Case: Samsung Electronics Co., Ltd. -v- WiPQTUS, Inc., et al. (PTAB)

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD.

Petitioner,

V.

WIPQTUS INC.

Patent Owner.

U.S. Patent No. 10,038,339

Inter Partes Review No. IPR2024-00023

ORAL DEPOSITION OF

DR. RANDAL DIREEN

AUGUST 6, 2024

1 ORAL DEPOSITION OF DR. RANDAL DIREEN, produced as
2 a witness at the instance of the Petitioner, Samsung
3 Electronics Co. LTD., and duly sworn, was taken in the
4 above-styled and numbered cause on August 6, 2024, from
5 9:04 a.m. to 2:34 p.m., before Kim A. McCann, CSR in and
6 for the State of Texas, reported by machine shorthand, at
7 the offices of Greenberg Traurig, 2200 Ross Avenue, Suite
8 5200, Dallas, Texas, pursuant to the Federal Rules of
9 Civil Procedure.

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A P P E A R A N C E S

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

2 (Witness duly sworn.)

3 MR. CARPENTER: I'm Brian Carpenter.
4 I represent WiPQTUS and will be defending the
5 deposition today of Randy Direen.

6 MR. WARD: Trenton Ward on behalf of
7 petitioner Samsung Electronics.

8 DR. RANDAL DIREEN,
9 Having been first duly sworn, testified as
10 follows:

11 EXAMINATION

12 BY MR. WARD:

13 Q. Good morning, Dr. Direen. Could you
14 please state your full name for the record?

15 A. Yes. It's Randal H. -- or Randal
16 Hugh Direen.

17 Q. Do you go by Randy?

18 A. Randy.

19 Q. Can I called you Randy?

20 A. Please.

21 Q. Great. As you heard, I'm
22 representing petitioner Samsung in this case and
23 you understand you're here for a deposition in
24 connection with a particular IPR and I'll give
25 the number just so we have it on the record.

1 It's IPR2024-23. You understand you're here for
2 a deposition in connection with that matter;
3 correct?

4 A. Yes.

5 Q. Do you understand that you're under
6 oath to day?

7 A. Yes.

8 Q. And you understand that you're sworn
9 to tell the truth just as if you're in a
10 courtroom in front of a Judge and jury?

11 A. Yes.

12 Q. Is there any truthfully and
13 accurately today?

14 A. No.

15 Q. How many times have you been deposed,
16 Randy?

17 A. Once before.

18 Q. What for?

19 A. It was a case DSS and apple and it
20 was an intellectual property case involving blew
21 tooth, I believe.

22 Q. Okay. And which party were you
23 retained by in that matter?

24 A. DSS.

25 Q. Okay. And do you remember what court

1 that was before?

2 A. I do not.

3 Q. And in your testimony, did you give
4 verbal and written testimony in that case?

5 A. Yes. Report and a -- and the
6 deposition.

7 Q. Okay. Did you appear in court in
8 that matter as well?

9 A. No.

10 Q. It sounds like you're roughly
11 familiar with the basics of a deposition, but
12 I'll just give you a refresher for the rules and
13 specifically the rules for today. I'm going to
14 ask you about documents related to this inter
15 partes review matter, we refer to it as IPR for
16 short. I'm going to show you those documents.

17 The court reporter is going to
18 transcribe everything you and I say so it's
19 important that we don't talk over each other,
20 Randy. And I'm bad about it, so I'll do it,
21 you'll do it as well. But if we can just try and
22 speak over each other, it will make it a lot
23 easier for Kim today.

24 So, Randy, when I ask you a question,
25 can you tell me if you don't understand the

1 question?

2 A. Yes, I can.

3 Q. And this means when you answer my
4 question, I'm going to assume that you understood
5 the question.

6 Does that sound good?

7 A. Sounds good.

8 Q. And if you don't understand my
9 questions, can you please ask me to clarify?

10 A. I can.

11 Q. And, Randy, if you're counsel
12 objects, do you understand that you're generally
13 required to answer the question unless counsel
14 instructs you not to answer?

15 A. Yes, I understand that.

16 Q. And Kim is going to appreciate today,
17 I'm sure, if you can just remember to give verbal
18 answers.

19 A. Okay.

20 Q. But it will happen and somebody will
21 remind you to give a verbal answer.

22 A. Okay.

23 Q. We'll take breaks today. I usually
24 take a break around an hour, you know, on the
25 hour, if you will. So you can take a break at

1 any time. If you need a break, just let me know,
2 but I'll ask that you finish answering whatever
3 the open question is before we do take a break.

4 So, Randy, can you tell me how did
5 you prepare for today's deposition?

6 A. I re-reviewed the declaration that I
7 wrote and I reviewed Dr. Phinney's declaration,
8 and then I reviewed the associated materials that
9 I and Phinney identified.

10 Q. And what were those materials, Randy?

11 A. I believe it was the '339 patent, the
12 patent by Corbridge, and the patent by
13 Chatterjee. I briefly reviewed the file history
14 of the '339 patent and there might have been a
15 couple of other documents. I went through the
16 list and -- in Phinney's report, made sure that I
17 reviewed those.

18 Q. Did you do this preparation by
19 yourself?

20 A. The first -- I just spent a few days
21 doing it by myself, and then we were -- I was
22 here yesterday and re-reviewing it with counsel.

23 Q. And when you say you were here
24 yesterday, where was that?

25 A. In Dallas at another one of the

1 offices. I'm not sure where it is or what it's
2 called.

3 Q. And who were you meeting with?

4 A. I was just meeting with
5 Brian Carpenter.

6 (Exhibit 1014 was marked.)

7 Q. Okay. I want to start, Randy, by
8 showing you a copy of a document that's been
9 marked Exhibit 1014. Randy, this is a copy of
10 your LinkedIn profile.

11 A. Okay. I agree.

12 Q. I'll give you a moment to take a look
13 at it.

14 A. Okay.

15 Q. And I'll ask you if you recognize it
16 to be an actual copy of your LinkedIn profile?

17 MR. CARPENTER: That picture is
18 outdated.

19 THE WITNESS: It is outdated.
20 Unfortunately, the whole thing is not
21 particularly well maintained.

22 A. Okay. I would say that this looks
23 like my profile. I'd say that I'm not a very
24 good upkeeper of my LinkedIn page.

25 Q. Okay. Randy, maybe we can start by

1 can you describe your educational background for
2 me?

3 A. I have a -- a BS, a master's, and
4 Ph.D. in electrical -- electrical engineering
5 with a emphasis on RF and electromagnetic.

6 Q. So tell me -- you have a Bachelor of
7 Science in electrical engineering.

8 A. Bachelor of Science in electrical
9 engineering, master's in electrical engineering,
10 and, Ph.D. in electrical engineering.

11 Q. What year did you receive your
12 master's?

13 A. I believe it was 2005. I think
14 that's on my CV.

15 Q. And when did you -- you said you had
16 an emphasis on RF?

17 A. Yes.

18 Q. And when did you develop the
19 emphasis?

20 A. I started working for the National
21 Institute of Standards and Technology, NIST, in I
22 believe the early part of the 2000s. And while I
23 was over there, they offered me work to do
24 research in the Electromagnetics division, and
25 they started investing into my education. And I

1 started doing radio -- RF and electromagnetic
2 probably around 2005, I think.

3 Q. And when did you receive your
4 master's?

5 A. I received my master's and Ph.D. the
6 same year. I believe that was in 2010.

7 Q. So you were -- you were working on
8 your master's and your Ph.D. at the same time?

9 A. I was. It turned out to be a
10 situation where I took a lot of classes during
11 that five-year span, and it was a simple -- it
12 was almost a simple matter of just signing a
13 piece of paper, so I did a thesis for my
14 Ph.D. but the additional coursework for -- for my
15 master's.

16 Q. If you could turn to page 2 of
17 Exhibit 1014, you list your educational
18 experience there. It shows master's degree, 2005
19 to 2009; correct?

20 A. Okay. Let's see. Okay. I see.

21 Q. Your Doctor of Philosophy was 2005 to
22 2010.

23 A. Okay. I don't know how that
24 information got in there. That may -- I don't
25 know if LinkedIn pulls that from some -- from the

1 CV folder itself. So I don't know if maybe they
2 recognized that my master's was received in 2009.
3 I honestly don't remember.

4 Q. Okay. So your -- just so I have an
5 understanding then, you started your Ph.D. work
6 in 2005 after you received a bachelor's in
7 electrical engineering?

8 A. That's right, yeah.

9 Q. And what was your thesis for your
10 Ph.D.?

11 A. Oh, gosh. Do you by any chance have
12 my CV? I can't remember the title. Is it in
13 here?

14 Q. I don't believe so.

15 A. The -- it was related to recoverable
16 energy from circuits more related to transmission
17 lines and antennas, but the -- I would say that
18 the bulk of it was circuitry.

19 Q. Okay. Just right above your
20 educational experience, page 2 of Exhibit 1014 --

21 A. Okay.

22 Q. -- it lists what seems to be in the
23 last year -- your first employment listed in your
24 LinkedIn profile, and you identify the company or
25 organization NIST.

1 A. Oh, yes.

2 Q. So can you tell me -- I think you
3 just mentioned the company, but tell me what that
4 company is.

5 A. So then it's the Department of
6 Commerce. It stands for the National Institute
7 of Standards and Technology. That's the --
8 physical science laboratory. It's also the
9 institute where you send equipment to be
10 calibrated. They are the ones who developed the
11 atomic clock and have -- and maintain time for
12 our nation for the world.

13 My involvement was in the
14 Electromagnetics division. In the
15 Electromagnetics division, more specifically I
16 was RF and antennas and that involved research
17 and development in those areas.

18 Q. So in 2005 at the same time you
19 started your Ph.D. work, were you a full-time
20 employee of NIST?

21 A. No, I was -- it was the capacity of
22 being -- oh, man, basically an internship. So
23 I -- during summers and even during the year I
24 would work -- during the summers I would work
25 full time, but during the school year I would

1 work as a -- as an intern, and at the same time I
2 was going to school.

3 Q. On page 2 of Exhibit 1014 you list
4 January 2005 to October of 2011 as the time
5 period for your employment with NIST.

6 And was that -- were you an intern
7 for that entire time period?

8 A. I was an intern and then I was a
9 full-time temp so it was a full-time position,
10 and then I had a brief period where I was a
11 postdoctorate.

12 Q. And what area were you working on as
13 a postdoctorate?

14 A. Also in the Electromagnetics division
15 in antennas, RF, and what are called
16 reverberation chambers. So a lot of research in
17 measurements and radio frequencies.

18 Q. What's a reverberation chamber?

19 A. It's the opposite of an anechoic
20 chamber -- anechoic chamber when you -- absorb
21 the radiation and the anechoic chamber it's the
22 opposite. It's like a microwave oven where you
23 radiate and you generate a distribution of modes
24 inside there. And that's used for testing
25 various things, but often devices for

1 electromagnetic compatibility reasons.

2 Q. And why did you stop working for
3 NIST?

4 A. I had an opportunity to work with my
5 family under the DireenTech. And DireenTech we
6 started doing consulting with a number of startup
7 companies.

8 Q. So you list DireenTech and you
9 identify yourself as CTO, consultant.

10 So can you tell me the scope of your
11 duties for DireenTech?

12 A. Sure. We incorporated as an
13 S-corporation rather than an LLC, taxed as an
14 S-corporation. There was no particular reason
15 for that except for we were trying to get the tax
16 benefits. But I guess back then we didn't
17 understand we could have just done that under an
18 LLC. So a CTO was a name that we -- it was more
19 of a casual name given to me. I was performing
20 as a consulting engineer, so we had worked with
21 the Air Force Academy and we had worked with a
22 company called Think and Tanker where we would
23 build circuits and develop firmware and software
24 for -- for those companies.

25 Q. And what types of technologies were

1 you consulting on?

2 A. Measurement equipment on the Think
3 and Tanker laser metrology type of work for
4 measuring tools, mills, collet. And Air Force
5 Academy we were working on UAVs, so the power
6 control to the motors, we would build circuits,
7 write firmware for it, and then we would write
8 controllers for the UAVs.

9 Q. And when did you stop working for
10 DireenTech?

11 A. In some capacity I still work for
12 DireenTech. So today I have -- I work with
13 another partner, Invictus Animus, but there's
14 also some work that I do under DireenTech.

15 Q. Okay. So just following the
16 chronology, then you list that December 2016 is
17 the end of your employment as consultant for
18 DireenTech and it appears that you began at
19 Harris Corporation at that time.

20 A. That's right. I had a -- I think it
21 was a two-year stint working for Harris, and when
22 I was working for Harris, I was predominantly
23 working for Harris. So even though I said I left
24 DireenTech, there were still some designs that I
25 would have out with -- on the side.

1 Q. And so what were the scope of your
2 duties at Harris Corporation?

3 A. At Harris I was an electrical
4 engineer. I was working in sat com -- that's
5 satellite communications. I was helping them
6 development a spectrum analyzer within FPGAs. So
7 I developed software and helped them with their
8 RF measurements. I became I think within a few
9 months or maybe half -- my -- I can't remember
10 when they -- they had me do it, but I became the
11 principal investigator for developing some of
12 their subsystems and a spectrum analyzer.

13 Q. And why did you stop working for
14 Harris Corporation?

15 A. I didn't particularly enjoy the work,
16 but also my wife wanted to go to Dayton, Ohio, to
17 get her master's after did. So I followed her
18 out there and because I still had DireenTech, I
19 started back in doing DireenTech remotely by --
20 Dayton, Ohio.

21 Q. So on page 1 of Exhibit 1014, you
22 list yourself as an electrical engineer for
23 DireenTech from June 2018 to the present.

24 Is that accurate?

25 A. Is that -- I would say yes.

1 Q. You're currently employed by
2 DireenTech?

3 A. So the situation is this. I have
4 DireenTech as a company and I do draw a portion
5 of my salary from DireenTech. I think in -- it
6 was a couple of years ago, maybe 2022 or 2021, I
7 have a business partner that we started another
8 company that predominantly does antenna design.
9 So I have a part of my salary coming from
10 Invictus Animus and part of my salary coming from
11 DireenTech.

12 Q. And can you describe me what your
13 role at Invictus Animus is?

14 A. Sure. Invictus Animus is
15 predominantly antenna design and RF front ends.
16 So we design antennas for weather radar,
17 automotive radar, we have some com systems, and
18 we also design the PCB boards that do the RF
19 front-end processing so that the modems and
20 the -- the radar processing are done out the
21 front and then you get digital out the back, so
22 predominantly radar and communication front ends.

23 Q. So, Randy, which of those roles that
24 you have identified did you do work involving
25 wireless mobile communication?

1 A. Well, wirelessly I am versed in radio
2 communication and that's near field and far
3 field. So I would say that as far as
4 interactions in the electromagnetically, I did
5 that at NIST and I did that at DireenTech with
6 switch mode power supplies, and I did that at
7 Invictus Animus with radar light.

8 Q. Have you worked with wireless power
9 reception?

10 A. I think that's exactly what my job is
11 is a wireless power reception in coms and in
12 general.

13 Q. Have you designed a circuit for
14 wireless power reception?

15 A. Yes.

16 Q. For which companies?

17 A. I would say for DireenTech, I would
18 say for Invictus Animus. And there was very
19 little circuit design -- in fact, I can't think
20 of -- no, no circuit design at NIST -- so
21 DireenTech and Invictus Animus.

22 Q. So what products were you working on
23 at DireenTech and Invictus Animus?

24 A. So under DireenTech we worked -- we
25 designed the circuits for com with the base

1 stations to the UAVs. And at Invictus Animus it
2 would be one of the designs that we handed over
3 to a customer was a -- an automotive radar that,
4 you know, functionally works as a -- a
5 communication system where you bounce signals off
6 of.

7 Q. Did either of those devices receive
8 power wirelessly?

9 A. Yes.

10 Q. And how did they do that?

11 A. Well, power is what you need to --
12 you need to have power -- a physical medium to
13 send from one location to another. So
14 electromagnetically from one circuit you would
15 excite a antenna and then that antenna is a
16 transducer for free space to electromagnetic
17 signal to send to turn into other free space for
18 both magnetic --

19 Q. And did either of those devices have
20 the capability to wirelessly charge the secondary
21 device?

22 A. That was not the intent to charge a
23 wireless battery or a remote battery.

24 Q. Have you designed a circuit to do
25 that?

1 A. To charge a battery, yes, but not put
2 those two pieces together.

3 Q. And what do you mean by "those two
4 pieces"?

5 A. Well, you can receive power and then
6 you can digitize it, and then that's what you use
7 for coms. And then I've made buck-boost
8 converters to power and charge batteries, but I
9 haven't made a particular circuit that would
10 receive a wireless signal for the purpose of
11 charging that battery.

12 Q. So you haven't made a what would be
13 referred to as a dual-mode powerless receiver,
14 you haven't designed such a device?

15 A. I have not designed a dual-mode
16 wireless power charger.

17 Q. And, Randy, are you being compensated
18 for your work on behalf of the patent owner?

19 A. Yes, I am.

20 Q. And how long have you worked for the
21 patent owner?

22 A. I honestly can't remember if it was
23 last fall or the previous fall.

24 Q. Either fall of 2023 or fall of 2022?

25 A. That's right.

1 MR. WARD: And, Brian, maybe you can
2 help me with how to correctly pronounce the name
3 of the patent owner.

4 A. WiPQTUS.

5 Q. Wip --

6 A. WiPQTUS.

7 MR. WARD: I've been wondering this
8 whole case, Brian.

9 MR. CARPENTER: And I believe
10 it's '22.

11 A. Okay. 2022.

12 Q. So fall of 2022 was your first
13 interaction with WiPQTUS?

14 A. I believe that's true. That sounds
15 right.

16 Q. And how did that contact come about?

17 A. I was asked -- or I think I was in
18 contact with Brian. I think he emailed me to
19 start some work for him.

20 Q. And had you worked with Brian
21 previously?

22 A. Yes.

23 Q. In what matter did you work with
24 Brian previously?

25 A. Previously on a couple of cases, one

1 of them I know was the DSS case I referred to
2 before.

3 Q. What other cases, Randy?

4 A. It was a case -- I can't remember --
5 it was versus Pandora, the music company. I
6 can't remember what the company was that I was
7 working for. And what else? Is that it?

8 Q. So just those two cases -- the DSS
9 case and the Pandora case?

10 A. That's what I think right now. I'm
11 not sure if I have it on my CV or if that
12 information is around here somewhere.

13 Q. And both of those cases were with
14 Brian?

15 A. Yes.

16 Q. Have you worked as an expert on any
17 other patent litigation matters?

18 A. Not as an expert. I think more of
19 a -- like not an expert witness but like a
20 subject matter expert.

21 MR. CARPENTER: May I suggest
22 testifying versus consulting.

23 A. Yes. I've only worked on one
24 testifying and then the rest have been
25 consulting.

1 Q. And tell me about your role in
2 consulting.

3 MR. CARPENTER: I object to the
4 extent you're asking about this case. And the
5 other cases are also work privileged as far as
6 the work product consulting expert work
7 privilege.

8 So can you ask maybe perhaps a more
9 narrow question.

10 Q. (BY MR. WARD) You've said that you've
11 worked as a consultant for patent litigation
12 matters; correct?

13 A. Yes.

14 Q. And what were those matters?

15 A. In previous cases?

16 Q. Uh-huh.

17 A. In previous cases I -- as a
18 consultant I did initial analysis of products, so
19 I would go in and investigate and compare against
20 the patents to see what -- what might have been
21 infringing on -- I'm not sure -- so consulting in
22 that matter. Consulting in the investigation of
23 products versus the patents.

24 Q. And who retained you to do that
25 consulting work?

1 A. The retainment was by the -- a couple
2 of different companies. What were the names? Is
3 that on my CV, too? I think they were different
4 companies.

5 Q. How many companies, Randy?

6 A. Okay. So if I'm right and it was the
7 DSS and the Pandora one, I think Pandora was
8 Carstens & Cahoon; however, that's a -- I
9 think -- I'm not very good at remembering these
10 names. And then there was -- I think there was a
11 different one before that, and I can't remember
12 what the names were on that.

13 Q. So how many total matters have you
14 consulted on?

15 A. So -- okay. So those were with
16 Brian. I've -- oh, here -- so I've also been
17 doing this in various ways since -- for I
18 think -- since I've been at DireenTech.

19 And one of the places that I would
20 work in addition to the Air Force and Think and
21 Tanker and we worked for Furniture Row, one of
22 the places was called TAEUS, it's Take Apart
23 Everything Under the Sun. And under that I would
24 do investigative -- similar work that I just
25 described, investigative work where I would read

1 patents.

2 They would have me do things like
3 look at the strength of like a claim and put it
4 into bin. They were trying to, I think, figure
5 out the value of a patent. And at the same time
6 I was also doing some of the same type of work
7 where it was like you would do evidence-of-use
8 charts. So we would take products and we would
9 help companies see if there was any evidence of
10 use within certain products.

11 Q. So you're analyzing whether or not
12 products would potentially infringe a patent?

13 A. Potentially, yeah. But I was working
14 in a consulting manner, so that domain I was
15 never a testifying expert. I was just
16 consulting.

17 Q. And you said that since you've been
18 at DireenTech, I presume that was your second
19 stint at DireenTech; correct?

20 A. This was actually the first stint,
21 too. I'm surprised that it -- and do you have my
22 CV.

23 Q. I think I can access your CV.

24 A. Okay.

25 Q. But I'm curious your -- how many --

1 let me ask a question in a different way.

2 Have you worked with law firms other
3 than Brian's law firm on patent litigation
4 matters?

5 A. Yes. Oh, shoot. I am also currently
6 a testifying -- on another case for testifying
7 under I believe Carstens & Cahoon working for
8 another attorney. I believe his name is Conner
9 something.

10 Q. And what is that matter in?

11 A. That matter is a -- a receptacle that
12 goes over a light plug -- what are those? -- like
13 a power receptacle, and you put the device over
14 it and it has a little night light. So it's --
15 it has some electrical components and some
16 mechanical components, but I was asked to be the
17 testifying expert on that one. That is this
18 year. I have not testified or done any
19 depositions under that. I wrote a report, I
20 believe.

21 Q. What percent of your current work in,
22 let's say, 2024 is dedicated to expert and
23 consulting work?

24 A. I would say maybe 10 to 15 percent.
25 Yeah, I would say 10 to 15 percent.

1 Q. And can you give me the breakdown of
2 the percentages -- of the remaining percentage?

3 A. Oh, yeah. So most of my work these
4 days is being done under Invictus Animus as under
5 business development, I would say, and antenna
6 design and antenna measurement.

7 Q. Okay. I'm going to share with you
8 now a copy of your declaration.

9 (Exhibit 2003 was marked.)

10 A. Okay.

11 Q. This is Exhibit 2003. Do you
12 recognize this document, Randy?

13 A. I'm going to look at the last page.
14 Yes.

15 Q. Okay. You're taking the a look at
16 the last page of 2003, which is page 91; right?

17 A. It says page 91 of the document.

18 Q. Page 95 of 95 of the exhibit;
19 correct?

20 A. Yes.

21 Q. And do you recognize the signature on
22 that page?

23 A. Yes.

24 Q. Whose signature is it?

25 A. That's my signature.

1 Q. And when did you sign this document?

2 A. It says executed the 5th day of June
3 2024.

4 Q. So, Randy, who wrote this
5 declaration?

6 A. It was a collaborative effort. I
7 believe I wrote most of it, and then -- but I
8 think formatting and some of the structure, I was
9 helped by counsel.

10 Q. So you said you wrote most of it.
11 Which part did you not write, Randy?

12 A. I would say that I had my hands on
13 all of it and that this is my opinion.

14 Q. And when you say you have your hands
15 on it, what do you mean?

16 A. Well, like I said, I wrote an initial
17 document, and then from that we generated this
18 with the -- with the formatting and the -- like
19 the structure that you see here on the front. It
20 was suggested that I have, you know, these
21 particular breakdowns of what I was -- what I had
22 written.

23 Q. And who suggested that?

24 A. Counsel.

25 Q. Which counsel?

1 A. Oh, Brian helped on that.

2 Q. Were there other parts that Brian
3 helped with?

4 A. I mean, as far as like in addition to
5 the structure?

6 Q. Yes.

7 A. And he also explained to me certain
8 aspects of the law so that I could put that into
9 here. So I wrote under that -- I think there
10 might have been a -- an example, and then I
11 helped read through that and put my 2 cents in
12 it, maybe edits or something. And then I'm
13 trying to think of what else -- it was mostly
14 these what you see here at the front. Right?

15 Q. What are you pointing to, Randy?

16 A. Understanding of the law, the legal
17 standards, I had to be instructed on claim
18 construction, burden of proof, anticipation, and
19 obviousness, those were explained to me.

20 The challenged patent, I was under --
21 described like what a person of ordinary skill in
22 the art was. But then I would say that -- and
23 maybe a little bit on including these claims and
24 file histories. The background of the art, that
25 I wrote. Overview, I wrote. All helped with

1 editing is what I mean, too, when I say
2 collaborative, there was editing. Claim
3 construction, yeah, I would say that only those
4 first couple of parts.

5 Q. And you said that you -- the legal
6 standards claim construction, burden of proof,
7 anticipation, and obviousness were explained to
8 you; correct?

9 A. That's correct.

10 Q. Were you not previously aware of
11 those standards?

12 A. I was, but for the purpose of
13 generating this report, I definitely needed to be
14 refreshed because I'm not a lawyer and I wanted
15 to get that in properly.

16 Q. Let's take a look at page 12. And
17 I'll refer to the native page 12.

18 A. Okay.

19 Q. And specifically paragraph 30, I'll
20 read it for the record. It states: (As read)
21 The challenged patent pertains generally to the
22 field of wireless power transfer, and
23 more particularly circuitry used to drive and
24 control such wireless power transfer. A person
25 of ordinary skill in the art in the technology

1 field of the '339 patent at the time of the
2 alleged invention would have had a bachelor's
3 degree in electrical engineering or a similar
4 discipline, along with at least two years of
5 circuit design experience. A Master's or
6 Ph.D. degree in a relevant field may substitute
7 for some work experience and vice versa. I was
8 at the time of the alleged invention at least a
9 person of ordinary skill in the art relevant to
10 the challenged patent. Further, based on my
11 experience, I understand and know the
12 capabilities of a person of ordinary skill in the
13 art in August of 2012, and I am familiar with how
14 a person of skill in the art would have
15 understood and used the terminology found in the
16 challenged patent at the time of its earliest
17 priority date, August 2012, and with the state of
18 the art at the time.

19 So, Randy, you state in this
20 paragraph 30 that you believe you are a -- I'm
21 sorry -- you state that you were a person of
22 skill in the art as of August 2012; correct?

23 A. I believe I was.

24 Q. And what's your basis for that
25 belief?

1 A. So I would say in addition to the
2 three degrees in electrical engineering, which
3 includes a master's and a Ph.D. , I also had
4 circuit development developing circuits early on
5 for the purpose of power transfer and wireless
6 systems.

7 Q. So, Randy, you testified earlier that
8 you received your Ph.D. degree in 2010; correct?

9 A. That's correct.

10 Q. So as of 2012, you would have had two
11 years of experience post doc; correct?

12 A. That's correct.

13 Q. And was that experience relevant to
14 wireless power transfer?

15 A. I believe so.

16 Q. And how was that, Randy?

17 A. My education is in electromagnetics
18 and the communication of electromagnetics, that
19 is, wireless power transfer, and also in circuits
20 being an electrical engineer.

21 Q. And so the paragraph 30 states that
22 in addition to having the bachelor's degree, that
23 the individual would have at least two years of
24 circuit design experience.

25 A. Okay.

1 Q. And so if you could maybe qualify how
2 many years of circuit design experience it is you
3 had as of August 2012.

4 A. I would have to go back and review
5 what designs I had done under DireenTech, but I
6 would say there was at least a couple electronics
7 designs that had been -- had been made. And
8 since then, dozens since 2012. But circuit
9 theory hasn't particularly changed much over
10 the -- over a very long period of time.

11 So in addition to this, I would say
12 that my understanding of a POSITA, or a person of
13 ordinary skill in the art, the construct --
14 hypothetical construct, that I believe I could
15 put myself into very easily in 2012.

16 Q. And, in fact, did you use that
17 hypothetical construct in your analysis for this
18 case?

19 A. I -- the -- how we define the person
20 of ordinary skill in the art in this paragraph?

21 Q. Yes.

22 A. This was the definition -- definition
23 of the person of ordinary skill in the art that I
24 relied on in my declaration.

25 Q. In the next paragraph, paragraph 31,

1 you state the following. I'll read it for the
2 record. (As read) I've reviewed the declaration
3 of Petitioner's expert, Dr. Phinney,
4 Exhibit 1002. While he's provided a definition
5 of a person of ordinary skill in the art that is
6 slightly different from what I have stated above,
7 for the purpose of this declaration, I will use
8 Dr. Phinney's definition as provided in
9 paragraph 65 of his declaration.

10 Do you remember using a different
11 definition for a person of skill in the art?

12 A. Can I get a copy of the definition
13 that Dr. Phinney used?

14 (Exhibit 1002 was marked.)

15 Q. I can read it to you. This is what
16 is stated at paragraph 65 of Dr. Phinney's
17 declaration that's Exhibit 1002. He states:

18 (As read) Based on my review of
19 the '339 patent, it's my opinion that, as of
20 August 12, 2012, a person of skill in the art
21 would have had a bachelor's degree in electrical
22 engineering or a similar discipline, and at least
23 two years of professional experience working with
24 wireless power systems?

25 MR. CARPENTER: Well, there's another

1 sentence there.

2 Q. (BY MR. WARD) How do you understand
3 the two definitions to be different, Randy?

4 A. Is it possible for me to see that so
5 that I can read it?

6 MR. CARPENTER: I believe you have it
7 in your binder.

8 THE WITNESS: Oh, I do have it.

9 Q. (BY MR. WARD) I'll introduce what's a
10 copy of Exhibit 1002, the declaration of Josh
11 Phinney. If you could turn to page 28 of that
12 document at paragraph 65.

13 (Witness reviewing document.)

14 A. I'm sorry, can you say which page on
15 my --

16 Q. Yeah. Your definition of a person of
17 skill in the art is set forth at paragraph 30 of
18 your declaration.

19 A. Okay.

20 Q. It's page 12.

21 A. Okay. So I think the difference is I
22 have here a master's or Ph.D. degree and a
23 relevant field may be substituted for some work
24 and experience or vice versa. And here it says,
25 Additional education such as a master's degree --

1 (Witness reviewing document.)

2 A. Okay. I'll read it again. It says:

3 (As read) And at least two years of professional
4 experience working with wireless power systems.
5 Additional education such as master's degree of
6 electrical engineering could substitute for
7 professional experience, and significant work
8 experience could be substituted for formal
9 education. The POSITA would have knowledge about
10 circuitry and controller design in the context of
11 wireless power transfer.

12 So, yes, I believe I'm -- I would
13 have been a person of ordinary skill in the art
14 in August 12, 2012.

15 Q. So, Randy, in your paragraph 30 --
16 paragraph 30 of your declaration, you provide the
17 qualifier that the person of skill has at least
18 two years of circuit design experience, whereas
19 in paragraph 65 of Dr. Phinney's declaration,
20 Exhibit 1002, he states that a person of skill in
21 the art would have at least two years of
22 professional experience working with wireless
23 power systems.

24 Is that your understanding of the
25 difference between your two definitions?

1 A. I see the difference. Yes, that's my
2 understanding of the difference.

3 Q. And why is it that you believe that
4 it is two years of circuit design experience
5 rather than wireless power system experience?

6 A. I suppose, first of all, that I would
7 say that circuit design experience is a catch-all
8 for that. Circuit design could mean signals and
9 systems, but it could also mean wireless power
10 systems. However, even if that weren't the case,
11 that I also have the additional education such as
12 a master's degree in electrical engineering,
13 which could be substituted for professional
14 experience and significant work experience could
15 substitute for formal education.

16 Q. So you would agree that you don't
17 have two years of professional experience working
18 with wireless power systems?

19 MR. CARPENTER: Objection. Form.

20 A. I would disagree on just the account
21 that the wireless systems that I work on are
22 power transfer systems.

23 Q. So it's your belief that you have two
24 years of professional experience working with
25 wireless power systems?

1 A. I would say so.

2 Q. But you believe a different person of
3 ordinary skill in the art is appropriate for this
4 case?

5 A. Can you ask -- can you explain that.

6 Q. So in your definition of a person of
7 ordinary skill in the art, you've said that this
8 person should have at least two years of circuit
9 design experience; correct?

10 A. Yes.

11 Q. Is there circuit design experience
12 that does not relate to wireless power systems?

13 A. Yes.

14 Q. Would that experience be relevant to
15 this case?

16 A. I would say yes.

17 Q. Would you be confident in assigning a
18 wireless power design task that didn't have any
19 wireless power design experience?

20 A. I would be more confident if they had
21 maybe -- had built a circuit before that had done
22 that -- that had done particular to that. But
23 formally educated electrical engineers, almost
24 all of them have the education to build power
25 systems.

1 Q. In your paragraph 31 you said, For
2 purposes of this declaration, I would use
3 Dr. Phinney's definition as provided in 65 of his
4 report.

5 So you used -- you looked at this
6 case through the lens of a person of ordinary
7 skill in the art having two years of wireless
8 power system experience; correct?

9 A. Yes. Yes. So I would say that based
10 on what I said here in my report that I applied
11 this, but you have to answer that I don't see
12 much difference between circuit design experience
13 and wireless power systems.

14 MR. WARD: Okay. Let's go off the
15 record.

16 (Break from 9:58 a.m. to 10:06 a.m.)

17 (Exhibit 1001 was marked.)

18 Q. (BY MR. WARD) I'm going to show you
19 now what's previously marked as Exhibit 1001.
20 This is a copy of the '339 patent, Randy.

21 A. Okay.

22 Q. Do you recognize this patent?

23 A. Yes.

24 Q. I'd like for you to turn to Figure 1
25 of the '339 patent.

1 A. I'm there.

2 Q. The '339 patent describes Figure 1
3 with the following. I'll read you the
4 description. It says: The first circuitry
5 describes an impedance network, 101, a switch
6 network, 102, a filter capacitor, 107, and
7 switches S1 and S2.

8 Do you see those in Figure 1, Randy?

9 A. I do.

10 Q. And what is illustrated with
11 reference to numeral 106 in Figure 1?

12 A. That's a circuit component referred
13 to as an inductor. An inductor is a coiled wire
14 and I believe that is the coil described in the
15 patent.

16 Q. What is it that lets you know that
17 what is referred to with reference to numeral 106
18 is an inductor?

19 A. It is a common depiction of an
20 inductor and it has a few rounded edges kind of
21 depicting a coil.

22 Q. Do you agree that that's the circuit
23 symbol for an inductor that's shown as 106 in
24 Figure 1?

25 A. I would say that that is a common

1 circuit symbol for an inductor.

2 Q. The '339 patent refers to reference
3 numeral 106 by describing it as a receiver coil
4 106.

5 Are you aware of that?

6 A. Where is that?

7 Q. I'll find it for you. Take a look at
8 column 10, line 25. It states: (As read) The
9 dual mode wireless power receiver comprises a
10 receiver coil 106 that picks up the magnetic
11 field based of a magnetic field coupling that
12 exists between the transmitter coil 201 and the
13 receiver coil 106.

14 A. Okay.

15 Q. What do you understand -- well, what
16 is receiver coil 106?

17 A. Receiver coil 106 is this -- the
18 symbol that is depicted as an inductor.

19 Q. What's the difference in inductor and
20 a coil?

21 A. An inductor generally is a -- could
22 be a wire but is a symbol that's used for
23 modeling a common engineering term called
24 "inductance." So it is a model of a -- of a
25 device that has inductance.

1 Q. So a wire is a device that has
2 inductance?

3 A. A wire, if you push current through
4 it, you would be able to measure an inductor
5 across it, also even capacitors. Capacitors have
6 a -- like, real capacitors they have a certain
7 amount of inductance. In fact, any electrical
8 component that you find in a circuit can have --
9 can have portions of its functionality modeled as
10 an inductor as you see on 106.

11 Q. What is it that is coiled in a coil?

12 A. You could have wire that's coiled in
13 the coil. You could have circuit traces that are
14 in a coil. You can have some cases carbon traces
15 that are -- turn in the coil. All of those, if
16 you have a current pushed through them, you would
17 be -- you could come up with a way to measure
18 inductance of that structure.

19 Q. Would you agree that wire is the most
20 commonly used component for a coil?

21 MR. CARPENTER: Objection. Form.

22 A. I would say this day and age, maybe
23 back in the fifties certainly, but if you look at
24 all circuits, and definitely RF circuits, those
25 have coils that are embedded in circuits. Chips

1 these days will actually have coils inside them
2 that are used for inductance. Wire is one form
3 of inductance, but I don't think I would say it's
4 the most common. I would say often this day in
5 like modern electronics, you're probably making
6 coils out of traces because it's less expensive
7 than to use a coil at the time.

8 Q. Is it your understanding that the
9 symbol for an inductor that we see in Figure 1 in
10 reference to 106 relates to a wire with turns in
11 it, i.e. a coiled wire?

12 A. I think historically where these came
13 out of 100 years ago, the reason why it's
14 depicted like that probably came because of the
15 implementing real inductors a wire, yeah.

16 Q. So could an inductor be simply a wire
17 that has been turned?

18 A. With a loop in it?

19 Q. Yeah.

20 A. A wire with a loop in it would have
21 inductance if you -- with a current through it.

22 Q. As you said earlier, all wires have
23 some level of inductance; correct?

24 A. And capacitors and resistors and all
25 things -- this is indicating is this is a model

1 form of an inductor. Or it's a model for
2 a component like some sort of feature or
3 parasitic in a circuit that has inductance.

4 Q. Would you agree that the term "coil"
5 is a species of the genus inductor?

6 MR. CARPENTER: Objection. Form.
7 Species and genus.

8 A. Could you re-form that question. I
9 didn't quite understand it.

10 Q. Is a coil a type of inductor?

11 A. If it's used in electronic system
12 where current and voltage is applied to it.

13 Q. How would you use a coil otherwise?

14 A. A spring is a coil.

15 Q. So with respect to an electronic
16 circuit --

17 A. Yes.

18 Q. -- a coil in a electronic circuit is
19 a type of inductor; correct?

20 A. You can use a coil to make an
21 inductor in electronics, definitely.

22 Q. Well, what's the difference in a coil
23 and inductor?

24 A. If you're talking about an inductor
25 as used in theoretical models, free space have

1 inductance. You can model free space from an
2 antenna point of view with a collection of
3 inductors. You can model parasitics going into a
4 transistor with an inductor. So just -- the
5 symbol just indicates that you're -- whatever
6 you're modeling has inductance, but a coil itself
7 is also a capacitor at certain frequencies.

8 So I don't think I quite understand
9 the question, but this symbol indicates that
10 something has inductance.

11 Q. Would you agree that a coil in an
12 electronic circuit is a type of inductor?

13 A. I would say that you can model a coil
14 with an inductive like what you see right here,
15 but a coil will also have capacitance and
16 resistance.

17 Q. Is that true with all electrical
18 components?

19 A. All physical electrical components
20 can be modeled -- or a passive component can be
21 modeled as a collection of resistors, capacitors,
22 and inductors. So even a capacitor will have
23 inductance, a resistor has inductance, and these
24 are all parasitics that you can model. So an
25 inductor itself -- or a physical coil is a --

1 a -- can be modeled with inductance plus
2 capacitance plus some resistance.

3 Q. So every component of a circuit has
4 parasitic characteristics; is that correct?

5 A. That's correct, yes.

6 Q. And what is meant by parasitic
7 impedance?

8 A. Parasitic impedance is something that
9 is like -- usually when you use the word
10 "parasitic," you're talking about something that
11 you don't particularly want. But it just -- the
12 fact of the matter, all components have
13 parasitics, and is it's affected at different
14 frequencies under different temperature. So a
15 parasitic impedance is a -- kind of an effect
16 that you try to minimize; however, it's always
17 there.

18 Q. So in every physical component in the
19 electronic circuit, there are certain inherent
20 amount of impedance, capacitance, and resistance;
21 correct?

22 A. Inductance, capacitance, and
23 resistance, yes. I think that's what you meant.
24 I think you said "impedance." Impedance would be
25 a catch-all.

1 Q. Yes. Okay. So every component in
2 the electronic circuit has a certain inherent
3 amount of inductance, capacitance, and
4 resistance?

5 A. Physically, yeah, physical
6 components. Those components that you see in the
7 document that shows an inductor, a capacitor, and
8 a resistor are ideal models that you use to model
9 a circuit. So depending on what you're doing,
10 even though resistor, you have to model in
11 capacitance and inductance.

12 Q. Because there is no such thing as an
13 ideal component; correct?

14 A. Yeah, that's right.

15 Q. Take a look at your declaration
16 that's Exhibit 2003, paragraph 91. I'll read the
17 first paragraph of 91. You say: As an initial
18 matter, it's clear from the structure of Claim 1
19 itself that the power transfer element, either a
20 coil or a capacitor, is not part of a impedance
21 network.

22 A. Okay.

23 Q. I want you to take a look back at
24 Exhibit 1001 and Figure 1 again.

25 A. This is Exhibit 1001?

1 Q. Yes.

2 A. Figure 1.

3 Q. Back at the figure we were just
4 previously looking at.

5 A. Yes.

6 Q. The '339 patent uses the reference
7 numeral 101 to refer to the impedance network.

8 Do you see that in Figure 1 of
9 the '339 patent?

10 A. In Figure 1 -- I'm sorry, which
11 number?

12 Q. It's reference numeral 101 is the
13 impedance network.

14 A. That's correct.

15 Q. So in that Figure 1, what do you see
16 displayed in the impedance network 101 in
17 Figure 1 of the '339 patent?

18 A. Okay. These are common components
19 for a resistor -- oh, from right to left. Excuse
20 me. From right to left it's a resistor, common
21 symbol for a capacitor, a common symbol for an
22 inductor, and a common symbol for a switch.

23 Q. Is it your understanding that
24 the '339 patent is disclosing that the impedance
25 network 101 could include in any of those

1 components?

2 A. The impedance network as it's defined
3 in the specification of the '339 patent?

4 Q. Uh-huh.

5 A. Yes, it would have to include at
6 least one of the inductor and an -- of at least
7 an inductive component, a capacitive component,
8 and a switch.

9 Q. So of what's shown in Figure 1 there,
10 you would say that it does not have to include
11 the resistor that's shown in the drawing in
12 Figure 1?

13 A. Did you say it does not have to?

14 Q. Does not have to include resistor?

15 A. It would have to include at least one
16 of these that have -- that would make it a full
17 impedance. So it would have to be a capacitor,
18 an inductor, and a switch. So the resistor could
19 be -- yeah, the -- under the definition, it could
20 be the -- so you could have a resistor, yeah,
21 so -- because it's just a general impedance. So
22 it just has to have at least one of these
23 components -- a resistor, a capacitor, an
24 inductor, and a switch.

25 Q. And when you say general impedance --

1 it has to have general impedance, what do you
2 mean?

3 A. General impedance -- so in the
4 frequency domain, a general impedance has a
5 resistance and the reactance, and so those are
6 summed as a complex number. So generically an
7 impedance is the sum of a resistance plus the
8 imaginary time -- number of times a reactant.

9 So a resistor by itself you could
10 call that an impedance. In a reactive by itself
11 you can call impedance. In general the sum of
12 the resistance in I times the reactance is an
13 impedance.

14 Q. So it's your understanding that the
15 impedance network 101 has to include an inductor?

16 A. It doesn't have to in -- well, let me
17 see something really quickly. So I'm referring
18 to the -- the Exhibit 1001, column 9, row 4, this
19 is my understanding of what the impedance network
20 is with respect to the '339 patent.

21 It says that the impedance network
22 comprises one or more of passive electric
23 components, for example, a resistor, a capacitor,
24 a magnetic device, a transducer, a transformer,
25 so a passive device.

1 And then with respect to Figure 1, we
2 have -- there's a semicolon and says and then,
3 active electronic components, for example, a
4 diode, a transistor such as a metal oxide
5 semiconductor field effect transistor (or
6 MOSFET), a bipolar transistor, etc., operational
7 amplifier, an optical electric device, and
8 electronic switches.

9 So the -- so the impedance network
10 has to have one of these passive devices
11 indicated in Figure 1 -- just indicated because
12 it looks like they point to a couple of other
13 ones -- it has to have a resistor, capacitor,
14 inductor from that figure, and a switch.

15 And the switch is what they refer --
16 is used to indicate these nonlinear devices, the
17 diode, the transistor, the field effect
18 transistor, and a bipolar, et cetera.

19 Q. You just read column 9 of the '339
20 patent, Randy, and it lists examples of active
21 electronic components, and it says "and
22 electronic switches."

23 So is it your understanding that the
24 electronic switches are a type of active
25 electronic component?

1 A. Oh, I'm sorry. Can you say that
2 again.

3 Q. Take a look again at the paragraph
4 that you read from the patent, column 9, line 4.

5 A. Line 4, yes.

6 Q. It says the impedance network 101
7 comprises one or more of passive electronic
8 components, and it gives a list of those,
9 semicolon, active electronic components, and
10 gives a list of those --

11 A. Yes.

12 Q. -- comma, and electronic switches.

13 Is it your understanding that the
14 electronic switches are a type of active
15 electronic component?

16 A. I would call it a kind of electronic
17 component. I suppose it might be distinguished
18 from this active in the sense that you could
19 maybe hypothetically have a physical switch,
20 whereas I believe this active electronic
21 component is indicating that these types of
22 switches are being controlled electronically.

23 Q. So it's your understanding that the
24 impedance network of the '339 patent requires as
25 little as a resistor and a switch?

1 A. I believe so.

2 Q. Taking a look back at Figure 1,
3 again, you said in your declaration that it's
4 clear that the power transfer element (the coil)
5 is not part of the impedance network.

6 So how do you know by looking at
7 Figure 1 of the '339 patent that coil 106 is not
8 part of impedance network 101?

9 MR. CARPENTER: Objection. Form.

10 A. From the picture alone?

11 Q. Yes.

12 A. If I was just using the picture to
13 figure out which was the impedance network and
14 which was the coil, I would use this box to
15 indicate what the impedance network would be just
16 from the picture alone.

17 Q. And based upon the symbols that you
18 identified earlier in Figure 1 for impedance
19 network, is it your understanding that the
20 impedance network 101 could include a coil as a
21 type of inductor?

22 A. An inductor could be a -- included in
23 the impedance network.

24 Q. And that inductor could be a coil;
25 correct?

1 A. A coil would have an inductant, yes.

2 Q. So a coil could be part of impedance
3 network 101?

4 A. If we're talking about this picture
5 right here that the 101 is pointing to, that
6 inductor that's inside there, yes, that could be
7 implemented using a coil.

8 Q. Okay. I'd like for you to now turn
9 to column 29 of Exhibit 1001, the '339 patent.
10 Actually, wrong column. Column 27. I just
11 wanted to take a look at Claim 1.

12 A. Column 27. Okay.

13 Q. Column 27 gives us Claim 1.

14 A. Okay.

15 Q. And at line 8, it says: Said dual
16 mode wireless power receiver comprising one of
17 coil and capacitor electrodes.

18 Do you see that?

19 A. Yes.

20 Q. What do you understand that first
21 clause, "one of coil and capacitor electrodes" to
22 indicate?

23 A. I would say that you need to have
24 some sort of transducing device to -- a
25 transducing device to receive power, and it could

1 be a coil.

2 Q. And it could also be a capacitor
3 electrode; correct?

4 A. Capacitor electrodes, yeah, you
5 probably need two at least.

6 Q. So your understanding is that one of
7 coil and capacitor electrodes requires that the
8 dual mode wireless power receiver have either a
9 coil or a capacitor electrode; correct?

10 A. I think you could also have both,
11 and -- and I don't think this limits it from
12 having both.

13 Q. And how would one implement a power
14 receiver with both a coil and capacitor
15 electrode?

16 A. You could have some power going in
17 one versus the other. I haven't thought that --
18 that through. I've been mostly thinking in terms
19 of a coil, I guess. I haven't personally seen a
20 lot of capacitively coupled devices mostly I
21 think because it's hard to get the kind of
22 efficiency you need to go with a large capacitor.
23 So I think -- mostly I think about the coil as
24 being the transducer for receiving power.

25 Q. So capacitor electrodes are

1 understood to be less efficient wireless power
2 transfer than coils?

3 A. That is -- that might be speculation.
4 That would be what I would think. I would think
5 you would be able to do a far better job with a
6 coil than you can with a couple capacitors.

7 Q. If you go down to -- oh, actually,
8 yeah, go down to column -- the same column there,
9 column 29, Claim 13.

10 A. Claim 13 in the same column? Or are
11 you talking about Row 13?

12 Q. Oh, I'm sorry. No, it is the next
13 column.

14 A. I see Claim 13 in column 29.

15 Q. Column 29.

16 A. Okay.

17 Q. Oh, apologies. It's column 30. And
18 it's Claim 14 I want you to take a look at. So
19 column 30: (As read) The method of Claim 13,
20 wherein said dual mode wireless power receiver
21 configuring said switch network of said first
22 circuitry as one of an inverter and a rectifier.

23 What do you understand the term "one
24 of an inverter and a rectifier" to mean?

25 A. Can I go back and read 13?

1 Q. Sure.

2 A. I'm not particularly -- I think I
3 wrote the report with respect to 1 and -- to the
4 first claim.

5 Q. Uh-huh.

6 A. Okay.

7 (Witness reviewing document.)

8 A. My understanding is that this Claim
9 13 is a method-type claim similar to the Claim 1,
10 however.

11 MR. CARPENTER: I forgot what the
12 question was. Can we repeat the question,
13 please?

14 Q. Sure. I'll repeat the question.

15 Randy, the statement in Claim 14 is
16 written, "said dual mode wireless power receiver
17 configuring said switch network of said first
18 circuitry as one of an inverter and a rectifier."

19 What do you understand the language
20 as "one of an inverter and a rectifier" to mean?

21 A. So I believe in the claim, it says
22 configuring said -- sorry. In Claim 13 there's
23 a -- row 42, the limitation reads, "Configuring
24 said first circuitry to change impedance of said
25 impedance network and topology of said switch

1 network to obtain a modified form of said
2 received power and apply said modified form of
3 said power to said load device."

4 I think that the term "modified form"
5 of power here is -- is a broader language than
6 what we're getting here in Claim 14. The Claim
7 14, again, says, "The method of Claim 13 wherein
8 said dual mode wireless power receiver
9 configuring said switch network of said first
10 circuit as one of an inverter and a rectifier."

11 So I think they bring the terms
12 "inverter" and "rectifier" in here to somewhat
13 limit the term -- modified form of power here in
14 the pre -- in Claim 13.

15 Q. So, Randy, would you understand that
16 configuring said switch network as one of an
17 inverter and a rectifier means to configure it as
18 an inverter or as a rectifier?

19 MR. CARPENTER: Objection. Form.

20 A. Based on here where it says "modified
21 form of said received power," I'm not sure if the
22 author is writing it in such a way that that
23 could be a form of a potentially doing both. I
24 have not studied --

25 Q. Are you aware of a circuit that can

1 simultaneously be an inverter and a rectifier?

2 MR. CARPENTER: Well, excuse me, I
3 think he was finishing his answer.

4 THE WITNESS: No, I was done with my
5 answer.

6 A. I'm sorry. Can you ask it again.

7 Q. Are you aware of a circuit in which
8 that is simultaneously both an inverter and a
9 rectifier?

10 A. I am not personally aware of one that
11 does both.

12 Q. So when you read the term "said
13 switch network of said first circuitry as one of
14 an inverter and a rectifier," would you
15 understand it to be either an inverter or a
16 rectifier?

17 A. I think because I haven't studied
18 this claim in particular, I'd have to think about
19 it. Is there a -- I don't think I've studied the
20 Claim 14.

21 Q. Randy, let's take a look at Claim 20.

22 A. Okay.

23 MR. CARPENTER: Counsel, these are
24 not instituted claims. I'm going to object on
25 the relevance.

1 Q. Claim 20, method of Claim 13 wherein
2 said dual mode wireless power receiver providing
3 said power to said secondary wireless power
4 receiver on command by user through one of
5 hardware switch and software application, would
6 you understand that to mean the receiver
7 providing power on command by either a hardware
8 switch or a software application?

9 A. I wouldn't know how to do that
10 considering it says "and." So since I haven't
11 studied Claim 20, I think I would need some time
12 to think about what that would mean in this
13 context.

14 Q. So, Randy, the plain and ordinary
15 meaning of "one of," do you understand that to
16 indicate that you -- that one thing is desired?

17 A. One of, if you gave a list of maybe
18 comma-separated entities, I would interpret that
19 as one -- one of those entities.

20 Q. So if your wife asked you, I want you
21 to bring me one of a coffee and a Coca-Cola,
22 would you understand that to be one of those
23 either the Coke or the coffee?

24 A. I think if that was what was said and
25 I had to do something based on that, if I had to

1 make an action based on that statement, I'd
2 probably refer to bring both, right.

3 Q. So if your wife said, Randy, bring me
4 a coffee or a tea, you would bring her both?

5 A. No, with an "or."

6 Q. But if she said bring me one of a
7 coffee and a tea, you'd bring her both?

8 A. I think I would probably default to
9 bringing both, if I had no other opportunity to
10 ask a question, I think.

11 Q. And why would you default to that,
12 Randy?

13 A. Because of the conjunction "and," I
14 said.

15 Q. So you then are ignoring the "one
16 of." What's the purpose of the "one of" in the
17 statement if you're only looking at the boolean
18 operator of "and"?

19 A. I think I would need more
20 clarification of what was being asked of me
21 because I don't understand.

22 Q. Your wife says, I want you to bring
23 me one of a coffee and a tea.

24 A. And I can't ask any clarifying
25 questions after that point?

1 Q. No.

2 A. Then I bring her coffee and tea.

3 Q. So in that sentence, what's the
4 purpose of "one of"?

5 MR. CARPENTER: Objection to form.

6 A. I would -- if I don't get a
7 clarifying -- if I'm not allowed to clarify my
8 question, I think I would say -- I would take the
9 safe route and do -- get both entities.

10 Q. Even though she said to only bring me
11 one?

12 A. If she said to only bring me one --
13 if she said to only bring me one, then I would
14 bring one. But if she said only bring me one
15 Twinkie and a Hershey bar, I'd probably get her
16 both if I had to default from that sentence.

17 Q. So going back to Claim 1 where it
18 says, "one of a coil and capacitor electrodes,"
19 do you interpret that to mean coil and capacitor
20 electrodes, both components?

21 It's at column 27. Column 27,
22 line 10, "one of coil and capacitor electrodes,"
23 you understand that to mean both coil and
24 capacitor electrodes?

25 A. I guess I would say that -- I guess I

1 would -- wouldn't want to limit it. I would say
2 either/or or both, maybe, right. Like if you're
3 trying to have a broad claim, I'd -- you probably
4 don't want to limit it to one or the other.

5 And it looks like they agreed that
6 and -- maybe what they're trying to say is one or
7 both, right.

8 Q. So you would agree that just a coil
9 would satisfy one of a coil and capacitor
10 electrodes?

11 A. I think so. Yes, I would -- I would
12 agree that you could do this with one coil.

13 Q. So it can be read as a either
14 statement?

15 A. It could be as an either and a and I
16 think. I think you could do both if you wanted.
17 I don't see why you'd want to do it with a
18 capacitor, but it seems like they left it open
19 enough to do it with either/or or both.

20 Q. But you would agree that it would --
21 it is not common to have a device with both a
22 coil and a capacitor electrode tray?

23 A. I would agree that it's not common.
24 I would think that most likely it would be done
25 with a coil.

1 Q. Let's turn back to column 9 to the
2 paragraph which you read earlier.

3 A. Okay.

4 Q. It's column 9, line 4.

5 A. Okay.

6 Q. I understand that you're applying the
7 "one or more of" in the line at line 4 to only
8 limit passive electronic components. And I'll
9 read the intro statement again. It says:

10 (As read) The impedance network 101
11 comprises one or more of passive electronic
12 components, for example, a resistor, a capacitor,
13 a magnetic device, a transducer, transformer
14 etc.; active electronic components, for example,
15 a diode, a transistor such as a metal oxide
16 semiconductor field effect transistor, a bipolar
17 transistor, etc., operational amplifiers, a
18 optoelectronic device, etc., and electronic
19 switches.

20 In that sentence, Randy, you're
21 reading "one or more of" to modify only passive
22 electronic components; right?

23 A. I think my interpretation is based on
24 what I see in -- is in part based on what I see
25 in the claims themselves. So if you look at --

1 if you look at the claim on column 27 at 20, it
2 says: (As read) said first circuitry, based on
3 an input from said control logic circuit,
4 configured to change impedance of a said
5 impedance network.

6 Changing the impedance of an
7 impedance network requires something to happen
8 that like for tuning or like switching, and so
9 what would be required to change an impedance
10 would be something like a switch.

11 So in that context I see that it
12 comprises of one or more passive electronic
13 component, a resistor, a capacitor, a magnetic
14 device like an inductor. And then I would see
15 the semicolon as indicating that we're going to
16 need another type of component that enables that
17 impedance to be modified.

18 Q. So you read that paragraph at column
19 9, the statement "one or more of" modifies only
20 passive electronic components; correct?

21 A. Let me see -- let me just verify how
22 I say it exactly in my report.

23 (Witness reviewing document.)

24 Q. (BY MR. WARD) If you turn to page --
25 paragraph 101 of your declaration, Randy, you

1 state --

2 A. Paragraph 101?

3 Q. Yeah. I'll read it to you and let
4 you catch up to it. You state: Hence a person
5 of skill in the art would understand the phrase
6 "one or more" modifies just the phrase that
7 follows, "passive electronic components," and not
8 the entire string of nouns separated by
9 semicolons -- i.e., "active electronic
10 components...; electronic switches."

11 A. Yes. Oh, in my analysis of the
12 sentence breakdown, that's what I've -- I've
13 spent some time.

14 Q. So how is it then that "one or more
15 of" modifies the term "passive electronic
16 components"? Going back to column 9 of the
17 patent.

18 A. You're asking why I believe that one
19 or more of passive electronic -- the -- of how
20 "one or more" modifies passive electronic
21 component?

22 Q. Yes. What does it require?

23 A. I think this is just how I read it to
24 see that it modifies the -- the passive
25 electronic components immediately follows one or

1 more of passive electronic components, for
2 example, a resistor, a capacitor, a magnetic
3 device, transducer, transformer, etc.

4 Q. Just before that, it says, The
5 impedance network 101 comprises.

6 What do you understand the term
7 "comprises" to mean?

8 A. I think that the impedance network is
9 made up of what -- what it's comprised of.

10 Q. So would you agree that the impedance
11 network 101 has to include everything that comes
12 after "comprises"?

13 MR. CARPENTER: Objection to form.
14 Are you talking about the paragraph in the spec
15 or the claim language? I lost track of where you
16 are.

17 Q. We're at column 9 of the '339 patent.
18 Line 4, it states, "The impedance network 101
19 comprises?"

20 Randy, would you understand that the
21 impedance network 101 would have to include
22 everything that comes after "comprises" in that
23 sentence?

24 A. You're asking me if I think it has to
25 include a resistor, a capacitor, a magnetic

1 device, and all of those things?

2 Q. Well, I'm just asking you generally
3 what does the term "comprises" mean to you?

4 A. Something that's made up of
5 individual parts.

6 Q. So just reading the first clause of
7 that sentence, "The impedance network 101
8 comprises," does that mean to you that what comes
9 after the word "comprises" is a list of things
10 that will be included in the impedance network
11 101?

12 A. I think there's a list of things that
13 could be included in the impedance network.

14 Q. But not required to be?

15 A. Not required to be.

16 Q. So it could be some but -- it could
17 be some of the list but not -- doesn't have to be
18 all of the list?

19 A. That's right. But it says here one
20 or more of the passive electronic components, so
21 I'm -- my thought is is that that's exactly what
22 that's saying, right, it could be one resistor,
23 two resistors, multiple capacitors, one or more
24 of those.

25 Q. But it could be just be one?

1 A. It could be one of these passive
2 electronic components. Yeah, that -- so -- okay.
3 I'm not quite following. But, yes, I think at
4 the very least, you need one or more of these
5 resistors. And then for the claim to make sense,
6 I think this semicolon is indicating that we have
7 to have a component that is able to be
8 modified to modify the impedance.

9 Q. Can impedance network 101 be made up
10 of just active components and electronic
11 switches?

12 A. It would -- not ideal electrical.
13 They would have to have an impedance in there.
14 So you would need to have something that
15 demonstrates impedance like a resistor,
16 capacitor, inductor like the figure shows --
17 Figure 1 shows.

18 Q. So the impedance network 101 as
19 disclosed in the '339 patent has to include at
20 least one passive component; correct?

21 A. It needs to include -- I would -- I
22 would say that's fair. It needs to include a
23 component that has impedance, and usually
24 passives are considered devices that have
25 impedance.

1 Q. So looking back again at this
2 paragraph at column 9 of the patent, would you
3 agree that it generally describes the impedance
4 network 101 comprises passive electronic
5 components, active electronic components, and
6 electronic switches and it gives examples for
7 those categories?

8 A. I believe it's giving examples for,
9 yeah, what are active electronic components
10 and -- and as well as -- okay -- it says "and
11 electric switches." I -- maybe I didn't
12 understand your question. The question one more
13 time. Sorry.

14 Q. Do you understand that this paragraph
15 at column 9 of the '339 patent identifies that
16 the impedance network 101 comprises passive
17 electronic components, active electronic
18 components, and electronic switches?

19 A. I would say that it has to -- to
20 be -- have an impedance, it has to have at least
21 one passive component, and to be variable to make
22 the claim make sense, it has to have something
23 that is something -- something like a transistor
24 or a switch. That's the only way I think I can
25 see it being modified.

1 Q. So the impedance network could not
2 just be passive components, in your opinion?

3 A. The -- the impedance network -- if
4 we're defining passive components as inductors,
5 capacitors, and inductors and the -- whatever
6 they're adding here, so basically causal linear
7 devices, you need to have at least one of those.
8 And then you need to have something that makes it
9 possible to vary this from control logic, which
10 could include a transistor an implementation of a
11 switch could be a transistor, so --

12 Q. So your understanding of a passive
13 electronic device is that it is a -- you used the
14 term "causal" --

15 A. Passive linear -- linear time and
16 variant device that, yeah, is going to be causal,
17 so...

18 Q. Explain to me what that means, Randy.

19 A. Oh, sure. Okay. So linear just
20 means that if I add two of these functions
21 together that are impulse responses, let's say,
22 of resistors and inductors, I can -- I can
23 consider just one at a time versus the other, and
24 then if I sum them up at the end, I should get
25 the same at the end as if I just did the

1 individual ones independently.

2 Time and variant just means that like
3 there's nothing in the capacitance that changes
4 over time, nothing in the inductant that changes
5 over the time. Passive means that no energy is
6 going into the system, it's either constant or
7 it's decaying, and causal just simply means that
8 if I have an impulse response, nothing happens
9 before the impulse response.

10 It's more of the fundamental way of
11 how I think about impedance is the impulse
12 response of a linear time and variant passive
13 system.

14 Q. The description column 9, line 4 of
15 the impedance network 101 talks about active
16 electronic components and electronic switches.

17 Do you consider an electric switch to
18 be a type of active electronic component?

19 A. Switches -- electric switches are
20 generally -- I think you can implement one of
21 them with a single transistor, but usually
22 they're a collection of transistors used to
23 implement the functionality of a switch.

24 Q. So is it your understanding that
25 impedance network 101 could be implemented with

1 as little as a resistor and an electronic switch?

2 A. Yes.

3 Q. And how would that satisfy the
4 claimed impedance network?

5 A. How would that be an impedance
6 network? I think it's that one that the --
7 impedance network is comprised of one or more of
8 an electronic switch --

9 Did we say resistor or capacitor?

10 Q. Resistor.

11 A. Okay. -- a resistor, one of those,
12 and to make it variable so that impedance can be
13 modified as it's described in the claim language,
14 you'd need something to make it modifiable. So
15 you could potentially change its impedance by
16 maybe shorting it out or something like that.

17 Q. So it's the switch would give you the
18 capability to make the modification of the
19 impedance by the resistor; correct?

20 A. That's correct. And that's also
21 supported, I think, by Figure 1 where in Figure 1
22 you have a control logic just below the impedance
23 network. Control logic cannot be connected
24 directly to a capacitor or an inductor and do
25 anything.

1 You would need it -- you would need
2 the control logic to maybe control like a
3 variable switch or a -- or a full switch, right.
4 So you need a passive element and an -- at the
5 very least something that can modify that overall
6 impedance.

7 Q. Because the passive element will
8 introduce impedance presumably; correct?

9 A. It will have an impedance, yeah.

10 Q. And so your ability to introduce that
11 impedance to the network and then remove that
12 impedance from the network allows you to change
13 the impedance profile to circuit?

14 A. That's how you change the impedance,
15 yeah. And you can do that in a lot of different
16 ways. You can have resistor and capacitors and
17 inductors, and if you put a switch in there and
18 you can pull out the resistor, that would change
19 the impedance. You can switch out like a bank of
20 capacitors potentially and that would change the
21 impedance.

22 Q. Let's take a look at 150 of your
23 declaration.

24 A. Okay.

25 MR. CARPENTER: If this is a good

1 spot, I'd like to take a break here soon.

2 MR. WARD: Sure. We can go off the
3 record.

4 (Break from 11:03 a.m. to 11:13 a.m.)

5 Q. (BY MR. WARD) Okay. Randy, we're
6 looking at paragraph 150 of your declaration and
7 it's -- it's actually the very last sentence
8 there in paragraph 150, it says: (As read) That
9 is, for the circuit to be operable as claimed, a
10 person of skill in the art would know that merely
11 selecting two or more passive elements alone from
12 the list provided above in my definition of
13 "impedance network." For the circuit to be
14 operable, it would need one of an active
15 component or a switch, separate from any switch
16 of the "switch network."

17 A. Okay.

18 Q. Can you tell me what you mean by that
19 last sentence that for it to be operable, it
20 would need an active component or a switch?

21 A. We're talking about for the circuit
22 to be operable, it would need to be one of an
23 active component or a switch; right?

24 Q. Yes.

25 A. That's what we were talking about

1 before the break is is that for it to -- for the
2 claim to make sense for the impedance to be
3 modifiable, you would need some sort of component
4 that can modify the impedance. So an active
5 component would do it like -- like a switch.

6 Q. Well, is it possible to implement it
7 with a single active component that's not a
8 switch?

9 A. Let me see.

10 MR. CARPENTER: Object to form.

11 A. I don't believe so, because I think
12 you need to have a regular passive electronic
13 component, as it says in column 9, row 4.

14 Q. So you have to have at least a
15 switch, in your opinion?

16 A. Oh, no. You have to have at least a
17 passive component like -- like a resistor or
18 capacitor or inductor, and then you need to have
19 something that can modify that impedance which
20 could be done with an active component.

21 Q. Such as a switch?

22 A. I think you've got to be careful with
23 that because a transistor can implement a switch.
24 That is a component -- that would be what I would
25 consider an active component, right. A switch in

1 general I don't think you can call an active
2 component, right.

3 Q. In paragraph 150 of your declaration,
4 you state: For the circuit to be operable, it
5 would need one of an active component or a
6 switch.

7 A. Oh. I think that means -- maybe
8 could be cleared up with saying that an active
9 component, for example, such as a switch. So an
10 active component, it can implement a switch. A
11 switch -- it needs to be some sort of electronic
12 switch so that it can be controlled by the logic.

13 I don't think it's very clear here
14 that an active component or a switch makes
15 particular sense because a switch can be
16 implemented by an active component, if that makes
17 sense.

18 Q. But you said earlier that the
19 impedance network could be as little as a passive
20 component like a capacitor and a switch; correct?

21 A. And by switch, I mean it has to be
22 electrically controlled, so it could interface
23 with the control logic.

24 Q. Let's move up to paragraph 110 of
25 your declaration. Paragraph 110, you state --

1 I'll let you get there -- (As read) Therefore,
2 the term "impedance network" should be construed;
3 further, based upon the above analysis, I
4 conclude that a person of skill in the art taking
5 the phrase "impedance network" in the context of
6 the claims read in light of the specification
7 would understand it to mean: "a collection of
8 two or more electrical components from the list
9 (1) one or more passive components; (2) active
10 components; and (3) switches."

11 A. Okay.

12 Q. So I understand that you read "one or
13 more" to only modify the first category of
14 passive components; correct?

15 A. Let me see this.

16 (Witness reviewing document.)

17 A. Okay. So I think I address this in
18 101. I spent time analyzing the sentence, says:
19 (As read) As noted above, "network" refers to two
20 or more connected components. Furthermore, the
21 sentence -- "these electronic components in
22 combination are utilized to vary impedance of the
23 dual model wireless power receiver" -- uses the
24 phrase "these components," and furthermore,
25 states that such components are utilized to vary

1 impedance. Hence a POSITA would understand that
2 the phrase "one or more" modifies just the phrase
3 that follows, "passive electronic components,"
4 and not the entire string of nouns separated by
5 semicolons -- i.e., "active electronic
6 components...; electronic switches." Taking the
7 above description in total, a POSITA would
8 understand that it would be absurd to construe
9 "impedance network" as simply a single standalone
10 passive component like a capacitor. Not only
11 would a single component, like a capacitor, make
12 little sense in context with the word "network,"
13 it would also have a fixed impedance, which
14 violates the requirement that the impedance must
15 be variable.

16 Did that phrase answer the question?

17 Q. Going back to your paragraph 110,
18 Randy, you state that the term "impedance
19 network" should be construed to mean, quote, a
20 collection of two or more electrical components
21 from the list (1) one or more passive components;
22 (2) active components; and (3) switches.

23 A. Okay.

24 Q. Does the impedance network -- is it
25 satisfied if the two components are passive

1 components?

2 A. No, it can't. It has to have at
3 least something that makes the impedance
4 modifiable.

5 Q. But your definition says a collection
6 of two or more electrical components from the
7 list, and passive components is on the list;
8 correct?

9 A. Passive components is on the list.

10 Q. So which -- which categories are
11 required? I've got three categories -- passive
12 components, active components, and switches.

13 Which are required?

14 A. One of them must be a passive
15 component, and one of them at the very minimum
16 needs to be an active component and/or switch.

17 Q. So shouldn't your definition read
18 "two or more electrical components from the list,
19 one or more passive components, and active
20 components or switches"?

21 A. So, yeah, what it should mean is is
22 that we have -- we have to have one of the
23 passive components and, yeah, one of the
24 active -- one of an active component that --
25 and/or a switch, so --

1 Q. But reading the definition as it's
2 stated there, it says, "a collection of two or
3 more electrical components from the list," so how
4 is the reader to know which categories the
5 components have to come from?

6 A. Yeah. I need to find if I -- I
7 thought I had a statement in here that says one
8 needs to be a passive component.

9 (Witness reviewing document.)

10 MR. CARPENTER: I'm going to --
11 Counsel, I'm going to put an objection on the
12 record that I object that taking that sentence
13 standing alone mischaracterizes the complete
14 construction stated in that paragraph because
15 it -- there's an additional sentence there that
16 says "I further interpret."

17 MR. WARD: Brian, just as a reminder,
18 speaking objections are not permitted in a PTAB
19 proceeding.

20 MR. CARPENTER: Yeah, on the other
21 hand, I'm not going to let counsel mislead my
22 witness. So I'm not accusing you of misleading
23 him, but I'm just pointing out on the record that
24 that one sentence wasn't a complete construction.

25 (Witness reviewing document.)

1 A. Can you read back the last question.

2 Q. Yeah, I'll just restate it.

3 A. Yeah.

4 Q. The definition of impedance network
5 that you provide in paragraph 110 states that
6 impedance network should mean a collection of two
7 or more electrical components from the list (1)
8 one or more passive components (2) active
9 components, and (3) switches.

10 A. Okay.

11 Q. Is it your opinion that the impedance
12 network could be met by just an active component
13 and a switch?

14 A. I think I talk about it leading up to
15 this paragraph for sure that I think you need to
16 have at least one passive component so that you
17 can modify impedance. And then further, at the
18 end of this paragraph, the -- it states that the
19 impedance network must be capable of having its
20 impedance controllably varied during at least the
21 receiving power mode.

22 Q. Right. And then that controllability
23 comes with either an active component or a
24 switch; correct?

25 A. The controllability comes with the

1 active -- yes, with something active or a switch.
2 But the impedance -- for the impedance to be
3 varied, there has to be an impedance, and so you
4 would at the very least need to have one or more
5 passive components to -- to make that work.

6 Q. So if one is reading your definition,
7 how are they to know that the passive component
8 is required? As it says, a collection of two or
9 more electrical components from the list, it does
10 not identify that the passive component is
11 required; correct?

12 A. But I -- after that I say: I further
13 interpret "impedance network" as being separated
14 from the induction coil used to transmit the
15 power and also separate from the "switch
16 network." As will be discussed below in
17 connection with...the impedance network must be
18 capable of having its impedance control vary
19 during at least the receiving power mode.

20 So it's a -- you finish that
21 paragraph, then I think it should be clear.

22 Q. But you would agree that reading just
23 the definition, it does not indicate that the
24 passive component is required; correct?

25 A. I would say that if you just read the

1 center of this paragraph that it would -- it
2 would appear that you would only need a
3 collection of two or more of those components
4 identified in any -- in any one of those bins.
5 However, if you finish the paragraph, I think
6 it's clear that you need an impedance from one of
7 the passive components.

8 Q. I'd like to turn to the '339 patent
9 again and take a look at Figure 10C.

10 A. Okay.

11 Q. So in Figure 10C, do you see in the
12 figure there the impedance network 101?

13 A. Yes.

14 Q. And what is impedance network 101
15 made up of?

16 A. Within the box of the impedance
17 network, there's a symbol indicating a single
18 capacitor called the -- that's named Cp.

19 Q. So in the categories that we've been
20 discussing -- passive components, active
21 components, and electronic switches, which would
22 you understand Cp to be included in?

23 A. (No verbal response.)

24 Q. Would you understand Cp to be a
25 passive component?

1 A. Oh, I'm sorry. Yes, Cp would be a
2 passive component.

3 Q. Are there any other components
4 illustrated in 10C for impedance network 101?

5 A. As I define impedance network?

6 Q. No. We're just looking at
7 Figure 10C.

8 A. Oh. Just from the figure alone, the
9 only component that I would identify in there
10 would be the capacitor Cp.

11 Q. So how is it that this impedance
12 network 101 functions as an impedance network? I
13 can direct you to the part of the
14 specification --

15 A. Oh, please.

16 Q. -- if you'd like. It starts at
17 column 22, line 41. It states: (As read)
18 Figure 10C exemplary illustrates a third
19 embodiment of the first circuitry dual mode
20 wireless power receiver 100.

21 Down at line 53, it states: (As read)
22 This AC power flows through the impedance network
23 101 comprised of a capacitor Cp.

24 A. Oh, yeah, we're looking at --

25 Q. Figure 10C.

1 A. -- Figure 10C.

2 Okay. So what I would say is in
3 column 22:37, the dual mode wireless power
4 receiver is in the charging mode. In charging
5 mode, the switching network is configured as a
6 rectifier and power regulation circuit is
7 configured as a charge pump circuit in this
8 embodiment. In charge mode, the dual mode
9 wireless power receiver receives AC wireless
10 power when its receiver coil is placed in an
11 external varying magnetic field. This AC power
12 flows through the impedance network comprised of
13 capacitor Cp.

14 So Figure 10C is clearly incomplete
15 because it doesn't consider the secondary
16 circuit. The secondary circuit shown in Figure 1
17 has a leading line that goes from the control
18 logic to the impedance network, and that's not
19 shown in Figure 10C. I believe that it's
20 assumed.

21 And in the context of reading column
22 22 and 21, I believe what we're seeing is a
23 diagram that already assumes that we have
24 switched to a particular state. If you don't
25 assume it that way, it doesn't -- the control

1 logic line wouldn't make sense. It needs to
2 be -- based on the claims, it needs to be
3 modifiable.

4 Q. And where in Figure 10C is the
5 control logic line shown?

6 A. I believe this is a depiction of the
7 first circuit in the -- in the receive state, and
8 that line is left out just like the second
9 circuitry have been left out.

10 Q. So in Figure 10C, do you see any
11 reference to what we've discussed as an active
12 component or an electronic switch or impedance
13 network 101?

14 A. I believe it's been implicitly placed
15 in there switched in a priori to -- within the
16 receive mode.

17 Q. Going back to the column that
18 describes Figure 10C, it's column 22, line 54.
19 I'll go ahead and just read the previous sentence
20 as well, line 53. (As read) This AC power flows
21 through the impedance network 101 comprised of
22 capacitor Cp. Capacitor Cp's capacitant value
23 has chosen a priori (fixed) or tuned during
24 operation (variable) to change the impedance of
25 the impedance network 101.

1 So is it your understanding of that
2 disclosure that that capacitor C_p could be a
3 fixed passive capacitor or a active variable
4 capacitor?

5 A. I believe by fixed, that means I
6 would say fixed within the context of the receive
7 mode. So just like the -- the limitation said,
8 that there's a -- I'll go back to the
9 limitation -- in 27:20, we have the: (As read)
10 said first circuitry, based on an input from said
11 control logic circuit, configured to change
12 impedance of said impedance network and topology
13 of said switch network to obtain a modified form
14 of said received power, and apply said modified
15 form of said power to said load device.

16 So in other words, I believe we're in
17 the receive mode for Figure 10, and within that
18 receive mode, we have selected that C_p , it has to
19 be modifiables. And so with figure -- I'm
20 sorry -- 22 -- oh, yeah, right here.

21 Q. Randy, the sentence states:
22 Capacitors C_p 's capacitance value is chosen a
23 priori (fixed).

24 A. Yes.

25 Q. It's indicating that the capacitance

1 value is chosen beforehand, a priori, chosen in
2 accordance with design -- correct? -- and the
3 capacitance value is fixed; correct?

4 A. Yes, within the context of the
5 received mode. So when you get into received
6 mode, you choose your capacitance and then you
7 start receiving.

8 Q. It says that the capacitance value is
9 chosen a priori fixed or tuned during operation.
10 Doesn't that mean that the capacitance value is a
11 fixed passive capacitor or a variable capacitor?

12 A. What it means is the dual mode
13 received power received in the charging mode --
14 in charging mode the switched network is
15 configured as a rectifier. So it's in the
16 charging mode. And the power regulation circuit
17 is configured as a charge pump circuit --
18 configured as a charge pump circuit, so it's
19 being established in this mode. In charging mode
20 the dual mode wireless powered received receives
21 AC wireless power when it is -- received a coil.
22 It is placed in an external varying magnetic
23 field. The AC power flows through the impedance
24 network comprised of the capacitor C_p . Capacitor
25 C_p capacitance value is chosen a priori (fixed) or

1 tuned during operation to change the impedance of
2 the impedance network.

3 So within the context of being in
4 received mode, you choose what your impedance is
5 and you can have that fixed during receive or you
6 can have that vary during received. Either way
7 that has to be modifiable. For example, if I go
8 into transmit mode, I may be able to change that
9 fixed capacitance to something else, and then --
10 then that would be a priori within the context of
11 the transmit mode. And I have to read it like
12 that because of how in the -- with the claim
13 describes configured to modify impedance.

14 Q. So would you agree that capacitor Cp
15 could be a fixed passive capacitor, in other
16 words, say a 1 microfarad capacitor?

17 A. In the context of the received mode,
18 you could switch it into a fixed 1 nanofarad
19 capacitor.

20 Q. And in order for you to be able to
21 switch it, as you say, it would have to be a
22 variable capacitor; correct?

23 A. No. It would have to be potentially
24 a capacitor that's connected to a switch and a
25 priori you close that switch to make that

1 capacitance fixed during the operation of
2 received.

3 You could afterwards if you go into
4 transmit mode, you could pull that capacitor out
5 completely by unswitching the switch and then you
6 would a priori fix that impedance -- well, it --
7 you'd have to have some kind of impedance, but
8 you could a priori change that impedance or the
9 transmit mode.

10 Q. So let's take a look back at
11 Figure 10C.

12 A. Okay.

13 Q. So you would agree that what's shown
14 as C_p in Figure 10C could be a fixed passive
15 capacitor; correct?

16 A. During received mode. And wireless
17 power receiver is what it says at the top of
18 the --

19 Q. And where in Figure 10C is it shown
20 that capacitor C_p could be varying?

21 A. I think you have to take it
22 implicitly with -- in context with Figure 1.
23 Figure 1 shows that there's control logic that
24 connects to the impedance network.

25 Q. But you would agree that that's not

1 shown in Figure 10C; correct?

2 A. I would agree that that's not shown
3 in 10C, along with the secondary circuitry is
4 also not shown.

5 Q. And then the description of
6 Figure 10C at column 22, line 57, it says:

7 (As read) The AC power flows from
8 the impedance network 101 into switch network 102
9 where it is converted into direct current power
10 via one of asynchronous, semi-synchronous, and
11 fully synchronous operation of S3, S4, S5, and
12 S6.

13 So you'd agree that what's shown in
14 Figure 10C provides an impedance network with the
15 AC power flow as described?

16 A. Hold on. I'm sorry.

17 Q. You can pull them apart.

18 A. Yeah, this is insane. Let me get
19 back to 10C. Okay. And then 20 --

20 Q. Yeah, it's column 22, line 57, "The
21 AC power flows."

22 A. (As read) The AC power flows from the
23 impedance network into the switch network where
24 it's converted into DC power via one of an
25 asynchronous, semi-synchronous, and fully

1 synchronous operation of switch S3, S4, S5, S6.

2 A full synchronous operation of switches S3, S4,
3 S5, S6 illustrated in Figure 6D.

4 But we're looking at this in the
5 context of 10C; is that right?

6 Q. Yes, this is the description of 10C.

7 A. Okay. Yes, I believe it does show
8 that -- is that what you're saying is is the --
9 that the AC power flows from the impedance
10 network into the switch network where it is
11 converted to DC power via one of asynchronous,
12 semi-synchronous, and fully synchronous operation
13 of switches S3, S4, S5, and S6. And you're
14 asking if I believe this is what this is showing?

15 Q. Do you agree that Figure 10C shows an
16 impedance network that corresponds to your
17 definition of impedance network?

18 A. Under the received mode of operation,
19 assuming that this was placed in there by the
20 control logic, yes.

21 Q. Take a look just one page down in the
22 figures, so it's Figure 10E.

23 A. Yeah.

24 Q. And do you see impedance network 101
25 in Figure 10E?

1 A. Yes.

2 Q. Would you agree that it illustrates a
3 single capacitor Cs as part of that impedance
4 network 101?

5 A. I don't see it here. This is 10E and
6 is it referred to -- oh, here we go. I think I
7 got it. Okay. The simple question was is the
8 only impedance that I see inside the impedance
9 network box?

10 Q. Yes.

11 A. Yes, there's only a Cs inside this
12 received power mode.

13 Q. So you would agree that Figure 10E
14 illustrates an impedance network 101 that matches
15 your definition of an impedance network?

16 MR. CARPENTER: Objection. Form.

17 A. I believe that this is an incomplete
18 picture because it's assuming that we are already
19 in the received power mode and that the impedance
20 has already been selected presumably by a switch
21 or something in this. So this is an a priori
22 selection within the receive mode.

23 Q. How does the figure indicate that a
24 different impedance would be achieved in another
25 state?

1 A. Well, this box is rep -- it's calling
2 it and the impedance network, and with the
3 combination of Figure 1 would show that there has
4 to be a control logic to connect to it. I'm
5 presuming -- I believe that this is showing that
6 the impedance network, which needs to be
7 connected to the control logic for the purpose of
8 being modified, I believe this is showing a
9 impedance that's already been selected.

10 Q. But you would agree that there's no
11 type of connection control logic for impedance
12 network shown in Figure 10E?

13 A. I agree. But the figure also doesn't
14 show the secondary circuit.

15 Q. Would you agree that the same is true
16 for what's shown in Figure 10F as impedance
17 network 101 in Figure 10F?

18 A. I would say that regarding the
19 impedance network, it is showing the --
20 materially the same thing as Figure 10E.

21 MR. WARD: Okay. We can go off the
22 record.

23 (Break from 11:57 a.m. to 12:53 p.m.)

24 Q. (BY MR. WARD) All right. Back on
25 the record. And, Randy, I just wanted to pick up

1 where we left off. We were discussing some
2 figures from the '339 patent.

3 A. Okay.

4 Q. And specifically we'd looked at
5 Figure 10C.

6 A. Okay. Yes.

7 Q. And we were looking at the
8 corresponding disclosure in the patent with
9 respect to 10C, and I want you to turn with me to
10 that disclosure as well now that you can look at
11 both there. So if you look at column 22, you'll
12 see the disclosure with respect to 10C starts
13 column 22 at line 41.

14 And you noted that what's being
15 described in this paragraph is disclosure when
16 the dual mode wireless power receiver 100 is in
17 the charging mode. And I wanted to turn to the
18 next page and direct your attention to column 23,
19 line 1, and this description is description of
20 Figure 10C for the communication mode. So I just
21 want to read you two sentences from this first
22 paragraph.

23 A. Okay.

24 Q. It says: (As read) In Communication
25 Mode the switch network 102 illustrated in

1 Figure 10C is configured as an inverter and the
2 power regulation circuit 108 is configured as a
3 pass through.

4 So to your understanding that what's
5 being discussed here is the communication mode as
6 opposed to the charging mode for 10C?

7 A. That's right. Yeah, this is the
8 charging mode. Or I'm sorry. Communication mode
9 is when it's charging an external device.

10 Q. Yes. So the last sentence of that
11 paragraph is down at column 23, line 11. It
12 says: (As read) AC power flows through the
13 impedance network 101 into the receiver coil 106
14 where the alternating current creates a varying
15 magnetic field enabling transfer of power to the
16 secondary wireless power receivers 300.

17 So can you identify for me, Randy,
18 the difference in communication mode versus power
19 receive mode as far as that's shown in
20 Figure 10C?

21 MR. CARPENTER: Objection to form.

22 (Witness reviewing document.)

23 A. Okay. I just read that paragraph
24 again one more time. And the question?

25 Q. The question is can you identify

1 where in Figure 10C the communication mode is
2 illustrated?

3 A. Well, with respect to what I'm seeing
4 on this picture, I don't see it configured as
5 a -- in the communication mode other than what it
6 describes in the paragraph where it says S9, S10,
7 S7, and S8 are put into a certain configuration.

8 Q. So it says that S9 and S10 are turned
9 on; correct?

10 A. That's right.

11 Q. And S7 and S8 are turned off;
12 correct?

13 A. That's right, yes.

14 Q. And with that topology, what's shown
15 in Figure 10C is the dual mode wireless power
16 receiver in communication mode; correct?

17 A. Yes, under that configuration it
18 looks like that's what they're calling in
19 communication mode.

20 Q. So would you agree that Figure 10C
21 shows the dual mode wireless power receiver both
22 for charging mode and communication mode?

23 A. Yeah, I would say so with the -- with
24 the understanding that the -- the switches are in
25 is S -- sorry -- with the understanding that S9,

1 S10, S7, and S8 are in a particular
2 configuration.

3 Q. And would you agree that the
4 impedance network 101 is unchanged between the
5 charging mode and the communication mode?

6 A. In this paragraph it doesn't seem
7 like they talk about anything happening in the
8 impedance network.

9 Q. So you would agree that there's no
10 changes to the impedance network between charging
11 mode and communication mode?

12 A. In this figure I don't think that's
13 what they're trying to talk about -- or that's
14 what this paragraph is talking about is changing
15 this impedance. So what I would say is that
16 their -- since they're not referencing the
17 impedance network other than just being pass
18 through, they're not talking about it being
19 modified in this particular case.

20 Q. Okay. I want to turn to
21 paragraph 105 of your declaration, Randy.

22 A. Okay. I'm there at 105.

23 Q. Paragraph 105 you state: (As read)
24 As stated in Claim 3, the impedance network must
25 be comprised of "elements." The plural indicates

1 two or more. The use of the verb "are" reflects
2 the plural nature of "elements." "A priori"
3 simply means "relating to or derived by reasoning
4 from self-evident propositions." This word -- a
5 priori -- modifies "chosen." The word "values,"
6 that is, the thing that must be chosen for the
7 "elements" is plural. The phrase "and tuned
8 during operation over range of values" further
9 restricts the collection of the elements -- they
10 must be "tunable during operation." Thus,
11 Claim 3 merely places an additional restriction
12 on the impedance network, wherein the component
13 parts of the "impedance network" such as the
14 passive devices that have values must be chosen
15 "a priori," and the devices must be tunable
16 during operation.

17 Claim 3, Randy, states that the first
18 circuitry comprising of elements that are one of
19 chosen a priori with fixed values -- sorry, let
20 me read it to you again.

21 Claim 3 says: (As read) Said first
22 circuitry comprising of elements that are
23 chosen -- sorry. Let me start over.

24 Claim 3 states: (As read) Wherein
25 said impedance network of said first circuitry

1 comprising of elements that are one of chosen a
2 priori with fixed values and tuned during
3 operation over a range of values.

4 Is it your contention that the
5 circuit element to comply with Claim 3 has to be
6 chosen a priori with a fixed value and tuned
7 during operation?

8 A. I think to be more specific, it needs
9 to be tunable during operation, so having the
10 ability to be tuned.

11 Q. Randy, how do you tune a fixed
12 passive component?

13 A. I --

14 (Witness reviewing document.)

15 A. A fixed -- let me see here. What I'm
16 trying to make clear is is that you have an
17 impedance that is being tuned one of the ways in
18 which you can do that is by switching it in and
19 out of an impedance network. So I think saying
20 that a passive element can be tuned -- did I say
21 that in -- in the report?

22 Q. I'll just read to you -- it's at the
23 end of 105.

24 A. Okay.

25 Q. And it says: (As read) Such as the

1 passive devices that have values must be chosen a
2 priori and the devices must be tunable during
3 operation.

4 A. Yes, they must be tunable, so I think
5 what I'm trying to say is that the impedance
6 itself can be tuned. So one way of doing that is
7 by switching in and out a capacitance value or an
8 inductor.

9 Q. So the claim does not require the
10 ability to tune all of the elements in the
11 circuit?

12 MR. CARPENTER: Objection to form.

13 A. I believe the claim is stating that
14 the -- the impedance itself needs to be tuned.
15 And why I say that is it doesn't make sense for a
16 particular passive element itself to be tuned.
17 You would need either something that's an active
18 element that perhaps has an impedance or you
19 would need to have something like a collection of
20 values having impedance that can be switched in
21 and switched out. That's my understanding based
22 on the picture and what the patent states at
23 column 9, row 4.

24 Q. So the claimed impedance network does
25 not require that all elements of the network be

1 tunable; correct?

2 A. The individual elements themselves
3 are not required to be tunable because you can't
4 tune fixed passive elements.

5 Q. We discussed before that one example
6 of the claimed impedance network could be a
7 capacitor and a switch such that you could
8 introduce impedance by switching the capacitor
9 into the circuit and remove impedance by
10 switching the capacitor out of the circuit;
11 correct?

12 A. Correct.

13 Q. Would that match with your definition
14 of being tunable?

15 A. Yes, I believe that matches the --
16 what I've understood from the patent.

17 Q. So having a capacitor that I could
18 switch in and out of the circuit complies with
19 your statement that it must be tunable during
20 operation; correct?

21 A. An impedance network that has an -- a
22 passive element that could be switched in and
23 out, yes, is tunable -- is a tunable impedance --
24 well, you've got to be careful because the
25 impedance network is taken within the context of

1 the -- the claim itself. So I would say that
2 the switch that is tuning the impedance network
3 must be the switch that is part of the impedance
4 network identified in Figure 1 of the '339
5 patent.

6 So on Figure 1 of the '339, you have
7 an impedance -- passive elements that have
8 impedance that can be tuned using the switch that
9 is in the impedance network. That is a way to
10 tune impedance.

11 Q. So the impedance network does not
12 require variable components, it can include only
13 fixed passive components; correct?

14 MR. CARPENTER: Objection to form.
15 Mischaracterizes.

16 A. I don't -- are you saying -- are you
17 indicating that passive components can have
18 variable impedance?

19 Q. I'm asking if the impedance network
20 can include only a passive fixed component?

21 MR. CARPENTER: Objection to form.

22 A. No. It requires a -- an active
23 component that may implement a switch, or it
24 requires something that's controllable and
25 passive elements are not by themselves

1 controllable.

2 Q. And looking back at Figure 10C.

3 A. Okay.

4 Q. Would you agree that that active
5 component is not shown with respect to the
6 impedance network in Figure 10C?

7 A. I believe that it must be implicit
8 because this is the impedance network, and the
9 impedance network requires something like a
10 switch in order to be controllable. You can't
11 control that impedance -- this -- this network as
12 is. It would -- and they've taken out the line,
13 so I think it's implicit.

14 Q. Let's take a look at paragraph 114 of
15 your declaration. 114 you state: (As read) The
16 limitation 1.d that precedes limitation 1.e is
17 said first circuitry configured to receive said
18 power from a wireless powering transmitter. In
19 view of the fact that the dual mode wireless
20 power receiver is claimed as being in the
21 receiving a charged mode limitation 1.d,
22 limitation 1.e should be interpreted as adding
23 additional limitations related to dual mode
24 wireless power receiver while in the charging
25 mode.

1 So I understand from 114, Randy, that
2 your opinion is that the Claim 1 requires the
3 dual mode wireless power receiver be in the
4 receiving charge mode for Claim 1.e; correct?

5 A. Yeah, 1.e.

6 Q. Let me read to you --

7 A. Thank you.

8 Q. I'll read to you 1.d and 1.e. So
9 starting with 1.d it's the clause that states:
10 (As read) said first circuitry configured to
11 receive said power from a wireless power
12 transmitter. Claim 1.e states: (As read) said
13 first circuitry, based on an input from said
14 control logic circuit, configured to change
15 impedance of said impedance network and topology
16 of said switch network to obtain a modified form
17 of said received power, and apply said modified
18 form of said power to said load device.

19 Randy, can you identify to me the
20 language in either Claim 1.d or 1.e that requires
21 the power receiver to be receiving a charge?

22 THE WITNESS: Sorry. Can I take a
23 quick break to use the restroom?

24 MR. WARD: Yeah.

25 THE WITNESS: Sorry about that.

1 (Break from 1:16 p.m. to 1:19 p.m.)

2 Q. (BY MR. WARD) So, Randy, taking a
3 look at Claim 1.d and 1.e that we just read, can
4 you identify for me in of those clauses where it
5 requires the dual mode wireless power receiver be
6 in the receiving charge mode?

7 A. In 1.e states "configured to change
8 impedance of said impedance network and topology
9 of said switch network to obtain modified form of
10 said received power." So in 1.e, this is a
11 configuration of -- a configured to change
12 impedance for and the topology of the switch
13 network for received power.

14 Q. Would you agree that with respect to
15 1.d where it says "first circuitry configured to
16 receive said power," that the first circuitry
17 merely is required to be configured to receive
18 power, not that it has to be receiving power at
19 all times; correct?

20 A. I would say yes. Because in 1.f it
21 must be configured to transmit power, so I would
22 say yes.

23 Q. So you would agree that the language
24 in 1.d, "said first circuitry configured to
25 receive power," merely requires that the first

1 circuitry be able to receive power, not that it
2 be always configured to receive power?

3 A. That's correct. It has to be
4 configured to receive power, as it says.

5 Q. And as you note in Claim 1.f, it
6 states, "first circuitry configured to change
7 said topology of said switch network and said
8 impedance of said impedance network to transmit."
9 Correct?

10 A. Yeah, in this case it would be
11 configured for transmit.

12 Q. And would you understand the term
13 "configured to" to indicate a capability to
14 provide that functionality?

15 A. If the circuitry is configured to
16 receive power from wireless power transmitter and
17 it must be somehow configured to transmit to
18 transmit power so --

19 Q. So by implication, the first
20 circuitry has to be able to change between
21 receive power mode and transmit power mode;
22 correct?

23 A. Yeah, it has to have some provisions
24 to be able to change between those two modes.

25 Q. And the statement in 1.e, the first

1 circuitry be configured to change impedance to
2 obtain a modified form of received power requires
3 that the received power be in a modified form;
4 correct?

5 MR. CARPENTER: Objection to form.

6 A. What must be in the modified form?

7 Q. It says to obtain a modified form of
8 received power.

9 A. Yes.

10 Q. So to satisfy that limitation, I
11 merely need to somehow modify the form of the
12 power that's been received; correct?

13 A. You do need to modify the form of
14 received power.

15 Q. There's no statement in Claim 1.e
16 that the first circuitry is currently receiving
17 power; correct?

18 A. I'm -- it's got to be in some kind of
19 state to receive power to obtain a modified form
20 of received power.

21 Q. Would you agree that the first
22 circuitry could be altered, i.e., the impedance
23 of the first circuitry and the topology could be
24 altered at one time, and then at a later time
25 power be received and obtained such that it's in

1 a modified form?

2 MR. CARPENTER: Objection to form.

3 A. Is there a way to break that down
4 into a couple of questions? I'm having a hard
5 time following.

6 Q. Does Claim 1.e require that you
7 simultaneously change the impedance of the
8 impedance network and the topology of the switch
9 network while receiving power?

10 A. Well, the claim says configured to
11 change impedance of said impedance network and
12 topology of switch network to a -- be modified,
13 so it's got to be at least configured for it.

14 Q. But you'd agree you could configure
15 it at one time and then do the power receiving at
16 a later time?

17 A. I would believe that in association
18 with the impedance, you could change the
19 impedance and then you could modify it to -- you
20 could change the impedance to modify power and
21 you can change the switch network to modify
22 power, you could do that.

23 Q. But you agree that the changes could
24 take place at a first time and that the receiving
25 power could take place at a second time; correct?

1 A. Sorry, I'm feeling very slow right
2 now. Say that one more time. I'm not trying to
3 be difficult. I'm --

4 Q. Yeah. So would you agree that the
5 changes to the impedance network and the topology
6 of the switch network could be made at a first
7 time, and then the power could be received at a
8 later time?

9 A. So I believe that the -- the
10 impedance of the impedance network could be
11 modified at one time, and then I believe that the
12 switch network -- the topology of the switch
13 network could be at a separate time to receive
14 power.

15 Q. Let's look at paragraph 121 of your
16 declaration. You make a related statement in
17 paragraph 121.

18 A. Okay.

19 Q. You state: (As read) In view of the
20 surrounding claim language and the specification,
21 a person of skill in the art would understand
22 that that limitation i.e requires the "impedance
23 network" be controllably varied during at least
24 the receiving power mode.

25 Do you mean that the impedance has to

1 be modified while the device is receiving power?

2 MR. CARPENTER: Objection.

3 A. I see. I would say that the
4 impedance merely needs to be configurable to --
5 to change. And are you asking is it required to
6 be controllably -- like it has to change over the
7 period of being received?

8 Q. My question is in reading
9 paragraph 121 of your declaration, you say that
10 limitation 1.e requires that the impedance
11 network be controllably varied during at least
12 the receiving power mode.

13 Does that require that the impedance
14 of the impedance network change while the device
15 is receiving power?

16 A. I think it merely needs to be
17 configured to be changed.

18 Q. And what's the difference between?

19 A. Well, I think it needs to be
20 configurable for if you're in the receive mode as
21 the claim states. It says it's configured to
22 change impedance of said impedance network and
23 topology of said switch network. So it needs to
24 at least be configurable to change.

25 Q. So in your opinion, Claim 1.e does

1 not require realtime modification to the
2 impedance of the impedance network during
3 receiving power mode?

4 MR. CARPENTER: Objection to form.

5 A. And my paragraph 120 says: (As read)
6 In addition, the specification states in
7 connection with the description of "impedance
8 network," that its impedance must be capable of
9 being varied or adjusted.

10 So there could be a case where under
11 that situation when you're in receive mode,
12 you -- it's configurable but you don't
13 necessarily vary it is how I interpret
14 "configured to change."

15 Q. How do you marry that with your
16 statement in paragraph 121 that it be
17 controllably varied during at least the receiving
18 power mode? It doesn't say "configured to be
19 controllably varied." It says "controllably
20 varied during receiving power mode -- the
21 impedance of the impedance network; correct?

22 MR. CARPENTER: Objection to form.
23 You just keep switching out mode and actually
24 receiving power. Those are two different things.

25 A. I think this is more accurate to say

1 that it's -- like I said up here, that the
2 impedance must be capable of being adjusted.

3 Q. So do you believe that your statement
4 in paragraph 121 needs to be corrected to say
5 "capable of being controllably varied"?

6 A. I think it needs to be configurable
7 to be controllably varied at least in receiving
8 power mode.

9 Q. So, Randy, would you agree that for
10 Claim 1.e, that there's no requirement for
11 realtime impedance changes when receiving power?

12 MR. CARPENTER: Objection to form.

13 A. I think at the very least, it should
14 be configured to change impedance of topology of
15 the switch network, it has to be configurable.

16 Q. But you would agree it doesn't
17 require realtime impedance changes when receiving
18 power; right?

19 MR. CARPENTER: Objection to form.

20 A. I think that could be true provided
21 that it's configured to change impedance. So the
22 impedance network needs to be at the very least
23 configured to change impedance.

24 Q. Okay. I want to move on to an
25 exhibit, it's the Chatterjee document, which I

1 believe is Exhibit 1003.

2 (Exhibit 1003 was marked.)

3 Q. So I'm handing you guys a copy now of
4 Exhibit 1003, which is Chatterjee, and I want to
5 take a look at this in context of your
6 declaration, Randy.

7 A. Okay.

8 Q. And so I'd like you to turn to
9 paragraph 137, and it's native page 66 of your
10 declaration.

11 A. You said 66 -- you said 137?

12 Q. Yeah, but I want to start on the next
13 page.

14 A. Oh.

15 Q. You see where you've reproduced
16 Figure 6A?

17 A. Yes.

18 Q. And that's 6A from Chatterjee, which
19 is Exhibit 1003; correct?

20 A. Exhibit 1003, correct.

21 Q. You state: (As read) This Figure is
22 described in relevant part to "Bi-directional
23 Coil Assembly 631" as follows: The
24 bi-directional coil assembly 631 is coupled to
25 all three branches of the power bridge circuit

1 and includes a capacitor C1 and two inductive
2 coils L1 and L2.

3 And do you see that bi-directional
4 coil assembly 631 illustrated in Figure 6A?

5 A. Yes.

6 Q. And do you see where it illustrates
7 capacitor C1 and inductive coils L1 and L2?

8 A. Yes.

9 Q. You state in paragraph 138 of your
10 declaration: (As read) As shown and displayed in
11 Chatterjee, the two inductor coils in L1 and L2
12 are used to receive or transmit power.

13 Correct?

14 A. Yes.

15 Q. Can you explain to me how -- how is
16 it that two coils L1 and L2 would be used to
17 receive power?

18 A. In paragraph 156 of my report, I have
19 a figure in -- that indicates the receive mode
20 where G1 and G2 didn't -- are not connected and
21 the current would be induced electromagnetically
22 into the series combination of L1 and L2. So
23 current would -- from there would be impressed on
24 the handful of transistors G4, G5, G6.

25 Q. So it's your understanding that

1 Chatterjee is disclosing that both L1 and L2 are
2 receiving wireless power?

3 A. Yes.

4 Q. Is it common to use two coils to
5 receive wireless power in circuits like these?

6 A. Well, you could use two coils to
7 increase the overall inductance, so that would
8 give you potentially the ability to more
9 efficiently receive power.

10 Q. Explain that to me. How do you more
11 efficiently receive power with two inductors?

12 A. If you have a higher inductance, then
13 you would need less flux -- electromagnetic flux
14 to produce the same current.

15 Q. Is it possible that one inductor is
16 used for receiving and the other is for impedance
17 matching?

18 A. Is there a location in Chatterjee
19 where he discusses that?

20 Q. Yeah. Let's take a look at
21 Chatterjee paragraph 64. At paragraph 64 -- I'll
22 skip a couple of lines down -- it states:

23 (As read) In the power transmit mode, G5 and G6
24 are de-asserted by the control logic so that the
25 switches 625 and 626 in the sync bridge

1 branch 613 are in an off, i.e., (open) state.
2 The sync bridge branch 613 is off while
3 the H-bridge branch 611 and the shared branch 612
4 are active. Accordingly, current flow through
5 the inductor L2 is turned off and current flow
6 through the bi-directional coil assembly 631 is
7 directed through the series combination of
8 capacitor C1 and inductive coil L1.

9 So, Randy, would you agree that in
10 power transmit mode, C1 -- capacitor C1 and
11 inductive coil L1 are part of the active circuit?

12 A. I might need some clarification. I
13 thought we were talking about receive mode when
14 you -- when we asked the question.

15 Q. Okay. Well, we can start there, it's
16 the next paragraph in Chatterjee.

17 A. Yeah.

18 Q. So take a look at paragraph 65.

19 A. Gotcha. I'm there.

20 Q. And I'll read a couple of lines down
21 in paragraph 65. It says: In this mode of
22 operation of the inductive signal interface,
23 signals G1 and G2 are de-asserted. Switches 621
24 and 622 of the H-bridge branch 611 are in the off
25 state. Thus, the H-bridge branch 611 is off

1 while the sync bridge branch 613 and the shared
2 branch 612 are active. By turning off the
3 H-bridge branch 611 current flow through
4 capacitor C1 is turned off, the current flow
5 through the bi-directional coil assembly 631 is
6 erected through the series combination of
7 inductive coils L1 and L2.

8 A. Okay.

9 Q. So is your understanding, Randy, that
10 in power received mode, capacitor C1 is turned
11 off and there's current flow through inductive
12 coils L1 and L2?

13 A. Yes.

14 Q. And we just read paragraph 64,
15 Chatterjee's disclosure of power transmit mode.
16 And is it your understanding that in power
17 transmit mode, L2 is turned off and capacitor C1
18 and inductive coil L1 are active?

19 A. Yes.

20 Q. So would you agree then that in power
21 transmit mode, only coil L1 is utilized?

22 A. For transmitting power, yes.

23 Q. And power receive mode, both coils L1
24 and L2 are active but the capacitor C1 is turned
25 off; correct?

1 A. Correct.

2 Q. And you would agree that the
3 impedance of the circuit is different with
4 capacitor C1 turned off; correct?

5 A. Say that one more time.

6 Q. Would you agree that the impedance of
7 the circuit is different with capacitor C1 turned
8 off?

9 A. From what terminals?

10 Q. Paragraph 65 of Chatterjee states
11 that by turning off H-bridge circuit, current
12 flow through capacitor C1 is turned off.

13 A. Okay. So if that's turned off, are
14 you saying that the terminals of the impedance
15 are those that are connected to the right side of
16 L1 and the bottom side of L2?

17 Q. I'm saying looking at the overall
18 circuit, is the impedance value of the circuit
19 changed if C1 is turned off?

20 A. I can't answer that question. An
21 impedance it needs to be between two terminals.

22 Q. Okay. So identify the two terminals
23 that you had referenced.

24 A. In this received mode, L1 and L2 are
25 on. So if you look at the terminals, it's the

1 terminal over to the right and terminal down at
2 the bottom. The terminals indicated in green in
3 paragraph 156, that would look like a pure
4 inductance based on those ideal inductive
5 components.

6 Q. So taking a look at your
7 paragraph 156 of your declaration, you've
8 highlighted in green the -- what Chatterjee
9 discloses as the receiving power mode; correct?

10 A. That's correct.

11 Q. And then if we turn to paragraph 162
12 of your declaration.

13 A. I'm there.

14 Q. You've highlighted in green the
15 active circuit for the transmit power mode for
16 Figure 6A of Chatterjee; correct?

17 A. That's correct.

18 Q. And would you agree that there is a
19 difference in the impedance of those two active
20 circuits?

21 A. I would, yes, where the -- now the
22 new terminals are identified as the terminal
23 connected to C1 off on the left and the terminal
24 connected to L1 on the right and no longer the
25 terminal down on the bottom of the bi-directional

1 coil assembly.

2 Q. So would you agree that Chatterjee's
3 bi-directional coil assembly's impedance is
4 changed based on mode of operation?

5 A. Yeah. Under the receive mode you
6 have the L1 and L2 in it enabled, and in the
7 transmit, you have the C1 and L1 enabled. And
8 those are -- those would be two different
9 impedances.

10 Q. So taking a look at your
11 paragraph 149 of your declaration, page 71.

12 A. Got it.

13 Q. Middle of the paragraph, you state:
14 (As read) I disagree that C1 of Figure 6B or the
15 other circuits shown in Figure 6A through 6C --
16 I'm sorry -- shown in Figure 6A, 6C, 6D provide
17 variable impedance under different modes.

18 So how is it that Figure 6A doesn't
19 illustrate variable impedance under different
20 modes?

21 A. Okay. So when in the mode receive or
22 transmit, I don't see -- or I haven't read of any
23 switches that are within this bi-directional coil
24 assembly that would allow for or would make it so
25 configured to change as there are no switches in

1 there.

2 Q. But you say you do agree that
3 Chatterjee's bi-directional coil assembly
4 provides different impedance based upon the mode
5 of operation; correct?

6 A. In different modes in the transfer
7 versus receive mode, yes, there are two different
8 impedances.

9 Q. And as we saw in your annotated
10 figures at paragraph 156 of your declaration and
11 paragraph 162, the difference in those is that in
12 the transmit power mode C1 and L1 are active, L2
13 is inactive, and in the receive power mode, C1 is
14 inactive and L2 and L1 are active; correct?

15 A. That's correct.

16 Q. And that provides for a modification
17 of the impedance between those two modes;
18 correct?

19 A. There is a different impedance
20 between those two modes, but within those modes
21 they're not configured to be modified.

22 Q. So your understanding of the claim is
23 that in power receive mode, the circuit has to be
24 modified?

25 A. Modifiable, yeah.

1 Q. And what would that mean, modifiable?

2 A. You would need to have control logic
3 that could switch in and out be maybe one of the
4 inductors. If one of these inductors is an
5 inductor and not part of the coil, you would need
6 to have a switch that -- that's able to tune it
7 in and out. And in the transmit mode, you would
8 need a switch to be able to pull the C1 in and
9 out, which is controllable by a circuit so it be
10 controllable.

11 Q. So it's your opinion that you would
12 need to be able to make those modification let's
13 say for power received mode while receiving
14 power?

15 A. I.e says: Said first circuit based
16 on input from said control logic circuit,
17 configured to change impedance of said impedance
18 network and topology of said switch network to
19 modified form of said received power and apply
20 said modified form to the load device. And then
21 there's an "f" that says the first circuit based
22 on input from the said control circuit configured
23 to change said topology of said switch network
24 and said impedance of said impedance network to
25 transmit at least part of the said store power to

1 the said second wireless power receiver to power
2 up said second wireless power receiver.

3 I believe that indicates that when
4 you're in a receive mode, you need to be able to
5 have the ability to modify impedance. And when
6 you're in the transmit mode, you need to be able
7 to configure to be able to change the impedance.

8 Q. As you said earlier, it doesn't
9 require realtime modification of the impedance,
10 just that it be configured to be modifiable;
11 correct?

12 MR. CARPENTER: Objection to form.
13 Mischaracterizes.

14 A. Yes, while in those modes it needs to
15 be configurable. But I would say to make the
16 technology work, it should be doing at least
17 something, perhaps a change -- once you're in the
18 transmit mode, you can change now an impedance.
19 And once you're in the receive, you have the
20 ability to change in and out the impedance or
21 con -- tune or modify the impedance.

22 Q. So you do contend that you have to be
23 able to actively modify impedance while receiving
24 power?

25 A. When in receive mode, you have to

1 have -- you at least have to be -- the impedance
2 has to be configurable. When in transmit mode
3 the impedance has to be configurable.

4 Q. Let's take a look at paragraph 147 of
5 your declaration. It's page 70.

6 A. Cool.

7 Q. Sorry. You state: (As read) It
8 appears that Dr. Phinney excluded L3 in Figure 6B
9 in identifying the impedance network, but instead
10 relied upon C2 and a wire with no impedance. As
11 an initial matter, a person of skill in the art
12 would not require a wire as an electrical
13 component. A wire does not belong to the
14 electrical components from the list one or more
15 passive components, active components, and
16 switches. A person of skill in the art would
17 understand that ideal wires such as those shown
18 in Figure 6B are the objects that connect
19 electrical components together and are not
20 components in a sense.

21 You stated earlier that there's no
22 such thing as ideal wire in reality; right,
23 Randy?

24 A. A physical wire, yes.

25 Q. And that's because all wires exhibit

1 parasitic implications; correct?

2 A. Real wires have parasitics.

3 Q. So a real wire will exhibit a certain
4 amount of resistance; correct?

5 A. Yep.

6 Q. A certain amount of impedance?

7 A. Inductance.

8 Q. Inductance, sorry. And a certain
9 amount of capacitance?

10 A. Under -- that would be a more rare
11 condition. If you're just looking at a piece of
12 wire, you would probably model it more at certain
13 frequencies at resistance and conductance, yes, a
14 real wire.

15 Q. So you say a person of skill would
16 not understand that ideal wires such as those
17 shown in Figure 6B are objects that connect
18 electrical components together.

19 Would you understand that what's
20 shown in Figure 6B is an indication of an actual
21 circuit?

22 A. I would call this a model of an
23 actual circuit, yes.

24 Q. But would you agree that if that
25 model was implemented, the wires would not be

1 ideal wires?

2 A. I agree, yes, if you actually
3 implemented this model, there would be
4 parasitics.

5 Q. And so the wires, for instance, would
6 have a certain amount of resistance to them?

7 A. Yes.

8 Q. And capacitance?

9 A. Of inductives.

10 Q. Right.

11 A. In a real model -- in a
12 implementation of this, yes.

13 Q. Just below that paragraph 150, you
14 state: (As read) Figure 6B on which Dr. Phinney
15 relied shows only a single capacitor C1. Hence,
16 the Board appears to believe that the circuits of
17 Figures 6A, 6C, and 6D show more than one
18 capacitor. However, Claim 1 via limitations 1.e
19 and 1.f requires certain functionality that could
20 not be accomplished using merely two or more
21 capacitors.

22 And is this opinion, Randy, based
23 upon the fact that you believe the claim requires
24 a passive component and something that can
25 essentially turn on or off that capacitive

1 component?

2 A. I would say yes. So it says:
3 (As read) Claim 1 via limitations 1.e and 1.f
4 requires certain functionality that could not be
5 accomplished using merely two or more capacitors
6 or two or more passive components.

7 Q. And if you flip over to the next
8 page, same paragraph, 150, you state: (As read)
9 For the circuit to be operable, it would need one
10 of an active component or a switch, separate from
11 any switch of the "switch network."

12 And is it your understanding that
13 that active component or switch is necessary to
14 turn on or off the passive component, i.e.,
15 introduce the impedance associated with a passive
16 component?

17 MR. CARPENTER: Objection to form.

18 A. I would say that, yeah, you'd need to
19 have that active component so that the impedance
20 network can be configured to change.

21 Q. And that impedance network could be
22 configured prior to power being received;
23 correct?

24 MR. CARPENTER: Objection to form.

25 A. That's true as long as it is

1 configurable to change.

2 MR. WARD: Okay. Let's go off the
3 record.

4 (Break from 2:05 p.m. to 2:16 p.m.)

5 Q. (BY MR. WARD) Okay. Randy, I want
6 to take a look at your review of some of the
7 other figures from Chatterjee. So take a look at
8 paragraph 157 of your declaration. It's at
9 page 76.

10 A. Okay.

11 Q. You say: (As read) The circuit of
12 Figure 6B in the receiving power mode highlighted
13 in the image below. You say: The configuration
14 of the circuit in this figure is merely identical
15 to that of Figure 6A. The difference is that
16 there is a single coil, L3, in the circuit rather
17 than the series of inductors L1 and L2 from
18 Figure 6A. The capacitor C2 is not part of this
19 receiving power mode circuit configuration used
20 to modify the form of received power.

21 I'd like to take a look at this in
22 conjunction with the disclosure in Chatterjee
23 regarding this same Figure 6B. So will you take
24 a look at Chatterjee paragraph 68. It's on
25 page 6 of the publication.

1 A. I'm sorry, what --

2 Q. Yeah, take a look at paragraph 68.

3 If you can find paragraph 68.

4 A. All right. I wish I had a computer.

5 Okay.

6 Q. Paragraph 68 says: (As read)

7 Figure 6B illustrates the power bridge circuit
8 610 of 6A coupled to another embodiment of the
9 bi-directional coil assembly. Bi-directional
10 coil assembly 632 includes a capacitor C2 and an
11 inductive coil L3. The capacitor C2 and
12 inductive coil L3 are connected at node 605. The
13 capacitor C2 is coupled to the H-bridge circuit
14 611 at the node 601. The inductor L3 is coupled
15 to shared branch 612 at node 602. The node 605
16 of the bi-directional coil assembly 632 is
17 coupled to the sync bridge branch 613 at node
18 603.

19 So paragraph 68 is the description of
20 the power receive mode and paragraph 69 of
21 Chatterjee is a description of the power transmit
22 mode. And it states: (As read) In the power
23 transmit mode, the sync bridge branch 613 is
24 turned off and the current path through the
25 bi-directional coil assembly 632 is the series

1 combination of a capacitor C2 and the inductive
2 coil L3. In the power receive mode, the H-bridge
3 branch 611 is turned off and the current path
4 through the bi-directional coil assembly 632 is
5 in the inductive coil L3.

6 And if I understand correctly your
7 declaration, Randy, you annotate this in
8 paragraph 157 and you give the green annotations
9 for the circuit and received power mode for
10 Figure 6B; correct?

11 A. That's correct, yeah.

12 Q. And then if you flip down to page 82
13 of your declaration.

14 A. Okay.

15 Q. I understand that you've highlighted
16 in green there the active circuit for Figure 6B
17 and the transmit power mode; correct?

18 A. Yes.

19 Q. So in power transmit mode, Chatterjee
20 says that capacitor C2 and inductive coil L3 are
21 active; correct?

22 A. Yes.

23 Q. Going back up to your annotations, at
24 paragraph 157 you annotate and illustrate that in
25 receive power mode, capacitor C2 is turned off

1 and L3 is active; correct?

2 A. I'm sorry. One more -- or repeat the
3 question. I was re-reviewing 68.

4 Q. Yeah. So paragraph 157 of your
5 declaration, you annotate Figure 6B to indicate
6 that capacitor C2 is inactive and inductor L3 is
7 active in the circuit; correct?

8 A. That's correct, yes.

9 Q. And so taking a look at both of these
10 annotations of the receive power mode and the
11 transmit power mode for Figure 6B, would you
12 agree that the impedance has changed for the
13 bi-directional coil assembly between those two
14 modes?

15 A. Well, it's a little bit of an
16 explanation needs to be done for that because we
17 have a three-port entity right here. It's got
18 three ports. Impedance is only defined
19 against -- between two points. Right? So I
20 would say this. That the impedance of the
21 bi-directional coil assembly as it's measured
22 between -- in paragraph 157 as it's measured
23 between the terminal on the right and the
24 terminal on the bottom, that impedance is
25 different from the impedance in paragraph 163

1 with the terminal on the left and the terminal on
2 the right. Those two impedances are different.

3 Q. And can you give maybe just so we
4 have it on the record a better indication when
5 you say terminal on the left and terminal on the
6 right?

7 A. Yes. So in paragraph 163 there's a
8 depiction of the bi-directional coil assembly on
9 the bottom. There's a capacitor in series with
10 an inductor, and there's three terminals coming
11 out of this bi-directional coil assembly.
12 There's a terminal on the left, there's a
13 terminal on the right, and there's a terminal on
14 the bottom. In this transmit power mode under
15 paragraph 163, the terminals I'm talking about
16 are the terminal on the left connected to C2 and
17 the terminal on the right connected to L3.

18 Q. Okay. Let's take a look at your
19 explanation for Figure 6C, it starts at
20 paragraph 158 of your declaration.

21 A. Okay.

22 Q. You state: (As read) The circuit of
23 Figure 6C and the receiving power mode is
24 highlighted in the image below. This
25 configuration is confirmed in Exhibit 1003,

1 paragraph 71: In the power receive mode, the
2 H-bridge branch 611 is turned off and the current
3 path through the bi-directional coil assembly 633
4 is the series combination of inductive coils L4
5 and L5 in parallel with the capacitor C4. A
6 POSITA would understand that C3 has no current
7 flowing through it in the receive mode and
8 therefore is not part of the receive mode
9 circuit.

10 So what you've illustrated in your
11 declaration in paragraph 158 is an annotation of
12 Figure 6C of Chatterjee in receiving power mode;
13 correct?

14 A. That's correct.

15 Q. Then I want to look at that in
16 comparison to your description at paragraph 165
17 of your declaration.

18 A. Okay.

19 Q. It's at page 83 where you've
20 annotated the transmit power mode associated with
21 Figure 6C; correct?

22 A. Correct.

23 Q. And you state that the configuration
24 is confirmed in Exhibit 1003, paragraph 71:
25 (As read) In the power transmit mode, the sync

1 bridge branch 631 is turned off and the current
2 path through the bi-directional coil assembly 633
3 is the series combination of the capacitor C3 and
4 the conductive coil L4. A person of skill in the
5 art would understand that C4 and L5 are not part
6 of the circuit used to transmit power in this
7 transmit power mode because the current path is
8 C3 and L4.

9 So, Randy, would you agree that
10 there's four components of the bi-directional
11 coil assembly 633 shown in Figure 6C?

12 A. Yes, there are four -- four
13 components, yes. There's C3 a capacitor, C4 a
14 capacitor, L4 a capacitor -- or L4 an inductor,
15 the coil, and L5, which is also an inductor.

16 Q. And in transmit power mode, only
17 capacitor C3 and inductor L4 are active; correct?

18 A. Yeah. And my argument from that
19 comes from paragraph 71 of Chatterjee,
20 Exhibit 1003. It states: In power transmit
21 mode, the sync bridge branch is turned off and
22 the current path through the bi-directional coil
23 assembly is the series combination of the
24 capacitor C3 and the inductive coil L4.

25 Q. And then comparing that to the

1 receive power mode, and the receive power mode
2 back up in paragraph 158 in your declaration,
3 based on your annotations you indicate that C3 --
4 capacitor C3 is not active but capacitor C4 is
5 active; correct?

6 A. Correct.

7 Q. So would you understand that there's
8 a difference in impedance between these two modes
9 of operation?

10 A. There is a difference of impedance --
11 let me get the terminals again -- the impedance
12 in the receive mode is between the terminal on
13 the right of the bi-directional coil assembly and
14 the terminal on the bottom of the bi-directional
15 coil assembly. And the impedance -- and the
16 impedance in paragraph 165 is the terminal on the
17 left of the bi-directional coil assembly and the
18 terminal on the right of the bi-directional coil
19 assembly.

20 Q. Okay. And then finally I want to
21 take a look at Figure 6D, which is treated at
22 paragraph 159 of your declaration.

23 A. I'm there.

24 Q. You state: (As read) The circuit at
25 Figure 6D in the receiving power mode is

1 highlighted in the image below. You say: The
2 configuration of the circuit in this figure is
3 very similar to that of Figure 6C. The
4 difference is that current flows through the
5 parallel combination of L7 and C6 and does not
6 flow through additional inductor L6.

7 A. Correct.

8 Q. So you would agree that in
9 Chatterjee's 6D figure, the power receive mode
10 does not have an inactive state capacitor C5 or
11 inductor L6?

12 A. Can you ask that question one more
13 time.

14 Q. Is it your understanding that with
15 respect to its Figure 6D, does Chatterjee
16 disclose in the power receive mode capacitor C5
17 and inductor L6 are not active?

18 A. Chatterjee in paragraph 73 says:
19 (As read) In power receive mode, the H-bridge
20 branch is turned off and the current path through
21 the bi-directional coil assembly is the parallel
22 combination of the inductive coil L7 and the
23 capacitor C6.

24 So those are the passive elements
25 that are conducting a current in the

1 bi-directional coil assembly.

2 Q. So by implication the other
3 components of the bi-directional coil assembly
4 capacitor C5 and inductor L6 are not --

5 A. I would say more specifically that
6 they don't contribute to the impedance.

7 Q. Okay. Now, let's look at the
8 transmit mode. You can stay in Chatterjee
9 paragraph 73 if you'd like.

10 A. Got it.

11 Q. And for paragraph 73, would you agree
12 that Chatterjee discloses that in the transmit
13 mode, capacitor C5 and inductor L6 are active and
14 capacitor C6 and inductor L7 are inactive?

15 A. It says that bi-directional coil
16 assembly is the series combination -- in the
17 transmit mode, the sync bridge branch is turned
18 off and the current path through the
19 bi-directional coil assembly is the series
20 combination of C5 and C6. So current's flowing
21 through there meaning -- indicating that L7 and
22 C6 are not being used in this case.

23 Q. So is it your understanding that
24 Chatterjee discloses two passive components that
25 are used for the transmit power mode and two

1 passive components that are used for the receive
2 power mode for 6D?

3 A. 6D?

4 Q. Uh-huh.

5 A. Okay. So under these two modes, you
6 have a coil and a capacitor in the receive mode,
7 and you have a coil and a capacitor in the
8 transmit mode. I would have to think that L6 and
9 L7 are both functioning as coils to transmit
10 power and receive power. So I would say under
11 each mode, you have a single capacitor and a
12 coil.

13 Q. Would you agree that there's an
14 impedance difference between those modes?

15 A. I would say, yes, that there's an
16 impedance at the mode level. So in transmit
17 there's a difference in the impedance measured
18 between the terminal on the left of the
19 bi-directional coil assembly connected to C5, and
20 the terminal on the right connected to the coil
21 L6. And that impedance is likely different than
22 the impedance from the terminal on the right and
23 the terminal at the bottom in the receiving mode.

24 Q. Okay. That's all the questions I
25 have.

1 MR. WARD: We can go off the record.

2 MR. CARPENTER: I may have a few.

3 EXAMINATION

4 BY MR. CARPENTER:

5 Q. Mr. Direen, this is -- I'd like to
6 pick up where we left off just before the last
7 break and make sure I'm understanding your
8 current positions. In paragraph 121 -- can you
9 turn to paragraph 121 of your declaration.

10 A. Yes, I'm there.

11 Q. And then it says: (As read) In view
12 of the surrounding claim language and the
13 specification, a POSITA will understand that
14 limitation 1.e requires that the "impedance
15 network" be controllably varied during at least
16 the receiving power mode.

17 Do you see that?

18 A. Yes.

19 Q. So my question is in light of your
20 conversation with Mr. Ward today, does this
21 remain your opinion as stated in 121? Maybe I
22 should say it definitely.

23 Does 121 still accurately reflect
24 your opinion?

25 (Witness reviewing document.)

1 A. I would say yes, but maybe include
2 that the -- it should perhaps say "configured to
3 be controllably varied during at least the
4 receive power mode."

5 Q. Thank you. Then let's turn to 154.

6 A. Okay. I'm there.

7 Q. Okay. Can you read paragraph 154 for
8 me?

9 A. (As read) As I will now explain, a
10 POSITA would understand that none of the circuits
11 shown in Figure 6A through 6D satisfy limitations
12 1.e as none of them has an impedance network
13 capable of being varied of at least the receive
14 power mode of operation.

15 Q. And in light of your conversation
16 today with Mr. Ward, have you learned anything
17 that changes your opinion stated in 154?

18 MR. WARD: Objection. Form.

19 A. Paragraph 154 is still my opinion.

20 Q. And if you'd turn to paragraph 168.
21 Read paragraph 168 for me, please.

22 A. (As read) In conclusion, the circuits
23 shown above of Figure 6A through 6D have no
24 capability to based on input from said control
25 logic circuit change impedance of said impedance

1 network and topology of said switch network to
2 obtain a modified -- I believe that's form -- of
3 said receive power and apply said modified form
4 of said power to said load device as required by
5 limitation 1.e. As I explained above, limitation
6 1.e pertains to functionality of the dual mode
7 wireless power receiver while it is in the
8 receive power mode. Chatterjee does not disclose
9 any circuit that meets limitation 1.e nor is such
10 functionality described therein. Chatterjee does
11 not meet limitation 1.e.

12 Q. In light of the conversation you've
13 had with Mr. Ward today, does paragraph 168 still
14 accurately state your opinion?

15 A. 168 is still my opinion.

16 MR. CARPENTER: Pass the witness.

17 MR. WARD: We can go off the record.

18 (Time noted - 2:34 p.m.)
19
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1 CERTIFICATE OF SHORTHAND REPORTER

2 I, Kim A. McCann, Certified Shorthand
3 Reporter in and for the State of Texas do hereby
4 certify: That Dr. Randal Direen, the
5 witness whose deposition is hereinbefore set
6 forth, was duly sworn by me before the
7 commencement of such deposition and that such
8 deposition was taken before me and is a true
9 record of the testimony given by such
10 witness.

11 I further certify that the adverse party,
12 Patent Owner WiPQTUS, Inc., was represented by
13 counsel at the deposition.

14 I further certify that the deposition of
15 Dr. Randal Direen occurred at the offices
16 of Greenberg Traurig, LLP, 2200 Ross Avenue,
17 Suite 5200, Dallas, Texas, on Tuesday, August 6,
18 2024, commencing at 9:04 a.m. to 2:34 p.m.

19 I further certify that I am not related to
20 any of the parties to this action by blood or
21 marriage, I am not employed by or an attorney to
22 any of the parties to this action, and that I am
23 in no way interested, financially or otherwise,
24 in the outcome of this matter.

25

25

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