

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TEXAS INSTRUMENTS INCORPORATED,
Petitioner,

v.

PARKERVISION, INC.,
Patent Owner

IPR2024-00934
Patent 7,496,342 B2

Record of Oral Hearing
Held: September 9, 2025

Before MICHAEL R. ZECHER, BART A. GERSTENBLITH, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

IPR2024-00934
Patent 7,496,342 B2

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P R O C E E D I N G S

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JUDGE ZECHER: Let's go on the record. I'm Judge Zecher. This is Judge Gerstenblith with me to my right. We have Judge Ahmed participating remotely from Texas. This is a hearing for IPR2024-00934. The claims challenged in the petition were Claims 18 through 23 of U.S. Patent No. 7,496,342. Prior to institution, Claims 18, 22, and 23 were disclaimed by Patent Owner. So that leaves only Claims 19 through 21 for our consideration.

You guys couldn't hear me earlier, but I wanted to thank the parties for being flexible today. We had a little hiccup this morning, so pushing this back and adapting to the schedule is much appreciated. I also want to thank our hearing staff because we couldn't do any of this without them. So with that said, I want to take a roll call from the parties. Let's start with Petitioner, Texas Instruments, Inc.

Who is online for Counsel for them?

MR. RENNER: Thank you, Your Honor. This is Karl Renner on behalf of Texas Instruments. I'm joined by Lead Counsel Josh Griswold and also Counsel Rishi Gupta, as well as our expert, Dr. Galton.

JUDGE ZECHER: Okay. And, Mr. Renner, are you going to be presenting arguments today? I know we have Ms. Gupta as a LEAP practitioner, so you will have an additional 15 minutes because of her. But are you taking the lead here?

MR. RENNER: Yeah -- yes, Your Honor. I'll begin. But Mr. Gupta will be adding in. And I should say thank you for all the indulgences

1 today, including the one just a moment ago, but thank you.

2 JUDGE ZECHER: You're welcome. Can we take a roll call
3 for Patent Owner, ParkerVision, Inc.?

4 MR. CHARKOW: Yes. Jason Charkow of the Daignault Iyer
5 firm on behalf of Patent Owner, ParkerVision. With me today, I have
6 Stephanie Mandir and Anderson To (PHONETIC). And I would also like to
7 thank the board for accommodating the issues we had this morning and
8 making this possible. And also for the staff for working real hard to make
9 this all happen.

10 JUDGE ZECHER: We appreciate that, Mr. Charkow. Mr.
11 Charkow, are you going to be presenting arguments for ParkerVision today?

12 MR. CHARKOW: Yes, I will, sir.

13 JUDGE ZECHER: Okay. Great. All right. So the hearing
14 Order we issued in this case, I believe, was Paper 35. Each party is going to
15 get 60 minutes of total argument time. As I mentioned when discussing with
16 Mr. Renner, Petitioner Texas Instruments has a LEAP practitioner, Ms.
17 Gupta. She's going to get an additional 15 minutes to argue, so that gives 75
18 minutes to Petitioner, 60 minutes to Patent Owner. As we explained in the
19 hearing Order, the Petitioner has the burden of persuasion, so they're going
20 to present their case in chief first.

21 This is our second hearing today, so we are going to take a few
22 breaks throughout the hearing. So after a Petitioner presents its case in
23 chief, we're going to take a five-minute break. We're going to turn the floor
24 over to Patent Owner to present their responsive arguments. We'll then take
25 another five-minute break, at which point we will then close up with the
26 parties' rebuttal and sur-rebuttal.

1 Hopefully, there's no questions about that, but let's get started
2 here. I do have a clock in the hearing room. Hopefully, you guys can see
3 behind me and see the clock, but I'm going to start with your full allotment
4 of time. So for our Petitioner, it's 75 minutes, so you can break that up as
5 you see fit. And then when you want to pause and reserve the remainder of
6 your time for rebuttal, I'll do the same with this clock. And then I'll do the
7 same for Mr. Charkow and Patent Owner, and they'll have 60 minutes.

8 So, Mr. Renner, when you want to begin, please start.

9 MR. RENNER: Okay. Great. Thank you, Your Honor. Good
10 afternoon and may it please the board. Again, I'm Karl Renner from -- on
11 behalf of Texas Instruments, Petitioner, joined by Josh Griswold, lead
12 counsel, Rishi Gupta, counsel, and Dr. Ian Galton, witness for Petitioner.

13 Today's hearing, as noted earlier, it involves just three claims at
14 this point, the method Claims 19 to 21 and each depends, similarly, from the
15 same independent method claim, Claim 18. Each being subject to two prior
16 art challenges -- or prior art challenges that root themselves at the primary
17 references, the DeMaw reference and the Macnally reference.

18 JUDGE ZECHER: Mr. Renner, I'm just going to pause you
19 right there. If you're not otherwise speaking, can you please mute your mic,
20 please, so we don't get the echo in the hearing room. Thank you. Sorry, Mr.
21 Renner, please proceed.

22 MR. RENNER: Not at all. Thank you. During our
23 presentation, as mentioned earlier, Rishi Gupta will be -- he's a LEAP
24 practitioner. He's excited to join us here, and he'll be speaking to several of
25 the issues that Patent Owner has raised concerning the evidence that's used
26 to demonstrate the obviousness on the DeMaw and Macnally based grounds.

1 But only after I address a couple of two in particular unique, I believe
2 aspects to this case, or at least they're unique to me.

3 The first of those two, it deals with the simulations evidence
4 that's at issue here in the case. It's a -- the case itself, you know, is a case
5 that deals with these Claims 19 to 21, which cite performance ranges as well
6 as method steps off of Claim 18. Texas Instruments ran simulations to
7 inform whether or not circuits that are described by prior art hit those
8 performance ranges in particular and submitted evidence of the simulations
9 along with the petition at the outset.

10 Further simulations were run in the course of the proceedings
11 that we'll talk about, and evidence of those also was filed in the record at
12 present at least. And at that level of granularity, not a lot, terribly unusual.
13 It's when we get a little deeper, and the most notable is that when we look at
14 that evidence, the additional simulation evidence, it's noteworthy that Patent
15 Owner filed the same. It's also noteworthy that Patent Owner has that
16 evidence as the subject of a current pending Motion to Exclude.

17 When we look a little deeper still, we see that they did more
18 than just file the simulations evidence that's in question in that Motion to
19 Exclude. Patent Owner sought through discovery that same simulation
20 evidence from the Petitioner. They deposed the expert, Dr. Galton on a
21 declaration pertaining to the simulations that are in question, and they
22 thereafter advance both arguments and evidence addressing those
23 simulations. I have not seen this before, so I wanted to just spend a few
24 moments confirming what has happened so that Your Honors have a clear
25 perspective, at least from our view of what went on and how that came to be.
26 So we could --

1 JUDGE ZECHER: Mr. Renner, this is Judge Zecher. Just so
2 we have a clear timeline on this, I mean, we obviously have a lot of cases in
3 front of us, so I had to go back and look at the record here as well. But it
4 looked like we had a conference with the parties on March 5th to discuss
5 this; is that correct?

6 MR. RENNER: That is correct, Your Honor.

7 JUDGE ZECHER: Okay. And then I think at that time, we
8 really couldn't provide guidance to the parties as to how this should play out.
9 And we left it to you guys to figure it out on your own. And my
10 understanding is that Patent Owner sought some additional discovery from
11 you, or basically a second declaration from your expert regarding these
12 circuit simulations you then provided that to them; is that correct?

13 MR. RENNER: Correct, Your Honor. And Slide 19 details
14 that request -- the discovery request.

15 JUDGE ZECHER: And then did your expert sit for more than
16 one deposition?

17 MR. RENNER: Yes, Your Honor. The deposition that was
18 given followed that and preceded the Patent Owner's response to make sure
19 that the Patent Owner had an opportunity to question him on that evidence
20 before it had to put its response in. And I'll just add, additional to that, the
21 discovery request also requested an extension of the timing for that response,
22 and the deposition of Dr. Galton on that testimony. Both of which were
23 accommodated in their original requested form.

24 JUDGE ZECHER: Okay. Okay. Thank you. Thank you for
25 clarifying that.

26 MR. RENNER: Certainly, Your Honor. And I guess, I'll

1 -- thank you for the questions because you've maybe eliminated some of the
2 history that I was going to walk through. I'll offer just maybe the following
3 observation perhaps. And that is, notwithstanding suggestions that were
4 made to be -- to the contrary in the briefing, we believe that the Patent
5 Owner needed not submit this evidence. It wasn't something that needed to
6 be done, had to be done. They could have instead done what is typically
7 done. The party waits for another party to make a decision, whether or not it
8 brings evidence into the record or seeks for its entry into the record. And
9 then it requests relief as it -- would be deemed appropriate. Maybe that
10 relief would be, at that time, a motion to exclude. Maybe that relief would
11 be to ask for responsive evidence or opportunity to depose as they had
12 already taken -- or briefing for that matter.

13 But in this case, acting as they did, the Patent Owner really took
14 all those kinds of questions and procedure out of the hands, both of Texas
15 Instruments and of Your Honors. And at this point, Texas Instruments just
16 wants to have and has wanted to have an informed record as clearly did Dr.
17 Galton. The one thing I didn't talk about was on the eve of the deposition is
18 when we learned that Dr. Galton having seen the Patent Owner's Preliminary
19 Response, you know, wanted to make sure he had not misinformed the
20 record, and that's what really inspired him to run those simulations.

21 So we had counseled that he, of course, be honest and forthright
22 in the depositions, but the nature of his actions as someone who's trying to
23 make this record a full and complete record, his instincts or good behavior,
24 probably commendable and Patent Owner did receive as a consequence that
25 evidence with the amount of time that it sought to investigate through
26 deposition to digest and to respond to the same. And it did take that time,

1 and it did indeed respond. So we believe the motion would be an
2 appropriate one to grant and would ask that it be denied. Any questions
3 about that procedure, the history that remain?

4 JUDGE ZECHER: Nothing from me.

5 MR. RENNER: If not -- thank you, Your Honor. So the
6 second relatively unique aspect of the case relates to the applicability of
7 *DuPont*, the *DuPont* jurisprudence. And the intersection of that with
8 something that you rarely see as well, which is one of the claims -- the base
9 claim here had been heard at the Federal Circuit and found to be invalid.
10 Those two things come together in some interesting ways that, again, I just
11 haven't seen. And I thought we'd spend a little time on that.

12 So as you know, *DuPont* presumes obviousness of claimed
13 ranges when the prior art discloses general conditions of the claim that
14 recites them. And this is really the law, and yet today's case seems to offer a
15 -- really a textbook case of an application of *DuPont's* presumption or an
16 opportunity for which would justify unpatentability, given the lack of
17 evidence that the Patent Owners brought to the table to establish recited
18 performance ranges are unexpected or somehow critical.

19 And to this point, we believe there can be no doubt that the
20 general conditions set forth in the base method Claim 18 are disclosed in
21 prior art. That after all was the subject of the Federal Circuit appeal. So the
22 only question really is whether the dependent Claims 19 to 21 themselves,
23 whether they offer a new general condition of the type *DuPont* cares about
24 that saves the recited performance ranges. Otherwise, they are recited from
25 *DuPont's* presumption. And for two reasons, we believe they do not.

26 The first of those two reasons is that despite the Patent Owner's

1 contentions otherwise, Claims 19 to 21, they offer no new method steps.
2 They offer, therefore, no new conditions that impose upon Claim 18, other
3 than those heard in Claim 18 and the range that *DuPont* tells us can be
4 presumed to be obvious in light of the general conditions being satisfied.
5 And we can see that and we'll talk about how the Federal Circuit helps us to
6 bring clarity to that question even if there were any debate over what Claim
7 19 or 21 said.

8 The second independent point is that even if there were
9 conditions that were brought to bearer by Claims 19 to 21 and that those
10 conditions were something that gave rise to a *DuPont* type of inquiry, we
11 believe that it's been clearly set forth both in the Federal Circuit's
12 decisioning and also in the evidence of record that the conditions, anything
13 that could come of 19, 21 is itself disclosed by the prior art. So again,
14 *DuPont* would kick in, and you wouldn't even need to get to the ranges that
15 are decided -- that are recited by 19 to 21. So with that view, I'm going to
16 spend the remainder of my time talking about those flavors of why *DuPont*
17 applies.

18 JUDGE ZECHER: So Mr. Renner, you're not saying these
19 dependent claims aren't further limiting of the independent Claim 18, right?
20 You're basically saying --

21 MR. RENNER: I am not, Your Honor. I -- yeah.

22 JUDGE ZECHER: -- if the requirements of 18 are met and you
23 can demonstrate at least one scenario where that complies with these ranges,
24 you would satisfy 19 through 21; is that correct?

25 MR. RENNER: Well, there's a nuance in there, perhaps I want
26 to make sure I'm being clear on. So I -- that might be. Let me maybe

1 explain a little more and see if I can bear the nuance out. The nuance is that
2 we don't believe Claims 19 to 21 limit 18, other than the recitation of the
3 range. And as a consequence of that, the general conditions that *DuPont*
4 calls for, we believe are not added to by 19 to 21. That was effectively point
5 one for us. That -- and we also believe that even if we're wrong about that,
6 even if there were some reason to think that 19 to 21 brought to bear, in
7 addition to the ranges, some sort of general conditions, we think those
8 general conditions also are shown to be disclosed by the prior art.

9 And so it doesn't -- we don't think 20 -- 19 to 21 bears on
10 general conditions. And we think even if they did, they don't bear on
11 general conditions that would excuse us from a *DuPont* treatment because
12 the general conditions, if any, are also shown in the prior art. So I was going
13 to take those in stepwise fashion. Does that help to clarify, though?

14 JUDGE ZECHER: Yeah. I guess the added layer of
15 complexity that I have here is when you say shown in the prior art, we're not
16 talking about an explicit teaching. We're talking about using your expert to
17 simulate a circuit from the prior art to see whether or not these ranges are
18 met, correct?

19 MR. RENNER: Well, like, it's interesting. The simulations
20 -- so as with the Federal Circuit, this is what gets a little interesting about
21 this case, what's a bit unique. We have the Federal Circuit already endorsing
22 the DeMaw that it does disclose all that is in the prior art -- all that is in
23 Claim 1 -- Claim 18. My apologies. I should say this clearly. Claim 18 has
24 been found by the Federal Circuit to be invalid by virtue of inherent
25 disclosure that is from DeMaw. And that's what the Federal Circuit's
26 decision means.

1 So absent there being any further general conditions, we believe
2 that DeMaw is without question and beyond debate disclosing of, inherent as
3 it is, the conditions of Claim 18. In addition, we think that DeMaw does
4 more than that. And we've demonstrated that it does more than that. We've
5 talked about that both by way of submission of simulations and also of
6 evidence that's given by our expert about what a person of ordinary skill sees
7 in DeMaw, that it sees at a JFETs, for instance, a switch that turns on and
8 off. And that through that switch is turning on and off you have depletion
9 and -- - or discharge of the capacitors that are involved.

10 And you have the simulations in addition to that as well, that
11 would give further rise to satisfaction of the claims. But the -- but we don't
12 even get to the simulations until we're well down the line, and we've already
13 tested that the claim has failed to give new general conditions, any general
14 conditions in addition to those of 18, which were already found to be
15 disclosed.

16 JUDGE ZECHER: Okay. Thank you.

17 MR. RENNER: So -- certainly, Your Honor. And I think this
18 is beyond -- I think Your Honors have a firm understanding of this, but just
19 to be complete, the DeMaw passage of greatest extent is the -- it's found in
20 22, 23 of the ID. It says that where the general conditions of a claim are in
21 fact disclosed by the prior art, it is not invented to discover the optimal
22 workable changes by routine optimization.

23 So you look under DeMaw for what are the general conditions,
24 then we look into DeMaw for, are those general conditions disclosed by the
25 prior art? And if we find that they are, then we look for evidence to see
26 whether a range would be given a limiting effect. And that evidence would

1 have to be something that shows it's not just routine experimentation that got
2 you to the range question. It stands to reason, you --

3 JUDGE ZECHER: And, Mr. Renner, I guess just to kind of
4 -- I'm thinking this through in my head. Yes. We obviously cited the
5 *DuPont*, which is based on the *In re Aller* case from the CCPA, but the
6 evidence that would need to bring -- to bear on this to determine whether it's
7 a critical range is that -- come from the specification. Where does that come
8 from. I assume it's the spec, right? And we would look to that to see if there
9 is some sort of criticality associated based on the new and unexpected results
10 that would flow from this range; is that right?

11 MR. RENNER: It's an excellent question. The reality is we
12 don't even have a contention that there's criticality or any unexpected results
13 on the ranges that are recited in 19 to 21. So while that question is a -- it's a
14 good one and when -- it's in many cases worth answering. Here, it doesn't
15 matter where it comes from. It doesn't exist. So the Patent Owner just has
16 not -- simply hasn't come in, even alleged that there's a criticality or an
17 unexpectedness to the ranges that are recited.

18 JUDGE ZECHER: Okay. Thank you.

19 MR. RENNER: You're quite welcome. And so because of
20 that, it really does reduce down to the first and second parts of the test,
21 which are, what are the general conditions and are those general conditions
22 disclosed in the prior art. And we know because of the Federal Circuit's
23 findings, that if the general conditions don't include more than Claim 18's
24 general conditions, and this is, of course not considering the range, it's things
25 other than the range, then you'd have the same general conditions that were
26 in 18. And you'd have the Federal Circuit having endorsed that DeMaw

1 itself was disclosing of those general conditions. At which point, *DuPont*
2 would trigger the presumption of obviousness and then -- a presumption has
3 not been rebutted.

4 And that's where we begin this inquiry. We begin this inquiry
5 looking at Claim 18, because Claim 18 we believe is comprehensive of that,
6 which is in Claim 19 to 21 as to general conditions. Now, 1031 is where
7 you find that Federal Circuit opinion, the Exhibit 1031. And it found
8 essentially that Claim 18 steps were not just each inherently met by the prior
9 art. It found that the district court had failed when it denied Qualcomm's
10 JMOL motion of invalidity, and it reversed it saying that the -- there's no
11 reasonable jury that could reject that DeMaw anticipates Claim 18. And in
12 doing so, it focused on claim step 5 of Claim 18, the discharging step. And
13 that's interesting, because 19 to 21 are also dealing with discharging. And
14 they're dealing with that step of Claim 18 in fact. And they're talking about
15 the range of performance on discharging.

16 So we find it instructive what the Federal Circuit said here. It
17 says that in reaching its decision at Page 25 of the decision, it credited
18 testimony from Dr. Razavi. Not that -- that's important. But here's what that
19 testimony credited saying when it was saying the claim has been met. It
20 says that charging and discharging of the first and second capacitors, that is
21 the claim, first and second capacitors, occurs when the first and second
22 switches, Q1 and Q2, those are the JFETs of DeMaw are turned on and off at
23 a certain rate. So it's acknowledging here that DeMaw had identified
24 switches of the type claimed, JFETs and that it turns those switches on or
25 off.

26 We look further into the record and we know that turning

1 something on or off is known to a POSITA. When a POSITA sees that as
2 inherent disclosure from DeMaw, it knows that that's an opening and closing
3 or closing and opening of that same switch. And we've got confirmation
4 from Dr. Ricketts himself, the expert for Patent Owner of this at Exhibit
5 2021, paragraph 2028, where he says that FETs alternate between on state
6 allowing current flow, and off state blocking current flow, effectively
7 opening and closing the circuit at defined intervals.

8 So we look at that Federal Circuit opinion, and we recognize
9 that it's acknowledging the limitations in Claim 18 as reading Claim 18 for
10 calling for these switches, transitioning between off and on states to
11 discharge capacitors. We know what it's saying is it looks at Claim 18's
12 discharging step as consuming of all things but the range in 19 to 21. And
13 we know that it says that DeMaw inherently exposes the same.

14 Now, with this in mind, we look at 19 to 21, just to confirm.
15 Let's just make sure we're not missing something here. Slide 29 of our
16 presentation here will show us Claims 19 to 21, and we'll look for them for
17 general conditions. We're trying to see, do they have something that Claim
18 18 lacked? Now, we have to look at that through the perspective of POSITA
19 when they look at the claim. And they see through the Federal Circuit's
20 eyes, what did that claim mean, 18, because when you do that, we just
21 explored it. And does 19 to 21 actually exceeded in certain general
22 conditions. We say now, like base Claim 18, you can see each is a method
23 claim. And each recites the discharge performance ranges to assess
24 performance of the method Claim 18 in relation to discharging.

25 Now, 19 is probably the best example of this. It's just, they're
26 all pretty much the same claim, but notes how it begins. The method of

1 Claim 18 wherein there is no further comprising. There is no wherein the
2 discharging step further, includes or -- nothing to suggest there is an
3 additional step. Rather using antecedent pace as a referrer simply to the
4 capacitor discharge that was accompanying -- that it was accomplished,
5 sorry, by the Claim 18 discharging step. It says, wherein the first capacitor
6 discharges, and that's clearly a reference to the Claim 18 step of discharging.
7 Then it defines the performance range. That's what's left to do. It defines
8 the performance range for the discharging that it's contemplated.

9 And in doing so, it sets forth an indication of the amount of
10 discharging it's looking for and when to look for that discharging. The
11 amount between six and 50 percent, the timing, the duration, while it's
12 during a period of time where the first switching device is open. In doing so,
13 it instructs when to measure the discharging that is accomplished by the step
14 already articulated by Claim 18, not -- it's -- in doing so it says when to
15 measure, not when to discharge. And it leads Claim 18 to its discharging
16 step. Effectively, it's telling me this in order to assess whether Claim 19 is
17 met. It's necessary to measure the amount of discharging that occurs while
18 the switch is open, not to impart a new step, not to impart a new general
19 commission. And we believe this interpretation is consistent with the way
20 that the Federal Circuit read the claim. After all it acknowledged that a
21 switch was flipping back and forth between on and off states to accomplish
22 the charging and discharging of Claim 18. Already issues that are present in
23 Claim 18.

24 Now, with Claim 19 merely setting forth a performance range
25 and telling us how to measure that range without imparting any new claim
26 step, there is certainly no condition that's been introduced to -- by it. And as

1 such, there is nothing other than the Claim 18 general conditions, which we
2 already know per *DuPont* had been disclosed by the prior art and law. And
3 that leaves us with these method claims introducing no new step, no general
4 condition. And instead offering no -- only non-critical and therefore
5 presumably obvious ranges voted upon.

6 With this we believe that *DuPont* tells us that we have to go no
7 further than the Federal Circuit's finding that the Claim 18 features, the
8 general features, are disclosed in the prior art and the ranges of 19 to 21 are
9 therefore left outside and presumed obvious without proof of criticality or
10 unexpected results from the Patent Owner. They, in fact, are not only
11 presumed, but they are indeed obvious. And this finding would be reached
12 again, without ever having to go any further than the Federal Circuit on the
13 DeMaw to recognize what we believe is outside of contest. What we believe
14 with all the other party in terms of a case they were involved with. And it's a
15 finding that's appropriate before even looking at the simulations. And
16 therefore, it's unaffected by any of the arguments that we're going to talk
17 about during this hearing that have been advanced by the Patent Owner
18 concerning those simulations. And for that matter, and we believe that the
19 Federal Circuit, the holding is controlling here.

20 Now, I'm going to stop there for a minute because I'm about to
21 go into, even if you look at the Claims 19 to 21 references to open, for
22 instance, you know, the timing of when you would measure this simulation.
23 If you look at that as a limitation in general condition, what we're going to
24 find is that nevertheless is also met. It's disclosed by the prior art that is, and
25 therefore also triggers application of *DuPont*. But let me pause for a
26 moment. I know we've been going for a bit.

1 Any questions about that so far? Okay. As noted in the
2 opinion, the Federal Circuit, again, we have discharging of capacitors based
3 on switches to transition between open and closed states. That is something
4 they read in the Claim 18. You can see how they treat Claim 18 when
5 articulating that they thought DeMaw was anticipating inherently of Claim
6 18. That is disclosing of it. And absent finding further, the general
7 conditions, of course, as we just talked about, 19 to 20 would do nothing
8 other than add a range, which *DuPont* tells us isn't limiting given the failure
9 of the Patent Owner to demonstrate criticality or otherwise, demonstrate an
10 -- unexpected results.

11 And when we agree with that theory, if we look at Page 5 of the
12 Patent Owner's Sur-reply, we see that the Patent Owner asks for Your
13 Honors to consider Claims 19 to 21 encumbered by steps that they contend
14 exist within those claims. That is steps other than the range. And we think
15 even with this, they fail. Why is that? That's because the board would not
16 only have to disregard the Federal Circuit's Claim 18 findings as to the scope
17 of 18 and the applicability of DeMaw to that scope. But it would also have
18 to disregard the demonstration by the incident record of disclosure by
19 DeMaw of capacitors being discharged when the DeMaw FETs switch open.

20 And as the POSITAs would see that DeMaw is a circuit that is
21 not limited to 0.8 Vgs. It's not -- the record evidence tells us that. Whoops.
22 Pardon me about that. So they would not see it as limited to 0.8 Vgs.
23 Instead, it's configured with conventional FETs. We think that is something
24 that the -- our expert has brought in. It's Exhibit 1060, which is third
25 declaration, paragraphs 10 to 17, help us to see why that's true. But
26 basically it's that when you look at the circuit of DeMaw, or you look at the

1 disclosure of DeMaw as the ones bringing to the table, it's not so limiting as
2 to demand that 1 Vgs value.

3 Even if it were, still going to see, we know, that the Federal
4 Circuit has considered the DeMaw teaching in general, that is when I looked
5 at it, it said it gives us a JFET. That is a switch. That's how it concluded
6 what it did, despite the 0.8 Vgs, or maybe what it -- I don't know. And the
7 circuit itself, with respect to it, DeMaw discloses capacitors that are indeed
8 configured to discharge when that circuit is open -- the switch is open, as
9 they're then relied upon as current sources. This too is apparent without
10 reference to the simulations, and yet as Rishi will discuss in just a few
11 moments, the simulations additionally prove discharge of DeMaw's
12 capacitors during intervals when the JFETs are indeed open.

13 Now I'm about to ask him to join in, and I'll close by simply
14 pointing out that these proofs further demonstrative obviousness under
15 *DuPont* without needing again to even address the disclosure of recited
16 ranges, because we're still talking about *DuPont*. *DuPont's* still talking
17 about the general conditions. And what we see is that Claims 19 to 21, not
18 only fail to offer any new general conditions leading us to the Federal
19 Circuit's findings of disclosure on Claim 18. But even if they were deemed
20 to have any further general conditions, those that are identified by the Patent
21 Owner are very clearly laid out without even turning to the simulations just
22 by looking at the circuit and the testimony of record.

23 And even if there were any doubt over that, we have the
24 simulations and the testimony concerning them that speaks also to the way
25 that the circuit works before, again, getting to the ranges, to yet again in a
26 fourth way, show us that *DuPont* would apply to these claims. I know that's

1 a lot, and I'm happy to take questions. Obviously we'll talk more at the
2 redirect, but before I ask to -- rishi to come up, is there anything that I can
3 clarify that I've talked about?

4 JUDGE ZECHER: Nothing from us. Thank you.

5 MR. RENNER: You're quite welcome. Thank you for your
6 time.

7 Rishi?

8 JUDGE ZECHER: Mr. Gupta, this is Judge Zecher. I just want
9 to apologize. Earlier I think I referred to you, Ms. Gupta, and it's clearly
10 Mr., so please accept my apology.

11 MR. GUPTA: Thanks for the apology, Your Honor. I don't
12 need it. I was not offended by it, but I totally understand where you're
13 coming from with that.

14 So I'm going to pick up where Mr. Renner left off really getting
15 into this concept of the JFETs and their switching behavior. If you can give
16 me one second. I'm going to -- while I'm doing this, we can turn to Slide
17 Number 76. I assume you have the slides in front of If not, then --

18 JUDGE ZECHER: Yes, we do.

19 MR. GUPTA: -- we can present them then. Okay. So looking
20 at Slide 76, right at the outset, Dr. Galton's simulations show that these JFET
21 switches open based on the local oscillator control signal. Pointing at the
22 slide there, what you can see at the very top of this plot is a essentially
23 squared up local oscillator at the very top. As the -- as the oscillator goes
24 high, that's when the -- that's essentially when the control signal is telling the
25 switch to open because of the nature of the JFET being a depletion region
26 -- a depletion type device, the high signal is what causes it to open.

1 Below that, what you see is the drain current that's flowing
2 through the JFET. And we -- what we tried to do here is highlight where the
3 correlation between the high signal for the local oscillator and where the
4 drain current drops off precipitously from the on state to the off-state, or the
5 closed state to the open state.

6 And likewise, on this plot, what you also see is when the local
7 oscillator does go to its -- essentially what it -- what it's doing is it's shutting
8 down its aperture, the capacitors discharge. And so the purpose of showing
9 this is that the plots show that the plurality of charging and discharging the
10 capacitor is based on a switching operation. And we know now from Mr.
11 Renner's discussion that the opening and closing is a function of switching
12 operation, and that's confirmed or endorsed at least by the Federal Circuit.
13 And it's also endorsed by both Dr. Galton and Dr. Ricketts' testimony. I'll
14 point you to Dr. Galton's testimony is at his third declaration TI 1060,
15 paragraph 26, and Ricketts' -- Dr. Ricketts' testimony at Exhibit 2021,
16 paragraph 128.

17 So with that, I'd like to turn to Slide Number 74. Pause for a
18 second. Let me get there. There's a discussion here with the parties about
19 this concept of DeMaw operating at 0.8 times the $V_{gs}(\text{off})$. And briefly
20 $V_{gs}(\text{off})$ is a parameter of a JFET transistor that tries to get the drain current
21 to be as low as it can.

22 And the reason I'm highlighting Slide 74 is because this is Dr.
23 Ricketts' testimony about what $V_{gs}(\text{off})$ is. And the way he characterizes it
24 is it's when the FET has its lowest current, which you can consider to be off.
25 And so the thing about that is that even if you run the JFET at the $V_{gs}(\text{off})$
26 level, you're still conducting current. And that's something that Dr. Galton

1 also clarifies in -- I believe it's slide -- give me a second. Sorry. Slide 70
2 -- no, I'm sorry. Slide 75.

3 So in Slide 75, we -- essentially what I'm showing here is Dr.
4 Galton's testimony pertaining to the operation of switches where he testifies
5 that in practice, in real life, switches don't stop conducting when you take
6 them to an open state or an off state. What he says is that all -- essentially
7 all JFET transistors, really all transistors, conduct some current when off.
8 It's just that it's a lot less current when it's on.

9 So what that tells us essentially that -- because you're always
10 conducting even in an open state, what it tells us is that using the amount of
11 conduction through a transistor like a JFET, is not a good way to define the
12 open state of that transistor. And that's because the transistor is going to
13 conduct even when it's open.

14 In fact, if we were to define it that way, to be some threshold
15 level of conduction, there's a indefiniteness problem with this patent because
16 the patent doesn't characterize the open state based on a level of conduction.
17 So we don't know reading the patent, what the difference is between an open
18 state and a closed state if you're using the conduction to measure that.

19 Also, there's a problem. It -- you know, the converse of that is,
20 if you were to define the open state of a JFET as non-conducting, and then
21 the patent has a problem in that it could never be infringed. And if we do
22 want to define it that way, then I would ask that we put that in the final
23 written decision because that will have implications that reach beyond the
24 IPR.

25 So where I'm going with this is that there's a better way to
26 define the open state, which is consistent with the patent itself, and that's on

1 Slide 72. So when the patent talks about the capacitors discharging these
2 ranges, these percent ranges, specifically six to 50 percent, the way it
3 characterizes that is it says that it's discharging during a period of time that a
4 switching device is open, i.e. between apertures.

5 So the patent characterizes open -- it's -- it -- well, specifically,
6 the patent characterizes open for the purposes of determining the discharge
7 percentages based on this idea of between apertures. And returning to the
8 local oscillator signal, the aperture window in this patent is a period of time
9 when the control signal is telling the switch to close or to turn on. And
10 between the apertures is the period of time where the signal is telling the
11 switch to open, or to turn off. So the patent characterizes these discharge
12 period as a period of time between the apertures, which is a better way of
13 defining the term open, mainly because it is agnostic to the amount of drain
14 current that passes through it, which means that it can include practical
15 switches and not just theoretical ones, and it would be also agnostic to the
16 type of switch design. And it also has the benefit of being supported directly
17 by the specification.

18 Continue. On Slide 43, so with this framework in mind of
19 defining this open state based on a period between the apertures, that is how
20 Dr. Galton -- that is the period of time during which Dr. Galton selected his
21 data for calculating these percentage discharge. And in line with that
22 understanding, Dr. Galton uses what he calls the transitional edges of the
23 local oscillator to define the open period from which he calculated these
24 percentage ranges. In so doing, he can learn the DeMaw circuit performed
25 the claimed discharge percentage ranges under a variety of operating
26 conditions. So --

1 JUDGE ZECHER: Mr. Gupta, this is Judge Zecher, and so
2 now that we're getting into the simulations Dr. Galton performed, can you
3 kind of explain to us what was the purported issue or discrepancy with this
4 first set of simulations that you guys sought to rectify, so to speak, for the
5 second set?

6 MR. GUPTA: Yeah. Yes. Specifically the -- what Dr. Galton
7 did was he used an LTSpice model to -- excuse me, LTSpice program to
8 model the DeMaw Circuit. DeMaw specifies a specific type of JFET. I
9 should say a specific model of JFET. That model is the Siliconix U430
10 Dual-FET unit. And that's on TI 1016 at Page 8. Actually, it's on Page 8
11 and Page 9. It refers to the U430 a few times in the document. But the
12 LTSpice program included the U430 model. And so he was building his
13 model with this U430 in mind. Actually, we can show you the model itself
14 on Page -- on Slide 51.

15 It's a little busy, but on Slide 51, if you look in the very bottom
16 right corner of the large gray box there, what you'll see -- what you'll see is
17 that it says, "Model for Siliconix U430 JFET." But if you look at the actual
18 JFETs, the switching devices, it has this letter of NJF next to it. And our
19 understanding is that in -- or -- Dr. Galton had loaded these U430 models
20 into the simulation, but there was one extra step you needed to do. I think it
21 was, you know, you right click and you press enter or some procedure. And
22 instead of loading the U430s when the model ran, it defaulted to a generic
23 JFET. And so the simulation data essentially is the byproduct of running the
24 circuit with the generic JFET as opposed to the specific U430 JFETs. So
25 that was the impetus behind essentially rerunning those simulations with the
26 correct FET after we discovered that in February just before his first

1 deposition.

2 JUDGE ZECHER: Thank you.

3 MR. GUPTA: Okay.

4 JUDGE AHMED: Mr. Gupta, Patent Owner argues that he also
5 failed to use the total charge used initially during his initial simulations; is
6 that correct?

7 MR. GUPTA: I'm sorry. I didn't quite hear the question.

8 JUDGE AHMED: Patent Owner's argument is that in the initial
9 simulation, he also failed to consider the total charge stored, right? Instead
10 of considering charge that accumulates on multiple cycles, he just compared
11 it to charge that's added to the capacitor over a single charging cycle. Is that
12 argument correct?

13 MR. GUPTA: So that is an argument that they've decided to
14 make. Yes. I wouldn't characterize it as a failure on Dr. Galton's part,
15 because there is a colorable reason for only looking at the charge in the
16 previous cycle. And if you recall, we were talking about aperture windows.
17 The purpose of this patent is energy transfer from an input RF signal into a
18 capacitor, and the capacitor performs averaging and integration on that
19 signal. Well, the aperture window is specified in this patent to be something
20 called a non-negligible aperture window. So it's different than, say, if you
21 were performing under sampling. It's a longer period of time. So the idea of
22 a total charge stored on a capacitor is representative of the fact that in this
23 patent, and what's special about allegedly, is that it is storing a non-
24 negligible amount of charge onto a capacitor during a period of time that's
25 larger than what you would normally do.

26 So that's one reason. Another reason has to do with the

1 language of the claims. Dr. Galton was looking at the claims, and thinking,
2 well, you know, when I read Claim 19, the charge stored on the capacitor, if
3 I look back at Claim 18, the only time it talked about the charge stored on
4 the capacitor is a charge stored during a period of time when the switch is
5 closed. And that linkage between a charge when the switch is closed, and
6 then the total charge, you know, discharged when the switch is open, link
7 -- are linked together without, sort of, any other language about storing
8 multiple charges or storing a plurality of charges.

9 So when he looked at it, he tried to, you know, he did an earnest
10 job of trying to comprehend the claims, but that was where he went, and it's
11 made sense to him as an expert, as a professor. And so that's what he did.
12 Now it -- over the course of the trial, when he was presented with an
13 alternative interpretation, he went back, and he didn't rerun simulations.
14 Instead, what he did is he took his existing data and used the new
15 formulations in order to derive a result that was based on those new
16 formulations, that new equation, those new interpretations. And there is one
17 caveat to that. Actually, we have slides on it.

18 There's one caveat to that, which is that when you calculate
19 -- so when you calculate the total charge stored from multiple previous
20 cycles, and this is Slide 93, by the way, if you want to follow with me.
21 When you -- when you think about the charge stored from multiple cycles,
22 from previous cycles, there's no implicit consideration of the bias voltage
23 that's applied to the capacitor when you just simply run a generic equation
24 on it.

25 Whereas if you look at the cycle by cycle scenario, it implicitly
26 addresses the bias, because you're only looking at how much charge is

1 contributed to the capacitor by the information signal and immediately
2 preceding cycle. But if you look at the entire charge, then you have to
3 consider the effect of the bias and what that effect is on the amount of charge
4 that's discharged from the capacitor.

5 So when he ran formulations taking into consideration this new
6 interpretation, and this is in his expert declaration at TI 1060, he added a
7 factor, which is that you have to remove the bias voltage. And the -- so let
8 me talk a little bit about that. So first, Claim 18 makes it clear that it's the
9 information signal that contributes to the charge on the capacitor. It's not the
10 bias. And in fact, the claims don't make any mention of a bias voltage. The
11 only thing the claim says is it's the information signal that's used to store a
12 charge on the first capacitor, and an inverted version of that is to store a
13 charge on the second capacitor.

14 But the other -- the -- excuse me. The other reason is -- and Dr.
15 Galton explains this in his third declaration, TI 1060, paragraph 61, is that
16 the bias on the capacitors is constant. Whereas the information signal is
17 time varying. So if I were to run the circuit and not apply any kind of
18 information signal, essentially the capacitors would charge up to a certain
19 amount, then they would just stay there. And the only change, the only
20 variation that you would experience on the capacitor is from the information
21 signal. So when you're trying to determine the change in the charge on the
22 capacitor, you have to just look at the information signal, not the whole bias.

23 Indeed -- well, he also gets into this idea that the bias can
24 actually mask the information signal because that information signal is really
25 small relative to the bias, you can skew the percentages by controlling the
26 bias, or you can mask it. You can hide it. And instead, a better way to do

1 this is, well, let's just factor out the bias and only look at the information
2 signal. How -- what is that doing?

3 And there's -- the other reason to do that is because that's the
4 charge you're interested in. That's the information that you're trying to go
5 from one end of the receiver to the other. You need to preserve that
6 information. So if you continue, you keep using this bias in there, then you
7 -- you're going to actually have a skewed amount of that percentage that's
8 going downstream.

9 I'll also point out that there hasn't really been a -- like -- so for
10 example, Dr. Ricketts calculated his percentage a certain way, but he doesn't
11 actually tell us why he left the bias in, and he doesn't tell us why we
12 shouldn't take the bias out. Whereas Dr. Galton has explained why it should
13 be removed. I'll --

14 So I'd also like to turn to Slide 94. And so Slide 94 is actually
15 some figures from the patent itself. On the left-hand side is Figure 16 D.
16 And what the patent says is that the -- 1655, it's sort of in the middle of the
17 top, that there's a slope. The slope of that 1655 line is the rate of change of
18 the capacitors. What you'll notice about this graph is that there's no bias
19 component in it. Likewise, for the figure next to it, which shows the down
20 converted signal, 1516 -- excuse me, Figure 16 J, that goes from zero volts
21 to some charged amount, but that's less than 0.2 volts. So also there's no
22 bias component there either.

23 So I guess this is a long way of trying to answer your question.
24 Dr. Galton applied a certain interpretation at the initial petition. He stuck by
25 it. When he was faced with an alternative, he was able to show that under
26 this -- those alternative formulations, the DeMaw circuit still performed

1 those claimed discharge percentages with the understanding that when you
2 do apply those new formulations, you need to remove the bias voltage. So
3 I'll pause there, if you guys have questions about that.

4 So there was a question earlier about what the issues were that
5 -- well, essentially, what was the mistake that triggered these new
6 simulations? And we talked about how there was a generic JFET as opposed
7 to the U430, and I'd like to talk about that just a little bit, starting at Slide 75.

8 All right. So to summarize, Dr. Galton confirmed through his
9 simulation data that the choice of the JFET model is a distinction without a
10 difference. And he testified that the JFET model does not materially change
11 the results of the operation of those circuits. And what I'm going to show
12 you before I yield my time is I'll actually show you what those histograms
13 look like and point out how they all of the variations still show the claimed
14 discharge percentages.

15 But the point is that the fact that the choice of the JFET doesn't
16 materially change the operation of the circuit is actually to be expected. In
17 this particular case by defaulting to a generic JFET, the LTSpice model used
18 a JFET that had characteristics that were common -- that there was
19 essentially common JFET behavior, and were not extraordinary.

20 So the other point I want to make is that we take exception to
21 the notion that DeMaw requires a specific model of JFET. As Dr. Galton
22 explained in paragraph 15 of his third declaration, TI 1060, a
23 -- implementing DeMaw would've gone under -- excuse me, would have
24 undergone standard circuit optimization and experimentation to select the
25 circuit component values. And this notion of essentially choosing circuit
26 component values that fit the model is something that the board

1 acknowledged in their institution decision at Page 24. The model of the
2 JFET is not a requirement for the circuit to function as intended. And that's
3 essentially what Dr. Galton was able to show through his simulations. A
4 POSITA would've recognized the need to select circuit component values
5 for specific use cases, and that JFET selection is part of the POSITA's design
6 choice is evidenced by the Oxner application note, which is TI 1044 from
7 where DeMaw obtained the circuit.

8 So Oxner wrote an application note. Oxner was a Siliconix
9 engineer. Siliconix is the company that was making these transistors. And
10 he wrote an application note to teach people how -- you know, what uses did
11 these transistors have? One of those uses is in a balanced mixer, and that
12 balanced mixer circuit is where DeMaw got the circuit from. In Oxner, the
13 application note has a whole section on how do you select the JFET, and in
14 that application note, there's a bunch of trade-offs about, you know, what
15 you would pick, and what you wouldn't pick. And it also provides examples
16 of different JFETs that you could use.

17 So this idea that you can -- that you have to -- you have to be
18 stuck with a certain model of JFET in order to achieve the performance of a
19 circuit. It's just not true. Circuit designers wouldn't just take that circuit and
20 stick it in their system. They would need to modify it based on standard
21 experimentation and optimization for -- to suit their needs. So the use -- this
22 use of a generic JFET in the initial simulations, really, again, is a distinction
23 without a difference. So --

24 JUDGE ZECHER: Mr. Gupta, this is Judge Zecher. I guess
25 -- I -- there's very little disclosure in DeMaw on this particular circuit that
26 you're using to simulate, but it does specifically reference the silicon U40

1 -- U430 JFET. Am I correct?

2 MR. GUPTA: It does reference that, but I'd like to extend that
3 sentence a little bit. It's not just the U430. It's the U430 Dual-FET unit.
4 And this dual -- this idea of a Dual-FET unit is actually what contributes to
5 the dynamic balance that DeMaw is asking for when it uses its transistors.
6 So that -- the full sentence I think is something like, you know, dynamic
7 balance is assured by using a Siliconix U430 Dual-FET unit.

8 MR. GUPTA: Thank you. I'll redo it. So I'll read you the
9 actual quote -- this is TI 1016 at eight, left-hand side that -- well, essentially
10 is a scan of a book. And the -- it's about four lines up from the bottom.
11 "Dynamic balance is assured through the use of a U430 Dual-FET unit."
12 And certainly once he's selected a model for his Dual-FET unit, that's what
13 he's using, and that's what he's advertising is in this circuit.

14 But the dynamic balance part of that sentence is really what's
15 important. And that dynamic balance is achieved by using a Dual-FET unit.
16 A Dual-FET unit is essentially two transistors that are sharing the same
17 silicate. And the idea there is that you're trying to -- you're trying to have as
18 close to mirrored properties between those two transistors as you can, in
19 order to make sure that both halves of the mixer are behaving in as close to
20 the same way as possible, that symmetry that you're looking for between two
21 sides of the mixer. So it's the Dual-FET unit part that's important, not the
22 U430 part. And a POSITA would've recognized that because it specifies
23 this idea of dynamic balance.

24 In the modeling -- in the modeling, the LTSpice software
25 mimics -- if you pick one FET -- let's say you make -- you pick two FETs,
26 and they're the same, it's not going to change the behavior of those two FETs

1 in the circuit. It's going to model them the same way. So essentially when
2 you're using the model in LTSpice, that dynamic balance is assured because
3 the software guarantees the same behavior for both of those FETs. It's
4 modeling the dynamic balance. So you're right, Your Honor, that it does
5 specify a model number for U430, but I -- but I'd like to make sure that it's
6 clear that it's not just that U430 that's important, it's the dynamic balance that
7 you get from having a dual FET unit. U430 is just one of many -- one of
8 many examples of a dual FET unit. And that, again, that Oxner reference
9 gets into that.

10 I'll also point out that DeMaw tells you that the circuit comes
11 from Oxner. It -- it's not hiding that fact. It says, hey, you know, I got this
12 from Oxner.

13 And I think that POSITA, when they were looking at the
14 circuit, would be -- you know, they would go look at other references,
15 certainly. If nothing else, Oxner -- it evidences the type of analysis someone
16 would do when they were implementing a circuit like this. I don't think I
17 should go as far as saying that someone would go look at Oxner. I think
18 that's too far, but certainly, it's representative of the type of analysis that an
19 engineer would do when they were implementing these circuits and having
20 to pick certain circuit components. So I'll pause there if you have any more
21 questions on that.

22 JUDGE ZECHER: No further questions for me.

23 MR. GUPTA: I think I am rapidly getting into my end of time.

24 JUDGE ZECHER: Just to give you a -- kind of a place holder
25 where you're at, you have about 17 minutes, 40 seconds, left in your total
26 argument time.

1 MR. GUPTA: Oh. Total argument time.

2 JUDGE ZECHER: All right.

3 MR. GUPTA: Well, I'll take two more minutes and then we'll
4 adjourn for me. Let's turn to Slide 102. And let's switch gears to Macnally
5 because we at least need to talk about Macnally a little bit before we
6 -- before I sit down. So there are two central issues surrounding this
7 Macnally reference. The first one is about the direction of charge flow
8 versus current. It -- it's not disputed by the experts. And really, I think it's
9 pretty obvious to a POSITA that charge -- this electron flow -- charge flows
10 from low potential to high potential. And that's true for Macnally. It's true
11 for, you know, just general circuit design.

12 And I think we can actually go to Slide 103. Dr. Galton here
13 explains that the information signal is -- oh, no. I'm sorry. I should say the
14 other issue here is whether the information signal is electrically coupled to
15 the capacitor and same thing for the inverted information signal going to the
16 capacitor. And what Dr. Galton showed in his simulations is that the
17 information signal is electrically coupled. That information gets to the
18 capacitor and eventually is discharged and down converted in Macnally
19 circuit.

20 And I think then we could go to Slide 108. Essentially, the crux
21 here is that there's no requirement in the '342 patent that the same electrons
22 received at the antenna be the ones that make it all the way down to the other
23 end of the receiver. So essentially, what's happening in the '342 patent as
24 well as Macnally is that a version of the information is translated and
25 traverses along various circuit components.

26 The '342 patent makes that clear because it actually

1 contemplates using a low noise amplifier at the input to the switching
2 device. So in Macnally's low noise amplifier, you can see that it actually
3 also has several gates that translate signal from one end to the other. So it's
4 more of a translation of the information signal. But -- and at the end of the
5 day, Macnally works and it works to down convert a -- an EM signal using a
6 plurality of charging and discharging sites. With that, I'll stop there just in
7 time and I guess it's break time.

8 JUDGE ZECHER: Yes. Thank you. You have about --

9 MR. GUPTA: Okay.

10 JUDGE ZECHER: -- 14 --

11 MR. GUPTA: Appreciate it.

12 JUDGE ZECHER: You have 14 minutes and 55 seconds left
13 for your rebuttal. We're going to take a quick five-minute break -- bathroom
14 break here. It's 3:17 on my clock. So we will reconvene here at 3:22 and
15 then we'll let Mr. Charkow present his responsive arguments. Thank you.

16 MR. GUPTA: Thank you.

17 (Whereupon, the above-entitled matter went off the record at
18 3:17 p.m. and resumed at 3:23 p.m.)

19 JUDGE ZECHER: Okay. Let's go back on the record. I just
20 want to make sure both parties are still present before we turn the floor over
21 to Mr. Charkow.

22 Mr. Renner, you guys still there for Petitioner?

23 MR. RENNER: Yes, Your Honor. We can hear you fine as
24 well. Thank you for asking.

25 JUDGE ZECHER: Okay, great.

26 Mr. Charkow, you there?

1 MR. CHARKOW: I am here, Your Honor.

2 JUDGE ZECHER: Okay, great. Whenever you're ready to
3 start, please begin.

4 MR. CHARKOW: All right. So this case for Texas
5 Instruments has basically come down to continuously changing positions,
6 continuously making new arguments that we've never seen in petitions.
7 Some of the stuff I'm hearing for the first time now in this hearing, and that's
8 been the case all along. That explains why we have all these multiple,
9 multiple simulations. Because every time we said something, Dr. Galton
10 reran his simulations, changed positions -- and I'll go through that and I'll
11 point out all the times -- the many, many instances that they've been
12 changing their positions and taking new arguments and going in new
13 directions, which is direct violation of the 37 CFR. Multiple times.

14 So I'll start off with the no prima facie case of -- or prima facie
15 case of obviousness or the burden shifting. So never did they raise this in
16 the petition. This was never raised, nor did they ever raise the concept that
17 Claim 19 through 21 does not add new general conditions. Again, these are
18 issues that -- they're never in the petition, never argued. It's not something
19 they addressed. All of a sudden, we started seeing these positions more
20 -- laid out more in the reply and actually more today than anything. So this
21 -- a lot of this is quite surprising to us. And this shouldn't be --

22 JUDGE ZECHER: Mr. Charkow? Quick note. We did
23 mention the *DuPont* case in our DI. And we invited the parties to discuss
24 the implications of that case in the context of these ranges that are presented
25 in the claims. Is that -- was that not sufficient notice?

26 MR. CHARKOW: I understand that the Board -- but what I'm

1 saying is specific arguments that were made today had -- have not been
2 made before as far as I'm aware. That's the issue. So that -- that's the issue
3 that I have. And I'm aware that the board raised the *DuPont* case and the
4 institution decision.

5 And so let's go talk about *E.I. DuPont* a little bit. So *E.I.*
6 *DuPont* -- so just to be clear, just because there's a range -- does not create a
7 prima facie case of obviousness that results in burden shift. I just want to
8 make that clear that that's our position. That's our reading of *E.I. DuPont*.
9 With regards to ranges, *E.I.* -- the Federal Circuit cases related to prima facie
10 case of obviousness are cases where the prior art was either -- the ranges
11 were encompassed in the claim range was encompassed entirely within the
12 prior art, it overlapped with the prior art, or it basically touched the prior art
13 -- the claimed range that essentially touched what was in the prior art.

14 And we see this in the cases in *In re: Woodruff*, 919 F.2d, 1575;
15 *In re: Geisler*, G-E-I-S-L-E-R, 116 F.3d, 1465; and *In re: Peterson*, 315
16 F.3d, 1325. That is not the case here where we have this -- you know, the
17 prior art had these ranges. And then we're -- you know, we're overlapping
18 with the ranges that are in the prior art are overlapping or encompassing or
19 near what's disclosed in the past. That is not the case. And as Your Honor
20 pointed out, the prior art doesn't disclose any ranges whatsoever. Zero. So
21 the only thing that they had was to rely on their expert, Dr. Galton. That's it.
22 And as we'll talk about and as Dr. Ricketts explained, Dr. Galton made a
23 number of mistakes, and that's the reason why we have three declarations
24 with, you know, dozens of simulations and constantly changing positions.
25 The problem is that Dr. Galton didn't perform the correct analysis,
26 particularly in using the concept of total charge stored, which was very

1 clearly set out in the claims and he ignored that. And I don't know why.

2 JUDGE ZECHER: Mr. Charkow, before we get to Dr. Galton's
3 simulations, can we talk really quick about what Petitioner was arguing as to
4 whether or not these dependent claims have any new or further conditions
5 that aren't otherwise --

6 MR. CHARKOW: Yes. Thanks.

7 JUDGE ZECHER: -- present in Claim 18? Because I think
8 that kind of gets into whether or not *DuPont* would be applicable here.

9 MR. CHARKOW: Yeah. So in our sur-reply, we address that.
10 In our sur-reply, we for the first time, Petitioner in reply raised the issue of
11 *E.I. DuPont* and we addressed the specific issue of Claim 18 -- specifically
12 discloses that there is the -- when you have to calculate discharge, the
13 discharge percentage is when the switch is open, right? That is a -- that is an
14 additional limitation that was added. That is not in the Claim 18. So again,
15 discharge, it has to happen at a very particular period of time when it's open.
16 Switches open closed. They could have said the discharge happened when it
17 was closed. They could have said the discharge happened when it was open
18 and closed. But they specifically added the limitation of the discharge -- the
19 percentage discharge has to occur during -- a significant discharge has to
20 occur when the switch is open.

21 So that is definitely a limitation, right? Because the switch
22 could be open, it could be closed, or they could say discharge in both cases
23 when -- calculate total discharge when it was open and closed. And so that
24 is a limitation. So we disagree that there's no additional limitation added by
25 Claim 19, but even -- under 20 and 21 as well. But even further, you have a
26 situation where, again, under *E.I. DuPont*, you have to have a situation

1 where they have to show that the general conditions are met in the prior art.
2 And our whole point is that they have not shown that, because the general
3 conditions being met includes the concept of, like, overlapping ranges as the
4 cases I mentioned, including *E.I. DuPont*. And -- or ranges where it touches
5 on or it's very close to the ranges that is disclosed in prior art.

6 That is not the case here. So our position is they don't even
7 meet that there's a general condition that's disclosed by *DuPont* -- sorry,
8 DeMaw and by Macnally that would even get you into *E.I. DuPont*. And
9 *E.I. DuPont* specifically says with regards to claim ranges -- it specifically
10 says, quote -- what page is this? 1006 of the case. So that's 904, F.3d, 996,
11 1006. It specifically says, "A prima facie case of obviousness typically
12 exists when the range of claimed compositions overlap the range disclosed
13 in the prior art," and it cites to *In re: Peterson*, which is one of the cases. I
14 then went and looked at more cases that are cited in here in the *E.I. DuPont*
15 case, *In re: Geisler*, and *In re: Woodruff* and it all shows the same thing. So
16 just because there's a range -- does not mean that all of a sudden, there's a
17 burden shifting.

18 You have to show the general conditions are met. And the
19 general conditions include that the ranges overlap or something. Not only
20 that, but you have to show that this -- that the discharge occurs when it's
21 open -- total discharge occurs when open and within the range. And our
22 position is that they haven't shown it. And just to be clear, I don't think I
23 said this when you asked me does Claim 18 add anything. It also says that
24 the total -- that the discharge gets the percentage discharge is based on the
25 total charge stored. That total charge stored -- that concept is not in any of
26 Claim 18.

1 So it's a total charge stored when the switch is open -- that none
2 of that is in Claim 18. Therefore, it adds significant limitations to Claim 19,
3 20, and 21 and significant limitations to claiming -- and in addition, we don't
4 believe that the general conditions are shown in DeMaw or Macnally for the
5 reasons we'll discuss, because, quite frankly, Dr. Galton performed the
6 wrong calculations and, therefore, *DuPont* doesn't even apply in the first
7 place. Even if *DuPont* does apply -- even if it does apply, which we do not
8 believe it applies, the -- in the POR -- so one of the things you can show for
9 -- you know, to show that there -- to over -- to rebut the presumption of
10 prima facie case of obviousness -- one of the things is teaches away. In the
11 -- in our POR, at Page -- let's see. POR at Page 30 -- and I'll share my
12 screen. We specifically talk about how DeMaw -- right? The only thing that
13 was invalidated for Claim 18 -- was invalidated for was DeMaw. Not
14 Macnally. And so for claim -- sorry, I got to figure out how to share this.

15 JUDGE ZECHER: We have the Patent Owner Response. We
16 can access that, Mr. Charkow.

17 MR. CHARKOW: Okay. But I wanted to -- I -- I'll -- then I'll
18 read the exact language into the record so you have that. Sorry. Okay. All
19 right. So on Page 30 of the POR, we state that "DeMaw specifically teaches
20 that Resistor R1 is selected so that Vgs remains at 80 percent of pinch-off."
21 And then we go on to say, "A POSITA would understand that this design
22 choice ensures that transistors Q1 and Q2 remain in a conductive state and
23 do not turn off. In other words, the switches do not open," okay? And so
24 that is the -- and the claim language requires it be open. So again, we're
25 saying it teaches away from -- DeMaw teaches away.

26 Second, in the Sur-reply, we also talk about it on Page 14 of the

1 Sur-reply. We also talk about the same thing, that DeMaw teaches away.
2 So we say -- sorry. The section -- it -- it's a -- Page 14 of our Sur-reply is
3 entitled DeMaw JFETs are configured to not turn off. And we specifically
4 say, "DeMaw, however, specifically teaches avoiding pinch-off by biasing
5 its JFET at 80 percent of the pinch-off voltage, $V_{gs(off)}$." And then we go
6 on to say, "The reply ignores this issue in arguing that DeMaw JFETs
7 open/turnoff." So we specifically talk about teaching away, even if *E.I.*
8 *DuPont* does apply. And with regards to Macnally, Macnally was never
9 invalidated in any of Claim 18, so if we're looking at claim -- well, Claim 19
10 through 21, which would include Claim 18, Macnally was never part of that
11 analysis. So if there -- the Claim 18 was never invalidated in view of
12 Macnally. And so Macnally is -- the *E.I. DuPont* wouldn't even apply. So
13 -- because it's not only the range for Macnally, it's all the limitations. And
14 so that -- that's our position with regards to *E.I. DuPont*.

15 So the one thing I want to point out is when you -- when the
16 counsel was asked about DeMaw, he specifically said that the -- certain
17 information is in there is based on inherency -- that they were using
18 inherency. And if they're using inherency, they have not met the standard
19 for inherency, which shows that what they point to must necessarily be
20 present, meaning that those percentages, those ranges that they point to must
21 necessarily be present. That is the standard for inherency and Counsel,
22 today, I heard talk about DeMaw and inherency and they have not met that
23 standard. And we argued that in our POPR. With regard to -- so that's with
24 regards to *E.I. DuPont*.

25 In terms of obviousness -- so basically, what Dr. Galton did is
26 he backed into numbers. He knew where he needed to go with the

1 percentage discharge and he backed into it. So basically, as we said, the
2 references do not disclose any claim percentages. No percentages at all. So
3 they had to rely on some sort of simulations or expert, but Dr. Galton
4 provided unreliable testimony. It's the -- his testimony -- basically, he
5 backed into the percentages. For DeMaw and Macnally, he deviated from
6 what they expressly disclosed and they say, oh, it's just a recommendation or
7 it's a suggestion.

8 That's what they expressly disclosed. If that's the case, if you
9 could take anything in a piece of prior art as just a suggestion or a
10 recommendation, then there's no balance to prior art. You just get an expert
11 to say, oh, it's a -- it's a suggestion. It's a recommendation. And so I could
12 change it however I want under the -- whatever guise you wanted.

13 They said that it was under the guise of optimization, but they
14 can't go and sit and just ignore Macnally and DeMaw, which is exactly what
15 they did. They used the wrong JFET model. And Dr. Ricketts explained the
16 significance of doing that. Again, all in the -- all trying to get to this
17 percentage that they needed. They changed numerators and denominators to
18 try to get to the percentage they needed.

19 They also ignored DeMaw on a number of other issues
20 -- numerous issues where there was expressed teaching of DeMaw, and Dr.
21 Ricketts explained all his express teachings and how they would affect the
22 simulations. And because of that, they went and they reran all their
23 simulations to adjust and when they reran their simulations, things changed.
24 The -- it was not the same diagrams. It wasn't the same charts. It was -- it
25 didn't look the same. It changed and we will talk about that. So that's a
26 significant problem, the fact that he had to change his simulations and things

1 changed. It wasn't the same results. There was significant changes, which
2 we'll discuss in a little bit.

3 Galton admitted he used the wrong JFET model in DeMaw. He
4 definitely -- you know, there's no doubt he ignored numerous teachings of
5 DeMaw and just went away from what they taught. And again, at the time
6 that the Board issued their institution decision, they didn't have the benefit
7 of, you know, Dr. Ricketts saying, these are all the problems with what they
8 did.

9 The other thing with Macnally is that he -- Dr. Galton admitted
10 that he did not use the correct transistor model. And specifically in his
11 second declaration, he had a whole section where he changed values. He
12 -- the section is in Exhibit 1042, paragraph 145. It's a -- this is his words:
13 "Macnally Circuit modified to match that presented in Macnally patent." So
14 he realized. That's his words. He realized he did not use Macnally circuit
15 and he used other things that deviated from Macnally. Macnally didn't have
16 as much information as DeMaw had, but it still had information and he
17 deviated from that. And then in his second declaration, Exhibit 1042, he
18 specifically admitted that. And the title for the section is, basically, I'm now
19 using what's been presented in Macnally. But that is not reliable to
20 constantly change positions every time and then come up with a new
21 position, you know, that wasn't in the petition.

22 Counsel talked about with regards to DeMaw -- I want to raise
23 this because I'm going to forget. He talked about, oh, you look at DeMaw
24 and it's all about dynamic balance and you could ignore the U430. That
25 argument, they've never made before. That is a new argument that
26 -- certainly not in the petition. That is something that maybe was -- I don't

1 even think it was in the reply. That is an argument that we're hearing for the
2 first time today. Again, this case is about changing positions and just
3 adjusting with the wind. As things change, they just -- new simulations, new
4 positions, and this is a continuous pattern and I'll point it out every time in
5 my presentation. Bottom line is you can't just ignore the teachings of the
6 prior art willy-nilly, just decide what you're going to do, and come up with
7 excuses as to why you're deviating from the prior art.

8 This isn't the case where nothing was disclosed in the prior art
9 and Dr. Galton had to make some, you know, critical decisions. He chose to
10 ignore what was in the prior art. And like I said, his own exhibit, for
11 Macnally specifically, specifically admits that he changed -- his new
12 simulations changed to match Macnally better. And just to be clear, the
13 Court -- and we cited this in our POR. In Apple v. Maxwell, this is IPR
14 2021, 00225, Paper 34 and 37. This is PTA 2022 decision. The PTA
15 excluded new simulations, just like what Galton -- Dr. Galton is doing.
16 They just -- they did not consider the -- all these new simulations. The
17 bottom line is that all these new simulations that Dr. Galton submitted, every
18 time we raise an issue, he change the simulations and there would be real
19 significant changes and they would be like, oh, there's no difference.

20 And that's not true and we'll show that. And that -- and they
21 should be -- they put in original simulations. Those are the simulations that
22 should -- they should have to stay with. They should not be able to change
23 positions as things change during the proceeding. In terms of -- what did Dr.
24 Galton actually do? He gave a histogram. A histogram. He didn't explain
25 how the histogram occurred. He didn't explain how it was calculated. He
26 didn't give an exemplary view of the histogram. And here's an example.

1 The -- I took these -- this value and this value and I, you know, calculated
2 this. Nothing. And the fact that we submitted information or we submitted
3 -- you know, there's the backup Python code, for instance. Dr. Galton didn't
4 talk about it anywhere. It's not -- Petitioner didn't talk about it anywhere.
5 It's not in any brief.

6 If it's not in any brief, it's not considered. So any of this
7 arguments that, oh, they -- we put it in evidence, we put in a declaration, we
8 put in the -- you know, their Galton's declaration, we attached his Python
9 code or whatever, that's something that's not considered because they did not
10 raise any of that stuff or explain it in any brief whatsoever. Not only that,
11 but, you know, most cases they just cited, you know, broad swaths of
12 paragraphs, you know, in trying to incorporate by reference. So again, just
13 relying on a histogram to show percentages without ever explaining what
14 that is in our view is -- it's an unreliable method and it should not be
15 considered. The -- let's see. All right. So let's get into -- let's get into claim
16 construction. So I'm going to share my screen.

17 JUDGE ZECHER: Mr. Charkow, before we move into that, I
18 guess I just want to kind of flesh out what happened here. I -- I'm looking at
19 Exhibit 1052 and this is email exchanges between Ms. Mandir, it looks like,
20 Mr. Griswold, yourself, that go back and forth regarding this -- my
21 understanding is the second declaration of Dr. Galton and deposing him a
22 second time. And it looks like there was some sort of agreement reached
23 here to allow this second declaration into the record and then a second
24 deposition of Dr. Galton and now, I understand you to be arguing that we
25 should exclude that.

26 Is that what -- is that what you're asking us to do right now?

1 MR. CHARKOW: I don't think it should be considered and the
2 -- a little bit more background on that -- and maybe you have this in your
3 head from when we talked many, many months ago, but we were put in a
4 position -- and we put this in our Sur-reply brief and I would -- that's the best
5 place to read it, but basically, we were put in a position where we really
6 didn't have a choice because the right process that they should have gone
7 through to get this in would've been to make a request to the Board to get it
8 in as a supplemental information or whatever. And then the Board would've
9 had in front of them what they needed. And then the Board could have
10 made a decision when we called up the Board and said, well, are we going to
11 be able to get a sur-reply, declaration, or is this something that's going to be
12 excluded?

13 Because they didn't follow the procedures that they needed to
14 follow, we were forced to be put in a position where we were taking a
15 chance that if we didn't -- if we didn't accept it and they put it into their
16 reply, which is they -- what they did, that we would be precluded from
17 putting in an expert declaration to respond to it because those are seldom
18 granted. I don't even know if that's ever been granted. Certainly seldom
19 granted. Alternatively, we didn't know if we would get -- that it would be
20 excluded because that is also something that's not often granted. So we were
21 put in a very bad position because they did not follow the procedure where if
22 they wanted to submit the declaration, they should have put it in. And
23 because they didn't put -- make a request -- a motion -- appropriate avenue to
24 get it in, we were left in no man's land. And so we were -- we took it
25 because we knew there was a huge risk that we would not be able to address
26 it if they put it in the reply, and the board may ultimately decide that that's a

1 valid response. And then we were in a bad position.

2 So that's the full history from our point of view.

3 JUDGE ZECHER: So you agreed to it initially, but then you
4 feel like it should have been introduced into the record through a different
5 mechanism, as I understand it? Or are you saying supplemental information,
6 and because they --

7 MR. CHARKOW: Yes.

8 JUDGE ZECHER: -- didn't seek that, you reluctantly agreed to
9 it and now you want us to exclude it? Is that somewhat --

10 MR. CHARKOW: Yeah, or not -- or not consider it. I mean, it
11 doesn't have to be excluded, but not considered. I --

12 JUDGE ZECHER: But it is a part of your Motion to Exclude,
13 correct?

14 MR. CHARKOW: Yes.

15 JUDGE ZECHER: Okay.

16 MR. CHARKOW: I just don't think that we should be forced to
17 have to address something that -- you know, because at a deposition -- if he
18 never mentioned it we would've never known about it at his deposition. He
19 happened -- at his deposition he was like, oh, I have all these things. You
20 know, I ran additional -- you know, I've corrected some stuff. I corrected
21 some stuff. He just said, he corrected -- used the right JFET model. That's
22 all he said for DeMaw.

23 And then all of a sudden -- we said, okay, give us whatever you
24 have. And all of a sudden we got a declaration that was longer -- that was
25 way longer than the original declaration, with all new simulations. They
26 took ten days to get it to us. It was -- with something they supposedly had

1 already, they took ten days to get it to us and had all new simulations in it.

2 And that's just -- this shouldn't be trial by ambush. That's just
3 -- and we shouldn't have to deal with that in our POR response limits. And
4 without knowing what -- how they're going to really argue it, other than
5 deposing the guy, Dr. Galton. That's the position we were left in, where we
6 had -- it wasn't in a brief. It wasn't described. So we were left to just ask
7 -- you know, without any guidance, we were asked to randomly ask Dr.
8 Galton questions.

9 And then later on, when they did have the opportunity to put it
10 in, they didn't put it in properly. They just bulk cited. You know, they didn't
11 discuss it in the reply. They just said -- put one sentence and then -- here,
12 one sentence there. And then they bulk cited paragraphs from the second
13 declaration.

14 That's the issue that we're dealing with, Your Honor. And we
15 don't think that should be allowed.

16 JUDGE ZECHER: Okay. I understand your concern. Feel
17 free to proceed with your claim construction argument.

18 MR. CHARKOW: Sure. So can you see my screens, Your
19 Honor? Oh, my screen, I guess I should say.

20 It should say Claim Construction.

21 JUDGE ZECHER: Yes. You're sharing Slide 4.

22 MR. CHARKOW: Okay, great. So Slide 4 says a switching
23 device. So switching device comes from this board's own construction and
24 switch was approved -- validated by the Federal Circuit. It's an electronic
25 device for opening and closing a circuit, which I -- I'm sure there's a few, but
26 we don't think there should be, because this is way from -- the -- of -- the

1 board has already ruled. And the Federal Circuit is basically blessed.

2 Electrically coupling is indirectly or directly connecting such
3 that electrical signal can flow between. Again, this was a decision that the
4 board made many years ago. And again, we believe that's the right
5 construction. I think those are the main two constructions that we should
6 talk about now.

7 Okay, so he -- oh, we already talked about the optimal working
8 condition.

9 All right. So in order to show invalidity, right -- in order to
10 show that the claim -- that the Claims 19 through 21 are met, they have to do
11 two things. That -- they have the burden of showing two things, Petitioner.

12 Number one: They have to show that the capacitors discharge a
13 certain percentage when the switch is off, not when it's on and off, or not
14 when it's -- you know, just on, or whatever. When the switch is off. That
15 percentage has to occur at one particular point in time. And that's only when
16 the switches are open or off.

17 The claim percentages also have to be based on the total charge
18 stored. So the denominator has to be the total charge stored in the capacitor.
19 And the Petitioners failed to do this. Galton made a mistake. And again, for
20 the third -- in his third -- second declaration, third declaration, he kept fixing
21 numbers. I think, particularly in his third, he kept fixing stuff. They
22 basically just ignored the claim language. Galton ignored the claim
23 language. They -- the claim language is clear. It says total charge stored in
24 the capacitor when the switch is open.

25 They didn't do total charge stored. They didn't take into
26 account that there's charge sitting on these capacitors at all points in time

1 from prior cycles. So he just -- as the council for TI explained to you when
2 you asked the question, is it true that he did a cycle-by-cycle analysis. In his
3 initial simulations -- of all the simulations before, like the reply, he did a
4 cycle-by-cycle analysis. He didn't change it until the reply. And that is
5 wrong. That is not what the claim said.

6 Now they're arguing that, oh, there's some sort of antecedent
7 basis for the total charge stored. That was never argued before. That was
8 never argued in the petition. They didn't say, oh, there's antecedent basis for
9 the total charge stored. And there is no -- even if you consider that
10 argument, there is no antecedent basis. Claim 18 never uses quote, total
11 charge stored. Claim 18 talks about storing charge, but it never talks about
12 quote, total charge stored.

13 That's -- the total charge stored in Claim 19 is simply a way to
14 write that in plain English. Because you put a total charge stored, it doesn't
15 make any sense. So it's not that -- just because you have the word the
16 doesn't make it antecedent basis. But he -- and they didn't even argue that in
17 there.

18 JUDGE ZECHER: Mr. Charkow, this is Judge Zecher. I'm
19 looking at this claim language, and it says, "the total charge stored therein".
20 And it seems to be inextricably tied to, "during a period of time".

21 Could that period of time be one cycle?

22 MR. CHARKOW: No, because Claim 18 specifically -- let's go
23 to Claim 18. Specific -- Claim 18 specifically says that it's during plurality
24 of -- performing a plurality of charging and discharging cycles.

25 JUDGE ZECHER: So you need more than one cycle; you need
26 two?

1 MR. CHARKOW: Yes.

2 JUDGE ZECHER: Okay.

3 MR. CHARKOW: At least two. I mean, that's what the claim
4 said. I mean, if you're going to go back to Claim 18, you can't ignore what it
5 says, right? So that -- that's -- our position is you can't ignore -- you can't
6 just look at a piece of Claim 18 and say, oh, it's -- you know, the antecedent
7 basis is a little piece here. But it -- more that it's a plurality of charging and
8 discharging cycle. So total charge stored, when you look at -- in the context
9 of Claim 18, makes sense, right. Because there's a plurality of cycles, right.
10 So the reason why they talked about -- instead of talking about stored charge
11 in -- which would've been a single cycle, I guess, they talked about total
12 stored. The reason why they used total was because there's a plurality of
13 charging and discharging cycles, right. That's why -- that -- why else have a
14 total? Otherwise it would just be stored charge.

15 Okay. So if we go back to DeMaw -- all right, so what did they
16 do for DeMaw? They think -- they can show obviousness in view of
17 DeMaw. So here's -- now I'm on Slide 11. Slide 11 shows the -- Galton's
18 -- or in the original petition, it shows his calculations. Again, not explained
19 anywhere how he got to -- it's literally just a chart with numbers on it. A
20 chart with numbers on it. In grade school, if I didn't show my work, I
21 wouldn't get credit.

22 Like, this -- we're trying to invalidate a U.S. patent. He could
23 just -- he's just giving a chart that shows percentages and never gave -- in the
24 original petition, he never gave his Python code or any explanation of how
25 he got there. The Python code may be in the record, but nobody has ever
26 explained what the Python code does. Galton certainly hasn't explained it.

1 And to just have a diagram and say, oh 6 to 50 percent, and you just have
2 some colors and pictures without explanation that, to us, does not seem
3 credible.

4 Not to mention that, as you could see here, he did a cycle-by-
5 cycle analysis. This is the petition -- this is their petition. He completed on
6 a cycle-by-cycle analysis, which is wrong. And that was their original
7 petition. They can then not come later on in the -- in reply and then change
8 positions and go from cycle-to-cycle and say, okay, well if you look at it not
9 cycle-to-cycle and you look at it as something else, it's the same. It's not the
10 same.

11 But you can't do that. You can't go and change positions and
12 then say, oh, it's -- it looks the same, right. They took a position that was
13 wrong in the petition. For whatever reason, whether it was they were trying
14 to back into something or get to a specific number, which it's likely probably
15 what they were doing. And that's why they did that cycle as -- by cycle
16 analysis.

17 And I -- we talked to Dr. Galton about this and he admitted that
18 when -- this is Slide 12, this is from his deposition, column -- page 14, Line
19 2 through 16. When you -- question: "When you calculated the discharge
20 percentage, you did so by looking at what came into the capacitor in one
21 charging cycle and what was discharged by the capacitor in the subsequent
22 discharging cycle, correct?" "Yes. That's what I did in my original
23 declaration."

24 So he did the wrong calculations. He cannot come back now
25 and reply and say, oh, I did the wrong calculation, but if you do the right
26 calculation, it's the same. His calculation's wrong. He doesn't get to fix that.

1 So the next limitation -- so here's another position. They
2 ignored this. They never considered this. Claim 16-J -- and when they did
3 -- even in the reply they ignored 16-J. 16-J specifically shows charging
4 blue, discharging orange. Charging blue, discharging orange. Up and down,
5 up and down. And guess what? It doesn't go back to zero. There's always
6 charge left in the capacitor. This is in the specification. Dr. Galton should
7 have considered this. The Petitioner should have considered this. When
8 they were determining in their original petition to do cycle-by-cycle, they
9 should have considered this and they didn't.

10 Now they say, with regards to DeMaw, well look, it shows zero
11 volts. And DeMaw -- you know, so I'm going to talk a little bit about
12 DeMaw, and we'll talk about this later. They say it shows zero volts, right.
13 And DeMaw has bias. And therefore DeMaw -- you don't have to consider
14 the bias because it shows zero volts. But the patent doesn't talk about bias.
15 So it -- it's irrelevant that -- DeMaw talks about bias, which means that
16 -- and they didn't consider that either. They actually took that out when they
17 reran the simulation, which is another issue.

18 So not only did they mess up by doing cycle-by-cycle, but
19 when they tried to correct it, certainly for DeMaw, they took out the bias
20 current, which is sitting on the capacitor, which is part of total stored charge,
21 to point to this diagram and say, oh, it shows zero volts so that -- there's no
22 bias current. The patent doesn't have bias current. The -- it didn't talk about
23 bias current. But DeMaw did. So they have to factor that into total charge
24 stored, and they didn't do that calculation. And that's another problem.

25 So in fact, in the reply, they tried to rewrite the claim language.
26 They tried to rewrite it. So this is on Page 19 to 21 of the reply. And then in

1 the Sur-reply, we explained how they tried to rewrite it. And so what did
2 they say in reply? The change in the total charge stored during the aperture
3 period, and not the entire charge stored by the capacitor, is irrelevant charge
4 for the down conversion. That's not what the claim said. So you look on the
5 right, we added what they wrote. They changed the language of the claims
6 to back into what they needed. That is not allowed. You can't change the
7 language of the claims.

8 The Claim 18 says, "Plurality of charging and discharging
9 cycles". Claim 19 and 20 and 21 says, "Look at total charge stored as the
10 denominator." And they didn't do that. The reason they didn't do that is
11 because when you add stuff to the total charge stored, which is the
12 denominator in calculating percentages -- if you increase the denominator,
13 right, the percentage goes down. So by removing bias current and by not
14 looking at total charge stored, they inflated the percentage discharge, right.
15 Because if you have a numerator and you take the denominator, and you
16 decrease that denominator, what happens? Your percentage goes up. And
17 that's -- they specifically did that.

18 And so -- again, this is the slide you -- Your Honor asked me
19 about the -- you know, isn't it just a single cycle? No, it's not a single cycle.
20 We see from here, not only does the specification -- this is Slide 15. Not
21 only does the specification show in Figure 16-J on the left that it's adding
22 charge all the time for each cycle, but we see on the right that in 18, which
23 all, 19 through 21, depends, it has to be a plurality of charging cycles and
24 discharging. And when you have -- and that's why later on in 19, 20, and 21,
25 they talk about total charge -- stored charge. Because you have to consider
26 all the previous charge. And they did not consider that in their petition. And

1 that is fatal to their argument. They can't fix it later on. That's a -- that's
2 definitely a change in position, new position that's deviating from what they
3 originally said.

4 This is DeMaw, so just to be clear, a DeMaw specifically
5 discloses in blue, Slide 16 -- you could see DeMaw has a bias current. 12
6 volts. Plus 12 volts. I asked Dr. Galton about this. I asked him -- on the
7 right side, I said, "DeMaw discloses a 12 volt bias current, right, in the lower
8 right-hand corner?" Answer: "Yes."

9 The -- and I said, "Okay. The 12 volts is sitting on the
10 capacitor of DeMaw, correct?" He said, "The 12 volt bias does not set up a
11 constant" -- "does set up a constant voltage on those and those capacitors?"
12 "Yes. A bias voltage."

13 He admitted that there was a bias voltage. But when he did his
14 analysis, here's what happened for -- this is DeMaw. What did -- I asked
15 him a question: "In view of your simulations that you performed," this is
16 Slide 17. This is his deposition, Page 25, Line 16 through 22.

17 "In your new simulations that you performed," this is in reply,
18 "where it says bias removed, that means you removed the bias voltage that
19 was sitting on those capacitors? This is referenced to DeMaw, correct? In
20 performing your calculations of discharge percentages, correct?" Answer:
21 "Yes." He removed it. It's sitting on the capacitor. He just decided to take
22 it out.

23 The reason he decided to take it out is because it would've -- if
24 he didn't take it out, the denominator would've been huge and it would've
25 -- it would've crushed the percentages down. Again, this is not reliable
26 testimony and should be not considered.

1 Now, the question becomes DeMaw. Is there a time where
2 DeMaw is open, right? Because we're looking at Claim 19, 20, and 21, and
3 it requires that -- the JFETs to be open. What does DeMaw say? And
4 Counsel talked about this pinch-off region. DeMaw doesn't say operate in
5 the pinch-off region, which would be VP -- I forget the -- VP off in some
6 language or whatever. But it -- VP is pinch-off, right.

7 It doesn't say operate in the pinch-off. It says bias it to operate
8 80 percent of pinch-off. DeMaw specifically states, not only did he -- we
9 will see it from JFET that was used, but DeMaw specifically states go 80
10 percent away -- you know, sorry. Go 20 percent away from where it would
11 pinch-off, where it would actually close. Where -- sorry, where the switch
12 would actually open. Don't go to where it's open. Keep it on. It didn't say,
13 you know, go to pinch-off. It didn't say select VP. It said select 0.8 VP.
14 That means don't go to pinch-off. Don't open the circuit. Don't turn it off.
15 Sorry, don't -- yeah, keep the circuit -- keep the circuit. Keep the circuit on.
16 Don't go off. Keep it open. Don't go off. So that -- that's that.

17 So these are significant issues. You know, they're -- they have
18 to show for DeMaw, for instance, for Claim 19 through 21, they have to
19 show that their discharge is occurring when the switch is open or off. And
20 they can't show that because DeMaw specifically -- and we'll see it from the
21 simulations, DeMaw specifically says, don't turn off. Stay on.

22 Now, this is interesting. So this is slide -- sorry, the previous
23 slide was Slide 18 we were just discussing.

24 Slide 19, so what happens now? So in their original petition,
25 they took a very definitive position. They said -- this is paragraph 103 of
26 Galton's declaration. They said, "The switches are off when their drain

1 currents are zero," -- zero, "and on when their drain currents are non-zero."
2 That is their position. Paragraph 103.

3 I could -- we confirmed that. My colleague confirmed that with
4 him at his deposition, said, "When the gate" -- it -- in the context of DeMaw,
5 she asked the question. He said, "Open means it does not" -- "doesn't
6 conduct." Zero current. "Closed means conduct." That was their original
7 position. That it -- and the reason it was their original position is because
8 they used the wrong JFET model for -- at least for DeMaw. And when they
9 used the wrong JFET model for DeMaw, it showed zero. Zero current at
10 times where -- at -- for the switch. And then they performed their cycle-by-
11 cycle calculation when it was quote unquote "off".

12 But when they reran the -- so this is what it showed. So this is
13 Slide 20. When they ran the simulations, you could see it was at zero.
14 There were periods of time in -- shown in blue, where the current coming
15 out of the switch was zero. Literally zero. Their position was zero is open
16 or off. That was their position. Very clear.

17 Then what happened? They realized they used the wrong JFET
18 model because we pointed it out. And that's what resulted in -- and Dr.
19 Galton, Slide 21, in his deposition admitted he used the wrong JFET model.
20 It says -- he said, "Unfortunately" -- this is his answer to a question.
21 "Unfortunately, we accidentally, as I mentioned, used the wrong model for
22 the device. We accidentally didn't point the simulator to the Siliconix
23 models, and we ended up using generic JFET models supplied by the
24 simulator."

25 So they used the wrong model. They -- intentionally or not,
26 they deviated from DeMaw, specific, express teachings of DeMaw. Well,

1 what happens when they reran the simulations? Well, they changed -- the
2 pot changed. Not only did the pot generally change -- generally, but most
3 importantly, they changed around where it used to be zero. It was no longer
4 zero. So their position, remember their position, zero is off. Anything other
5 than zero is on. That was their position.

6 So now they were in a quandary. And this is why Galton did all
7 these new simulations. Because this is a pretty significant issue. So what
8 Dr. Ricketts did -- so this is Slide 22. You could see the top is Dr. Galton's
9 simulations, but Dr. Galton was very careful. He didn't show what was
10 actually happening around the zero mark. But Dr. Ricketts did. And so you
11 could see on Slide 22, Dr. Ricketts is on the bottom. And you could see that
12 there -- the zero crossing, there is not a lot of time where it's at zero.

13 Again, their position is that zero is when it's open, and that's the
14 claim language. So that's what they're stuck with. That's the position. They
15 can't change and say, oh, when it's open and closed, you know, it -- that's
16 what you have to look at it. That's -- that wasn't their position.

17 So if you look at this, you do not have anything happening
18 when it -- if they did this, right -- if they determine the percent discharge
19 based on what was shown in their new simulations in the second declaration,
20 they would not have been able to get to the percentages, because it's only
21 actually zero current for like points, like the -- those blue dots. Very short
22 periods of time.

23 And so what did Galton do? He ran all these different
24 simulations. It changed all different things in DeMaw, all sorts of different
25 things. He changed the LO cycle, everything else. And in no simulations
26 could he get it back to zero where he had -- where he may have used the

1 wrong JFET line. So what did they do? They said, you know what, between
2 apertures, whether it's open, closed, anything between apertures is
3 considered open, right? Anything. Whether it's actually open or not.
4 Whether it's -- according to them, whether it's zero -- again, it had to be not
5 -- zero current is open, right. Anything non-zero is closed. And so they
6 changed positions. Then they said, oh, anything in between apertures in the
7 reply works. All good.

8 But they ignored the position that they originally took that, you
9 know, you can't just look between apertures, because between apertures you
10 have opening and closing sometimes. So you can't just say between
11 apertures, and so -- and a matter of fact, their own expert, in his declaration
12 -- this was -- let's see. Well, this is their position. "A POSITA would
13 recognize that the control signal being between apertures does not
14 automatically imply an off state of the JFET."

15 In other words they're saying, even -- and this is -- and they cite
16 to Galton, that's the Exhibit 2021, I believe. Even in the case where there's
17 -- between apertures, it's not guaranteed to be off. So they've got a big
18 problem. They need to show only when it's open -- only when it's open or
19 off that claimed discharges occur. And the claim language specifically
20 contradicts. What they're saying is, you can't look at between apertures.
21 You have to -- because that could be when it's -- according to them, you -- it
22 could be open or closed during those apertures. And the claim language
23 specifically says, you only can calculate discharge percentages when it's
24 open. And they didn't do that.

25 And so what did they do? When they -- so now faced with a
26 quandary, they're like, okay, we're -- we have to look at -- we can't just say

1 zero anymore, because that's not going to work. So they say some
2 unspecified non-zero current is open. And so what did they do? They just
3 picked a random number, and this is in our brief -- this is slide -- so this is
4 slide -- we were talking about Slide 29. Now we're Slide 30.

5 They picked a random number. So they just drew -- they drew
6 a -- basically a line, and they basically said, look, it goes from -- the switch
7 goes from real wide current going -- a lot of current going through to a really
8 little amount of current going through. But that doesn't make it effectively
9 off. They just chose a random number and they said anything below 0.65, I
10 guess that's milliamps, is effectively off. Well, that's random. They didn't
11 -- they -- there's no logic. Galton didn't provide any logic. They just said
12 that because if you look at the diagram, anything between 0.65 and -0.65,
13 you know, is -- they're saying is off. So everything around zero, they
14 captured by that. But it's random. You can't choose an arbitrary number to
15 say, oh, that's off. But even so they didn't calculate this in their original
16 simulation. And they haven't shown -- the claims require that, again, the
17 discharge has to be when it's off or open.

18 And again, I asked him a question at deposition. "Did you
19 calculate the discharge percentage using the discharge that occurred through
20 the entire time between apertures?" And he said I did.

21 So all this -- so here's his -- here -- again, here is his -- here are
22 his histograms, and all his histograms show is, again, number -- like it shows
23 just pictures and say, look, it's in this percentage with no explanation. No
24 explanation. Even the Python code is not explained anywhere. It's not in
25 any brief. And therefore the argument is waiting. It's not in anywhere and
26 not described. It's not made. And they never made it and that's not

1 legitimate.

2 So the -- so then they argue -- then they put it on us and say,
3 well, we are arguing that a switch is off when it's at zero. We just took their
4 position. So in their position, this is what they said. Now, they're saying
5 that, well, you say it's, you know, zero current. That's not practical reality.
6 That can't occur. How could Patent Owner say that? We didn't say that. As
7 you saw it, they said that. So it's a red herring for them to now say, oh, we're
8 arguing something that, you know, results in, like, an inoperable
9 embodiment. That was their argument that we went off. Zero current is off
10 or open. And that's what you got to look at.

11 So Oxner. They rely on Oxner. In the petition -- in the petition
12 on the left side. This is Slide 34. Sorry, we just told you about Slide 33.
13 Now we're on 34.

14 In the petition they say that DeMaw is a different circuit than
15 Oxner. Don't use Oxner to get values and stuff. And they did that because
16 they were trying to distinguish from an IPR then RPX file where the
17 institution was denied. So they were trying to distance themselves.

18 In the reply what do they say? Use Oxner. Well, that's a
19 change of position. They said in one place -- one breath they said petition,
20 don't use Oxner. Different circuit, not going to use it. Because they're
21 trying to get around this denial of institution. And then by the time they got
22 to reply, they got through the institution decision, and they're like, okay, you
23 could use Oxner. And so they start to use Oxner.

24 And that -- and then that's where Galton started using Oxner
25 and to redo simulations. But again, and then they tried to point to Ricketts
26 and saying that he did some simulation showing that the claim percentages.

1 But again, Slide 35 shows that it was not -- the claim percentages that
2 Ricketts found when he did the right calculations were not when the
3 switches were open, as the claims require. And that's Slide 35 and 36.

4 So then with regards to Macnally. So Macnally requires --
5 JUDGE ZECHER: Mr. Charkow, it's probably a good
6 opportunity to just remind you have just over 13 minutes left in your total
7 argument.

8 MR. CHARKOW: Right, thank you. Thank you, Your Honor.
9 I'm coming to a close, I think, shortly.

10 Electrically coupled. So electrically coupled requires
11 -- information signal is -- it requires -- so electrically coupling is directly or
12 in connect -- directly -- indirectly or directly connecting to send electronic
13 signal. The signal has to flow between. So in this case, it's the information
14 signal has to flow to the capacitors. That never happens. That's not
15 -- happens.

16 And a matter of fact, if you go to Slide 49 -- so that was Slide
17 48 we were talking about. If you go to Slide 49, this is paragraph 86 from
18 Galton's declaration. And he specifically says -- he pretty much
19 acknowledges -- he said it's essentially the same information. And it's
20 information that's translated. That's not what the claims require. The claims
21 require that the information signal get to the -- get to the capacitors. And
22 that's not how it's -- it works. And as we show on Slide 50 in our POR and
23 in our Sur-reply, what happens actually is that what's going to the capacitors
24 is coming -- the flow of energy and charge that's going to the capacitors is
25 coming from the yellow, which is the power source.

26 And then here's another place in the reply where they -- further

1 they dig a hole and basically show that the information signal does not -- is
2 not coupled to -- or does not flow to the capacitors.

3 They say the change in the -- so the transistor, if you look in
4 Slide 50, transistor M1 and M2, that gets the information signal. That
5 information signal can never go up. You can see the arrows on the
6 transistors, they go pointing down towards ground. The current does not go
7 through that. And what they said is that that RFp on the bottom left and on
8 -- RFn on the bottom right, that -- what does that do? It vibrates at the same
9 frequency. Basically that RF signal -- those RF signals cause the actual
10 signal that's getting to the capacitor to vibrate or something at the
11 (INDISCERNIBLE).

12 And it says -- and then they go -- Slide 51 -- now they say it
13 vibrates at the same frequency. But then they say it's translated. The RF
14 input is translated to the current flowing into the mixer. Again, that's not
15 what the claims say.

16 And then Slide 52, we talk about -- I'm not going to get into
17 that.

18 Okay. And what is -- so Slide 53. Dr. Ricketts performed a
19 simulation and -- this simulation on Slide 53, which is from the POR and in
20 the Sur-reply, it shows that the current never goes negative. Meaning it
21 never flows -- it always flows up in the upward direction. It never flows
22 -- sorry. It flows in the downward direction, it never flows upward.
23 Meaning that nothing is coming from RF -- the RF signal, which they say is
24 the information signal. Nothing is coming up towards the capacitor, which
25 is the requirement of the claims.

26 And in fact, they try to, what I say, pull a fast one. So in their

1 reply, they say in Macnally electrons flow from brown through the
2 transistors and to the capacitors. And they -- Galton never said that. He
3 wouldn't say that. Galton says -- he did not say -- and that's what the claims
4 requires. He stopped short and said it only flows the electrons, which is a
5 new argument about electrons. That all of a sudden became a new
6 argument. Now we're talking about electron flow. And he talked about
7 electrons. And even then he said, electrons flow towards the positive power
8 supply terminal. And he made a -- and that's 55.

9 Slide 56, he made a drawing. He didn't -- he could have drawn
10 the arrows to the capacitors and stuff. He didn't do it because it goes from
11 ground, it goes up to the top, which is -- the electrons because that's all I had
12 to point to. It goes from ground to the power supply.

13 So we viewed -- so there's two ways to look at this. You could
14 look at conventional current or you could look at electrons. We looked at
15 conventional currents, which is supported, I'll show you, by their own
16 documents. And they then all of a sudden talked about electrons, never
17 mentioned this ever before until the reply brief.

18 But even then you could see Dr. Galton's own statement from
19 55 and what's shown in 56, his drawing. You see that that information
20 signal, the electrons don't flow to the right, which is what the claims require.

21 And then our -- we use conventional current, which shows
22 current flows downwards, because electrons flow in the opposite direction of
23 conventional current. But if you look at their own references, all their own
24 references show in the context of conventional current, as we pointed to.
25 And this is Slide 57 and everything is down. All the arrows are down. This
26 current show's going down. All the arrows for the transistors show going

1 down. That's because that is how one views conventional current.

2 Galton doesn't disclose the switching device. So -- right. So a
3 switching device has to open and close the circuit and they have not shown
4 -- they haven't identified what circuit's being opened and closed, but you
5 could see from here on Slide 59, is that whether or not this switch is off or
6 on, there is absolutely -- there's always charge going to the capacitor. That's
7 because once -- there's two switches connected to each capacitor. So one
8 switch cannot close a circuit. Sorry, cannot open a circuit. So it can't meet
9 the definition of a switch.

10 The fact that Macnally calls, whatever, a transistor a switch
11 doesn't make a difference. You have to show the limitation is met. They
12 have not shown -- they didn't identify a circuit. The only circuit that it
13 -- that the transistors are in -- it cannot open the circuit because of the way
14 they're configured. There's two 50 percent duty cycles basically going -- the
15 -- two switches connected to the capacitor.

16 And then in terms of discharge, they haven't been able to show
17 in Macnally. You could see in Slide 60 at the bottom, there's charge and
18 discharge, both occurring during the time in the yellow where the switch is
19 off or open, and they have not explained how they disaggregated discharge
20 and charge. What they did is they did some formula that we don't know how
21 they did it to calculate percentages for Macnally discharge, but they did it
22 during a period of time that there's both charge; you could see the waveform
23 goes up in multiple instances, and in the yellow it also goes down, and
24 they've not explained how they got there.

25 And in fact, when you look at Slide 61, where you see actual
26 discharge, you could see discharge from cycle to -- you could see discharge

1 occurring from cycle to cycle including stored up charge from previous
2 charging cycles, and it doesn't meet the claimed ranges. You only get to 1.6
3 percent, at best. And that's it. Thank you.

4 JUDGE ZECHER: All right. Thank you, Mr. Charkow. You
5 just have a little less than seven minutes for your sur-rebuttal. We're going
6 to take another quick break, a bathroom break. We'll be back at five
7 minutes, at 4:22, and then we will wrap up with the rebuttal and sur-rebuttal.
8 Thank you.

9 (Whereupon, the above-entitled matter went off the record at
10 4:17 p.m. and resumed at 4:22 p.m.)

11 JUDGE ZECHER: Okay, let's go back on the record. Let's
12 confirm that both parties are still online with us.

13 Mr. Charkow, are you there?

14 MR. CHARKOW: I am if you can hear me.

15 JUDGE ZECHER: I can hear you. Thank you.

16 Mr. Renner?

17 MR. RENNER: Yes, Your Honor. Here. Thank you.

18 JUDGE ZECHER: Great. All right, Mr. Renner, the floor is
19 yours. You have just a little bit under 15 minutes of rebuttal left.

20 MR. RENNER: Okay, terrific. Thank you so much. All right.
21 Your Honor's made yet again, include the board. I've got a few points here.
22 My colleague will join in a minute.

23 Number one, on new arguments. The institution decision did
24 lay out *DuPont's* 22, 23. Nothing was heard from Patent Owner in response
25 in the POR. We repeated and reiterated the points made with respect to the
26 applicability of *DuPont*. And we finally saw for the first time anything from

1 the Patent Owner that put it in their reply, their ultimate Patent Owner Sur-
2 reply, that is. What we heard from them is actually only a subset of we are
3 hearing from you -- from them today. And we spent our time in direct
4 responding to exactly what they said. In their reply they contended that
5 there were additional general conditions imposed by the dependent claims.
6 And you heard from us today talking about why that is untrue. The various
7 reasons it is untrue.

8 Today they also offered new arguments that are never before
9 seen with respect to cases like *Woodruff*, *Geisler*, and *Peterson*, and it
10 relating to the ranges. That are -- there and -- as to the ranges, the discussion
11 of overlap. The best I can understand is their theory is that because they've
12 patented a couple numbers in their claim that they don't see the need to have
13 demonstrated any unexpected expectations or criticality of them. But as you
14 know, the law is that, when you have demonstration of all the elements of
15 the claim but for that range, you should have to demonstrate something that
16 tells us that range has some meaning, especially when the range is about
17 something like a discharge goes zero to 100 in the independent claim was
18 found by the Federal Circuit to be satisfied. And here you have a claim
19 that's hitting about half of that same range. Otherwise, we don't know why
20 there's anything of particular interest in there.

21 JUDGE ZECHER: Mr. Renner, this is Judge Zecher. I just
22 want to interject real quick. And obviously, I'm trying to still kind of wrap
23 my head around this whole notion of a no new or further condition set forth
24 in these dependent claims. In you -- in your explanation about that in the
25 context of *DeMaw*, would that also apply to *Macnally* or is this isolated to
26 *DeMaw*, given that we have this previous Federal Circuit decision that talks

1 about independently Claim 18? We have nothing that would indicate, at
2 least from the Federal Circuit, that Macnally would have any --

3 MR. RENNER: Yeah.

4 JUDGE ZECHER: -- rendering or understanding as to the
5 patentability of Claim 18 with Macnally, right? So.

6 MR. RENNER: That's correct, Your Honor. We made the
7 observation with respect to DeMaw, and I think there's a particular -- that's
8 particularly interesting application of it. I have to challenge myself and say,
9 I didn't really think through whether that would be applicable to Macnally.
10 Because in Macnally, we have demonstrative, we believe, through evidence,
11 you have to get through the simulations and under evidence on what is
12 disclosed, and is there inherent disclosure there? The reason this was such
13 an interesting theory, we thought, in respect to DeMaw is with respect to
14 inherency, it can be difficult to prove that. And here we have the Federal
15 Circuit endorsing all of the proofs that have been put forth to demonstrative
16 that there in fact is inherent disclosure of everything in Claim 18. So I don't
17 know that Macnally wouldn't find itself ultimately possibly getting there.
18 It's just that, in candor, we didn't try to prove that, we didn't try to take that
19 on and argue that here today.

20 JUDGE ZECHER: And then can you also respond to Mr.
21 Charkow's argument that there are new features or conditions set forth in
22 these dependent claims? Particularly, I think you pointed out, the total
23 charge stored as well as the fact that you have these first and second
24 switching devices that would be open. That would accumulate the total
25 charge for a discharge range that's required by the claim?

26 MR. RENNER: Absolutely, Your Honor. I would say that the

1 number one argument that I'd make there is that, we saw -- and we talked
2 about this in our opening, that the claims -- the dependent claims, they are
3 phrased as methods but they don't do anything to recite a new method.
4 When you look at them they're simply observing, we believe, how we
5 measure what is a range. So there's a range recited, unquestionably. The
6 rest of the verbiage in these claims is not saying, hey, I've got an idea. Let's
7 narrow the method step that was in Claim 18 to do something particular.
8 Let's tell -- let's use this claim to tell us that we're going to recite that you're
9 going to apply that step at a certain time, or you're going to use -- it doesn't
10 do that. It simply says, there's a claim that is discharging -- the step is
11 discharging in 18, and we're claiming now a range. And to measure the
12 range to see whether or not it's true, what you need to do is, you need to look
13 at the performance under certain -- you know, at a time. That time being
14 defined by openness of the switch, which has been acknowledged again,
15 Claim 18, and by the Federal Circuit as an inherent disclosure of DeMaw, a
16 switch there. So you know there are switches in the DeMaw, recognized by
17 the Federal Circuit, through the pattern I pointed out has construed opening
18 and closing as the function of a switch.

19 And you note in their Page 25 their opinion, they tell us that the
20 switch is in fact turned on and off. It's no surprise there. We know there
21 expert tells that's an open and close situation. So this switch is operating.
22 It's opening, it's closing. Disclosure's happening there. Federal circuit
23 acknowledges it. And all we have 19 to 21 doing is saying, I'd like to see a
24 range of performance on the discharging. And we'd like it to day six to 50
25 percent in one instance. And in order to know whether you're there, you've
26 got to measure it. Take account of it when the switch is open. There's no

1 new limitation. There's no new imposition of a step. And it's a method
2 claim. So we think there is no new imposition of a step there. It's instead of
3 all about the characteristics of what it is to measure that range.

4 JUDGE AHMED: Mr. Renner, what about this concept of a
5 total charge? I would argue that that's new, that's not in Claim 18, this
6 concept that the total charge is collected over multiple cycles. Why is that
7 not a new limitation?

8 MR. RENNER: Well, again, Your Honor, I don't think we see
9 Claim 19 or 20 to 21 saying, hey, let's collect a total charge. Let's do some
10 sort of a special thing with discharging to accomplish that kind of a goal or
11 to take a different step. What's referencing is what it thinks the end product
12 is of the discharging that's in 18 already. So from our perspective we're
13 looking at 19 to 21 and asking, is there actually a new step there? Is there a
14 new thing being imposed on the method step that was in 18. And even with
15 the reference to something like total charge, or reference to open. While
16 these weren't referenced words that were in 18 necessarily, their concepts,
17 we believe, in 18, and they're not a new command, or new charge, or a new
18 step that's being introduced by 19 to 21 and that -- for that reason we just
19 don't see them as conditions that are being imposed that are new. And we
20 look upon the claim that way.

21 So -- beyond which, by the way, it would be wonderful to think
22 more about that point. That it is today the first time we've heard that.
23 There's not going to -- commentary that there's some new condition being
24 imposed there and therefore *DuPont* is distinguished based on total charge,
25 for instance.

26 So we are hearing a lot today about how Texas Instruments is

1 moving the target. But today you heard arguments that we have not heard
2 before, including that, including the references to ranges themselves.
3 Including accusations that Galton had failed to even identify anything other
4 than U430 as being missing. But we know that Exhibit 3002 is an email to
5 the board, but Patent Owner acknowledges that Galton -- that he references
6 undisclosed simulations in addition to the U430. There was no hiding the
7 ball that others intend to make clear there were things that were -- are going
8 on.

9 As to another accusation that we heard in the opening was that
10 we didn't follow some procedure. And because we didn't follow some
11 procedure, we were outside of the rules, and we didn't do things we needed
12 to do to get evidence into their record. It's been really clearly set forth, we
13 think, that we weren't trying to get that evidence into the record. We told
14 them about what existed. Additional simulations that have been run.
15 There's nothing wrong with running additional simulations. Whether we
16 would someday seek to have it entered, well someday hadn't come yet. We
17 weren't sure. We talked to Your Honors owners about that. Made that clear.
18 They took it upon themselves to file it. They preempted everything. Who
19 knows what happened if we filed it later on? We won't know. We'll never
20 know. This is a party that took that action on, and they caused us to have to
21 respond to it. They initiated proceedings and then we frankly just tried to
22 comply best we could to make sure we're making for a fair proceeding.

23 There is a failure today to recognize the difference between the
24 disclosure that speaks to an entire reference as teachings, and the disclosure
25 of implementation detail. We all know the difference between the two. And
26 the reference -- or the testimony in the record tells us about those kinds of

1 distinctions. That some of the details that are disclosed by DeMaw, for
2 instance, are details that speak to the entirety of reference and some are not.
3 It's not the case that people still can't read a reference and to discern that.
4 That's the job of a person of ordinary skill. It's what they do. It's -- the
5 expert can help us to understand what a person of ordinary skill sees in a
6 reference. But it's often the case that a person of ordinary skill will not limit
7 a reference to the narrowest of the details in an implementation example that
8 it gives you. And that's what happened here with respect to DeMaw.

9 With respect to teaching away. There's an argument today
10 given to us that teaching away was a -- was something they had alleged with
11 respect to DeMaw, that the JFETs never turn off. That was something, well,
12 that's wrong. We know that that's wrong. There was a characterization that
13 given to the very front end of this proceeding by the -- by our expert.
14 Because he's speaking professorially as if he's talking to a classroom. We all
15 talk about transistors, the double Es. They turn on. They turn off. The
16 Federal Circuit talks about that. That doesn't mean there's no current
17 between the source and the drain. That means there's something other than
18 that we know -- a leakage if nothing else. But we know that depletion type
19 device is going to be current. There's expert conversation about this all over
20 the place. And Mr. Gupta explained this. That's a poor way of thinking
21 about whether or not there's openness or closeness. Notwithstanding the fact
22 that you have the Federal Circuit acknowledging that the switches that are
23 involved here, the Q1 and Q2, page 25 of the Federal Circuit opinion tells
24 us, those are on and off.

25 And we know open and close is something that Ricketts
26 recognizes for things that go on and off, why wouldn't it? We also know the

1 Federal Circuit, they were cited again in the POR at page 20 -- no, at page
2 -- sorry, wrong page. In the Patent Owner's response, where you look at the
3 claim construction section, there's reference to the Federal Circuit construing
4 in a related case, related to patent that is, construing a switch as something
5 that turns on and off. And our Federal Circuit recognize, Q1 and Q2 is
6 switches. So we know that the DeMaw JFETs are turning on and off
7 consistent with what this claim is requiring.

8 With that, I think I'll invite my colleague to come up and offer a
9 few additional points. Any questions for me before I do? Thank you, Your
10 Honors.

11 JUDGE ZECHER: I think it's a good time to note that you have
12 about three minutes and 30 seconds left in your rebuttal.

13 MR. GUPTA: Thanks. Thank you, Your Honor. I'll be really
14 quick.

15 So I'll just direct you right away to Slide 35, the Petitioner's
16 Demonstratives. Slide 35 actually shows you that there is a bias that's part
17 of this circuit, and the patent does talk about bias quite a bit in the text. But
18 you can see the bias component. It's in that picture, right in the middle, kind
19 of on the -- just to the right-hand side of those boxes that say Z.

20 The next point I'll bring up just really quickly is, in TI1042,
21 paragraph 145, that's a section of Dr. Galton's second declaration. And
22 Counsel will have you just read a headline there without reading the rest of
23 that section. But in that section Dr. Galton explains exactly the kinds of
24 changes he were making, all of which are essentially peripheral to the
25 fundamental operation of a mixer circuit. They're not -- they're not aspects
26 of the circuit that affected the outcome.

1 And the last thing I'll just say is that, I'm going to -- I want to
2 stand in front of Dr. Galton and his -- the way that he went about simulating
3 these circuits. There was no cherry-picking. There's no backing in. He
4 looked at the prior art. He created a model. He used his knowledge as an
5 expert as a -- as someone who's been -- as a circuit designer, and he made
6 assumptions and design choices that were congruent with how someone
7 would do that.

8 And with that I will -- I yield the time.

9 Thank you very much, Your Honor. Appreciate you.

10 JUDGE ZECHER: Thank you. Appreciate it.

11 Mr. Charkow, you have just a little bit under seven minutes left
12 for your sur-rebuttal. And you can begin when you're ready.

13 MR. CHARKOW: Thank you, Your Honor.

14 So I'm going to share my screen. So I want to address a couple
15 of things. So Mr. Renner said something that I felt was interesting. He's
16 making the assumption that all of the elements are of Claim 19 are found in
17 DeMaw other than ranges. But that's his assumption to get to this *E.I.*
18 *DuPont* argument, but that's wrong. And we've shown that in our briefing.
19 So that's a flawed assumption. He's starting with that assumption. And if
20 that assumption is incorrect, which it is, he said he's ignoring all the other
21 claim elements of Claim 19 through 21. That it has to be discharged. Total
22 -- sorry. Hold on a second.

23 It has to be -- the discharge has to be a certain percentage of
24 total charge stored when the switch is open. And none of that has been
25 shown in DeMaw, specifically because we know, as I've said, and they didn't
26 talk about it at all, is that DeMaw operates at point -- of 80 percent of pinch

1 off. And nobody disputes that pinch off is when it's -- when the circuit is
2 open or off.

3 They didn't -- they couldn't touch it. They didn't touch it in
4 their whole argument, because they know that's a significant problem. So
5 Mr. Renner's assumption that all the elements of Claim 19, which are shown
6 on my screen on Slide 5, are met, are wrong. And so if -- and that's his
7 assumption. He -- that was his assumption that he made. He said, and
8 therefore the only thing left is the claim ranges. And when you're at the
9 claim ranges -- when you're at -- the -- if the only thing left is claim ranges,
10 then you're in *E.I. DuPont* territory. Which I don't agree with either because
11 in *E.I. DuPont* and all the subsequent cases, they all talk about, you have to
12 overlap, be touching, or very close, and we've shown that DeMaw doesn't do
13 any of that. You have to show the prior that has all that stuff. And that's
14 what the -- all those cases say.

15 So I also believe that they are very much underselling what this
16 claim says -- Claim 19 says. This isn't just like, let's figure out discharge
17 percentages, and this has no limitation. It says it -- it's a limitation. It
18 doesn't mean were it further -- it says, specifically, the capacitor discharges
19 include certain percentages during periods of total charge stored when the
20 switch is open. Those are significant limitations. Those are actual
21 limitations. They're not saying, oh, let's try to figure out discharge
22 percentages and this is some, you know, ancillary, unimportant, non-
23 limitation. This is a significant limitation that has to be -- that is shown.
24 And so he's incorrect and he's -- Mr. Renner is underselling that Claim 19
25 through 21 adds nothing.

26 And then if we go to Slide 19. So I don't remember who said

1 this. I think Mr. Renner said this. He said, oh, well, Federal Circuit,
2 everybody knows switches turn on and off, and nothing's ever zero. This is
3 their position. This is the position that they decided to take because when
4 they did the wrong simulations and they did them wrong, used the wrong
5 model, and they used all the wrong figures, and all the wrong values, they
6 round up and they saw a zero. So they got excited. And so they said, okay,
7 when current is zero, that's when it's off, or the switch is open.

8 And if you look on the left-hand side, paragraph 103, this is
9 from Dr. Galton's own statement. "The switches are off when their drain
10 current is on zero. And on when their drain currents are non-zero." And
11 then he verified that Slide 19 during his deposition. There is no ambiguity
12 there. They need to show under their theory that they took in their petition
13 that during the times when there is zero current, zero, because that's what
14 they say is open or off -- which is the claim language, that is what they have
15 to point to and show that the discharge percentage occurs during that period.
16 And they have not shown that. They have not shown that for DeMaw. And
17 they have not shown that for Macnally.

18 The other thing I want to clarify -- I think I misstated something
19 before or if my colleague mentioned something, just to be clear. The
20 electron flow that I discussed before, it goes from ground to the power
21 source. It doesn't go from the RF signal to the power source. It actually
22 goes from ground to the power source. And you can see that on slide -- this
23 is their own -- Petitioner's own, and Galton's own Diagram 56. So I just
24 don't want anybody to get confused that it's Slide 56 showing it goes from
25 electron -- even you look at electron flow, there's no electrons going from
26 that -- the RF signal up. It is electrons that are coming from ground. So

1 even under their theory of electron flow, they still don't get to where they
2 need to go.

3 And then in terms of, you know, they really didn't counter
4 anything that we said about, you know, why various elements are missing.
5 You know, that they failed to show the various discharge percentages in
6 DeMaw and Macnally. They failed to do any explaining. They didn't say
7 that, yep, we did explain. It's in the brief somewhere. They didn't explain
8 how Galton got to these histograms, which are just showing pretty colors
9 and percentages. Didn't explain that. Didn't explain the backup. And,
10 again, you know, I -- you know, not -- no explanation to invalidate a patent
11 by just showing some pretty graphs does not seem to meet the standard to
12 show the claim percentages.

13 And on *E.I. DuPont*, again, we made our positions clear in our
14 -- my opening and I don't think anything he says counters that. And again,
15 Mr. Renner goes on wrong assumptions to assume Claim 19, 20, and 21, all
16 those elements are found in DeMaw. They're not. And certainly the ranges
17 are not found, which are requirement of *E.I. DuPont*.

18 And that's all I have. Thank you, Your Honor -- Your Honors.

19 JUDGE ZECHER: All right. Thank you, Mr. Charkow. We
20 appreciate the parties' arguments today. I do have some housekeeping
21 matters that we want to discuss. One, I want to discuss on the record here.
22 And the second, we're going to go off record and discuss because it involves
23 the hearings tomorrow, which I believe involve the same counsel, so we can
24 clarify that for everybody. But let's just start with the first one.

25 Mr. Renner, we noticed that you did show up in an updated
26 Mandatory Notice Paper 37 in this record, but we did not see a power of

1 attorney for you. So we would ask that, at your earliest convenience, you
2 please file a power of attorney that indicates you're counsel of record for TI
3 here.

4 Is there something we're missing in the record, Mr. Renner or
5 -- it --

6 MR. RENNER: I think that the power of attorney might flow
7 to the firm. Let me check that. We will email you when we've had a chance
8 to --

9 JUDGE ZECHER: Yeah. I took a look at that as well. I mean,
10 maybe it does for the PTO customer number, but it identifies Griswold,
11 Gupta, and Wang. That's the first paper in the record here.

12 MR. RENNER: Okay.

13 JUDGE ZECHER: So it doesn't have you in it. So -- just to
14 note.

15 MR. RENNER: Thank you, Your Honor. I'll take a look.

16 JUDGE ZECHER: Okay. Once again, thank you for your
17 arguments today. This case is submitted, and we'll issue a final written
18 decision within the one-year statutory deadline. And we'd like to go off
19 record now.

20 THE REPORTER: We're off the record, Your Honor.

21 (Whereupon, the above-entitled matter went off the record at
22 4:43 p.m.)

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