

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

Polaris PowerLED Technologies,) CAUSE NO. 2:22-CV-469-JRG
LLC.,)
Plaintiff,)
vs.)
SAMSUNG ELECTRONICS CO., LTD., (MARSHALL, TEXAS
et al.,) APRIL 11, 2024
Defendants.) 9:00 A.M.

MARKMAN HEARING

BEFORE THE HONORABLE RODNEY GILSTRAP
UNITED STATES CHIEF DISTRICT JUDGE

SHAWN McROBERTS, RMR, CRR
100 E. HOUSTON STREET
MARSHALL, TEXAS 75670
(903) 923-8546
shawn_mcroberts@txed.uscourts.gov

Shawn M. McRoberts, RMR, CRR
Federal Official Court Reporter

A P P E A R A N C E S

FOR THE PLAINTIFF: KRAMER ALBERTI LIM &
TONKOVICH, LLP
577 AIRPORT BLVD., SUITE 250
BURLINGAME, CALIFORNIA 94105
(650) 825-4300
BY: MR. DAVID ALBERTI
MR. ANDREW HAMILL
MR. ROBERT MATTSON
MR. SAL LIM

THE DACUS FIRM, PC
821 ESE LOOP 323, SUITE 430
TYLER, TEXAS 75701
(903) 705-1117
BY: MR. DERON DACUS

FOR THE DEFENDANTS: O'MELVENY & MYERS, LLP
400 S. HOPE STREET
LOS ANGELES, CALIFORNIA 90071
(213) 430-6334
BY: MS. LAURA BURSON
MR. RYAN YAGURA

BAKER BOTTS, LLP - NEW YORK
30 ROCKEFELLER PLAZA
44TH FLOOR
NEW YORK, NEW YORK 10112
(212) 408-2548
BY: MR. NEIL SIROTA
MR. ERIC FARAGI

O'MELVENY & MYERS, LLP
1625 EYE STREET, NW
WASHINGTON, DC 20006
(202) 383-5300
BY: MR. MIAO LIU

GILLAM & SMITH, LLP
102 N. COLLEGE, SUITE 800
TYLER, TEXAS 75702
(903) 934-8450
BY: MR. TRAVIS UNDERWOOD

OFFICIAL REPORTER: SHAWN M. McROBERTS, RMR, CRR
100 E. HOUSTON STREET
MARSHALL, TEXAS 75670
(903) 923-8546

Shawn M. McRoberts, RMR, CRR
Federal Official Court Reporter

1 THE COURT: Be seated, please.

2 All right. This is the time set for claim construction
3 in the Polaris Power Technologies versus Samsung, et al.,
4 matter. This is Civil Case No. 2:22-CV-469.

5 Let me ask for announcements on the record.

6 What says the Plaintiff?

7 MR. DACUS: Good morning, Your Honor. Deron Dacus
8 here for the Plaintiff Polaris. Here with me are Robert
9 Mattson, Sal Lim, Dave Alberti, and Andrew Hamill, Your Honor.
10 And we're ready to proceed.

11 THE COURT: All right. Thank you, Mr. Dacus.

12 What's the announcement for the Defendants?

13 MR. UNDERWOOD: Good morning, Your Honor. Travis
14 Underwood on behalf of the Samsung Defendants. With me is
15 Ryan Yagura, Laura Burson, Neil Sirota, Eric Faragi, Miao Liu,
16 and several client representatives with us this morning. From
17 Samsung display we have Han Park, Hyungkeun Kim, Suweon Kim,
18 and from Samsung Electronics we have Joonsik Chae. And we are
19 ready to proceed, Your Honor.

20 THE COURT: All right. Thank you, Mr. Underwood.

21 All right, counsel. I see no reason not to get right
22 into the disputed terms. The Court's advised you as to the
23 order of these that I plan to take up, so let's begin with the
24 terms related to the '521 Patent. We'll start with 'a video
25 driver receiving the video signal and generating a video drive

1 signal indicative of the video signal and referenced to a
2 positive power supply voltage of the AMOLED display panel'
3 from claim 1.

4 Let me hear from Polaris on this first.

5 MR. HAMILL: Thank you, Your Honor.

6 We have jumping right to it here on slide 7 --

7 THE COURT: You're Mr. Hamill. Is that correct?

8 MR. HAMILL: Yes. This is Andrew Hamill, Your
9 Honor.

10 THE COURT: With the number of people in the room,
11 let's let everybody announce who they are when they go to the
12 podium the first time.

13 MR. HAMILL: Yes, Your Honor.

14 THE COURT: Tell me why, given the language I just
15 read, why simple plain and ordinary meaning is sufficient
16 here. That's what you're proposing. Correct?

17 MR. HAMILL: That's correct, Your Honor.

18 And the heart of the dispute here is that Samsung seeks
19 to import a limitation from the specification that the
20 positive power supply voltage is received by the video driver
21 as an input, and so the plain and ordinary meaning does not
22 include this requirement. As you just read, the video driver
23 receives the video signal and there's no requirement of the
24 video driver receiving the positive power supply voltage.

25 THE COURT: Well, I asked you why plain and ordinary

1 meaning was sufficient, and your answer was the Defendant
2 seeks to import a limitation. I'm going to get around to
3 having you tell me why their proposed construction is
4 improper, but tell me why what you affirmatively propose is
5 sufficient.

6 Why is there not a need for some actual construction here
7 rather than just tell a jury this long list of technical words
8 is just simple plain and ordinary meaning? Why is that
9 adequate here? Why is there not a need for some actual
10 construction?

11 MR. HAMILL: Your Honor, in this case the claim
12 language itself sets forth in clear terms that -- what the
13 video driver receives and then what it generates, and so that
14 right there is sufficient. And I think, you know, at trial
15 the experts will be explaining what these are and how that
16 works. But there is no need to explain beyond this what
17 these -- what is -- what the video driver receives or what it
18 generates. And, in fact, the construction that's proposed by
19 Samsung doesn't clarify any of those terms; it just adds more
20 of similar language.

21 THE COURT: Even though what you proposed is plain
22 and ordinary meaning, it seems to me from your briefing that
23 you're taking a position that the video driver could receive a
24 signal that provides information about the value of the
25 positive power supply voltage. First of all, is that your

1 position, and, second of all, why would that be supported by
2 the appropriate evidence here?

3 MR. HAMILL: Well, Your Honor, the claim requires
4 the video driver to generate a video drive signal that's
5 referenced to the positive power supply voltage, and so our
6 position is that there's no requirement here that it receives
7 a positive power supply voltage as an input, but it could
8 receive information about it. And so in light of the fact
9 that the claim language doesn't require the positive power
10 supply voltage to be an input, that's an alternative
11 possibility that's within the scope of the claim.

12 THE COURT: Are you trying to communicate about the
13 value of the voltage to the driver?

14 MR. HAMILL: That's what the statement gets to. If
15 there's information about the value that is not the positive
16 power supply voltage itself, that could be used to reference
17 the video drive signal to the positive power supply voltage.

18 THE COURT: Can you give me an example of how it
19 would receive the information?

20 MR. HAMILL: Well, there would be some kind of input
21 that receives a voltage with information about some kind of
22 value about the positive power supply voltage, but it might be
23 counted as an offset from some other voltage. It might not be
24 the positive power supply voltage itself.

25 THE COURT: All right. Let me ask at this point

1 just to proceed with whatever else you have prepared to tell
2 me about this. I'll stop asking questions and let you finish.

3 MR. HAMILL: Okay. Thank you, Your Honor.

4 THE COURT: Unless another question comes to mind.

5 MR. HAMILL: Understood.

6 And so in light of what Samsung is attempting to add to
7 the claim language here, we start with the Federal Circuit
8 black letter law says embodiments in the specification cannot
9 limit the scope of the claims, absent the patentee's words or
10 expressions of manifest exclusion or restriction. And we'll
11 see that that -- there is no such language of exclusion or
12 restriction here.

13 Turning to slide 9, Samsung relies on figures 2, 3, and 4
14 and the embodiments disclosed in those figures to support its
15 claim construction, but the specification is very clear that
16 those are discussions of embodiments, not of the invention of
17 the '521 Patent, and so those embodiments -- limitations from
18 those embodiments cannot appropriately be read into the
19 claims.

20 Turning to slide 10, at the end of the specification
21 it reiterates that "the above-described embodiments are
22 illustrative only and are not intended to be limiting."

23 Turning to slide 11, Samsung also relies on statements
24 from the IPR of the '521, and here we have a statement from
25 the Polaris patent owner's response. And Samsung relies on

1 the statement at the bottom here, "the video driver receives a
2 power supply voltage VDD as an input," but we see in the
3 context here in the preceding paragraph, this is a discussion
4 of the embodiment of figure 2. And figure 2 is shown right
5 there. And so, again, this is from the IPR, but the same case
6 law about not importing limitations from the embodiments
7 applies, because that's what this is--a discussion of an
8 embodiment.

9 Turning to slide 12, also from the IPR, Polaris' expert
10 Mr. Credelle provided a declaration and Samsung relies on
11 statements from that declaration that are provided here. And
12 again, those statements are clearly descriptions of
13 embodiments of the '521 Patent. And so, again, the same case
14 law that prohibits importing limitations from the embodiments
15 applies to those statements from Mr. Credelle's declaration.

16 And so that's my presentation on the video driver
17 limitation. I'm happy to answer further questions that Your
18 Honor has.

19 THE COURT: All right. Thank you, Mr. Hamill.

20 Let me hear from Samsung in response at this point.

21 MR. FARAGI: Good morning. Eric Faragi for Samsung.

22 THE COURT: Good morning, counsel.

23 MR. FARAGI: May it please the Court.

24 Your Honor, before I start, I have additional copies if
25 you need them of our slides. If you don't, that's fine.

1 THE COURT: If you'd like to hand them up, I'll take
2 them.

3 MR. FARAGI: May I approach?

4 THE COURT: You may.

5 MR. FARAGI: May I proceed, Your Honor?

6 THE COURT: Please go ahead.

7 MR. FARAGI: Thank you, Your Honor.

8 We have the proposed constructions on the screen. The
9 issue is -- between the parties, the primary issue, whether
10 the video driver must receive what we call the PPSV for short,
11 the positive power supply voltage, as an input thereto.
12 Polaris leaves it ambiguous as to how the video driver
13 receives the PPSV.

14 THE COURT: What does it mean to be referenced to a
15 PPSV?

16 MR. FARAGI: Thank you, Your Honor.

17 So let's go to slide 8.

18 This is a statement in the IPR. You see here they are
19 clearly distinguishing prior art. It starts up at the top,
20 "Hayafuji does not disclose," and it's the exact claim
21 limitation we're trying to -- we're asking the Court to
22 construe here. The claim says reference to the PPSV, as you
23 said. They're telling us right here. It says, "in each op
24 amp" -- excuse me. "In each operational amplifier in
25 Hayafuji, the positive input terminal is connected directly to

1 ground (i.e., referenced to ground) rather than to the
2 positive power supply." We submit that 'i.e.' is definitional
3 language here.

4 So they're telling you that if the positive terminal is
5 connected directly to ground--that's what 'referenced to
6 ground' means, rather than to the PPSV--so just slip it
7 around. If the positive terminal is connected to the PPSV,
8 directly connected to the PPSV, then it's referenced to the
9 PPSV. That's what we submit this statement is saying.

10 So 'referenced to the positive power supply' means the
11 input terminal is connected directly to the positive power
12 supply. It's that simple. And this is their statement from
13 the IPR.

14 And that's -- this is one of the reasons why we say --
15 this is exactly the reason why we say it's an input to the
16 video driver. That's what it means; it's correctly connected
17 to it. And that's what's illustrated in all the embodiments
18 of the patent. That's what's illustrated, as it's shown in
19 the IPR, and it's also what they say in the summary --

20 Which if you can go to slide 7, please.

21 It's what's stated in the summary in the IPR. This is
22 the position that the patent owner took. You see here '521
23 Patent summary. They have a drawing here of figure 1, and
24 then they say, "The video driver receives the
25 positive"--excuse me--"receives the power supply voltage

1 VDD"--that's the PPSV--"as an input rather than as a separate
2 voltage source," which is VDC in figure 1. They have this --
3 this is their figure on the left that they show. They show
4 the separate voltage source, VDC, which is over 14, and then
5 the positive power supply voltage VDD. Now, this is the prior
6 art where they're distinguishing the prior art.

7 And if we could go just for a moment to -- back to slide
8 1. Excuse me. Slide 5.

9 THE COURT: So in essence what you're telling me is
10 within your proposed construction the language 'as an input'
11 is basically substituting for the concept of being connected.
12 Is that right?

13 MR. FARAGI: Yes. It's being directly connected,
14 just like they said in that IPR statement, yes. That's the
15 concept. That's what 'referenced to' is referring to them,
16 according to them. According to their own statement, they
17 said, 'i.e.' Not -- we didn't make this statement; that's
18 them. And this is what's exactly what's shown. If you see
19 figure 2, yes, I agree it's an embodiment, as they said, but
20 it's an embodiment of the invention. And you see VDD, you see
21 where it's connected, you see the little blue node 124; it's
22 an input to 102, which is the video driver, as opposed to
23 figure 1 where VDD, which is also the positive power supply
24 voltage, it's not an input to the video driver. You see it's
25 just an input on the right side to the AMOLED display panel.

1 It's not an input to the driver.

2 So that's the -- they distinguish over the prior art in
3 the IPR, they tell you that there's a separate voltage as
4 opposed to here where it's an input. And then they use that
5 -- that's their own language on -- back on slide 8, this
6 'i.e., referenced to ground', that's connected directly to
7 ground rather than the PPSV, and by implication that's telling
8 us, Well, if you connect it directly to the PPSV, that's
9 reference to the PPSV. And that's what the 'as an input' goes
10 after, Your Honor. It's the same concept.

11 THE COURT: So, as you put it, it's an implication;
12 it's not an express statement that 'referenced to a positive
13 power supply voltage' means 'connected to'. I mean, there's
14 not some real -- there's not some actual estoppel here that
15 applies; it's just an argument that based on what they said
16 based on the prior art, they're bound by the same concept as
17 would be applied to this situation. Right?

18 MR. FARAGI: We -- yeah. We submit they can't have
19 it both ways. If they're going to tell the Patent Office one
20 thing, the PTAB, that you should hold them to their word.

21 THE COURT: Well, 'can't have it both ways' gets
22 closer and closer to being estopped from, and I'm trying to
23 draw a distinction here. I don't see that this actually rises
24 to the level of estoppel. I do understand your implication
25 argument, and if it means this in this context it should mean

1 the same thing in a different context, but that's not
2 estoppel.

3 MR. FARAGI: I understand, Your Honor.

4 THE COURT: Okay. What else do you have for me?

5 MR. FARAGI: Just to the same point when the other
6 side said it -- essentially you can send -- receive
7 information about and then send -- transmit it to the video
8 driver, that's not -- A, it's not supported by the spec and,
9 we submit, contradicts the statements that they made in the
10 IPR. The patent talks about this as an input, so you can't
11 -- this business of receiving it upstream, receiving something
12 else, or receiving something about it and -- is not supported,
13 it's not support -- it's not described, and we submit would
14 just contradict the statements that they made in the IPR,
15 which, you know, we've already explained.

16 Your Honor, we have nothing further on this.

17 THE COURT: All right. Thank you.

18 Do you have any short rebuttal, Mr. Hamill?

19 MR. HAMILL: Yes, Your Honor.

20 THE COURT: Tell me what's wrong with what I just
21 heard.

22 MR. HAMILL: Your Honor, I wanted to clarify a point
23 with respect to slide 8 of the Defendants' presentation, this
24 excerpt from the IPR. I wanted to highlight that this is a
25 discussion of the operational amplifier in Hayafuji, and so

1 this is not even a discussion of the video drive signal that
2 they've quoted here.

3 THE COURT: That's why I said it's not estoppel;
4 it's an argument that if this 'referenced to' means this in
5 this context, then it should mean the same thing in a
6 different context. If it were the same thing substantively,
7 then we'd be talking about whether or not you are estopped,
8 but I'm not persuaded this arises to estoppel. But it is a
9 legitimate argument if the concept is the same here--when it's
10 applied there it should be applied in the same way. I'd be
11 interested in your response to that.

12 MR. HAMILL: Your Honor, I think that the
13 discussions in the IPR about how the video drive signal is
14 referenced to the positive power supply voltage would be more
15 relevant, and that wasn't really something that was briefed
16 here. But the discussions of the video drive signal being
17 referenced to the positive power supply voltage certainly go
18 beyond this concept that's on this slide here.

19 THE COURT: Well, if they go beyond the concept that
20 Defendants made the centerpiece of their argument, why isn't
21 it your burden to show me how it goes beyond that concept and
22 why aren't you telling me about other exchanges at the PTAB
23 that would counter what I just heard from Defendant? I mean,
24 I would think that's what you'd be trying to do.

25 MR. HAMILL: Well, Your Honor, I don't have slides

1 on that since this was not part of the briefing, but the
2 discussions in the IPR include examples --

3 THE COURT: You brought it up about other
4 discussions in the IPR that would indicate something
5 different.

6 MR. HAMILL: Correct, Your Honor. And there are
7 discussions in the IPR that video drive signal can be
8 generated as an offset from the positive power supply voltage,
9 and those discussions do not state or imply that there must be
10 some direct connection. That's not what's discussed in the
11 context of the video drive signal --

12 THE COURT: All right.

13 MR. HAMILL: -- being referenced to the positive --

14 THE COURT: Anything further?

15 MR. HAMILL: No, Your Honor.

16 THE COURT: Thank you.

17 All right. Let's move onto the next term for
18 construction, which is 'AMOLED display panel' from claim 1 of
19 the '521 Patent.

20 Let me hear from Samsung first on this, and then I'll
21 hear from Plaintiff in response.

22 MR. FARAGI: Good morning, Your Honor. Again, may I
23 proceed?

24 THE COURT: You may proceed.

25 MR. FARAGI: Your Honor, we have the parties'

1 positions on the screen. Essentially, our view is that the
2 AMOLED display contains many thousands or more pixels, and,
3 importantly, it has a mechanism for storing voltage data or
4 current data used to program the pixels. Essentially, that's
5 a capacitor, Your Honor. And we have the Plaintiff's position
6 -- I don't really have that much to say beyond what's in the
7 briefs. I'll just make this one point about the IPR.

8 If we can go to slide 12, please.

9 This is in the summary section in the IPR '521 summary.
10 They say, "AMOLED displays contain many thousands of
11 individual OLED pixel elements" --

12 THE COURT: Slow down a little bit, please.

13 MR. FARAGI: I'm so sorry. "AMOLED displays
14 contain many thousands of individual OLED pixel elements."
15 The Plaintiff will surely point to some portions of the spec
16 where it says a plurality and it doesn't just say many
17 thousands. I agree with that. We submit that they're
18 summarizing the invention here. That's the first issue.

19 THE COURT: Now, let me stop you and make sure I
20 understand you.

21 Are you telling me you agree the concept here should be
22 a mere plurality, or are you telling me this language of 'many
23 thousands' should be an actual adopted part of the Court's
24 construction?

25 MR. FARAGI: We submit that 'many thousands' should

1 be -- the issue I think between us is really whether it's just
2 simply two pixels, really.

3 THE COURT: Well, you know, if this were claim
4 language, 'many thousands of individual pixel elements', I'd
5 expect you to be telling me it's indefinite because nobody
6 knows what 'many thousands' are. I mean, is many thousands
7 4,000 or is it 15 trillion. That's a pretty nebulous phrase.
8 And I understand the other end of the spectrum with a mere
9 plurality might be merely two. So how's the Court supposed to
10 navigate between these diverse end points?

11 MR. FARAGI: Well, you put me -- two would not be a
12 display; it's many -- it's a lot of pixels. These are perhaps
13 millions of pixels. That's issue one.

14 Yeah, I don't -- I don't know if I have much more to
15 advise the Court on that other than, yes, it's many, many
16 pixels; it's not just two. That's really the dispute between
17 the parties.

18 THE COURT: Well, I understand your position it's
19 not just two, and to Plaintiff's credit they haven't come out
20 and said it's just two. They're not obviously willing to
21 embrace, at least as I read it, this many thousands, but I'm
22 looking at both parties' positions and I'm trying to
23 conceptualize it on what is in effect a spectrum. And with a
24 mere plurality you have potentially -- within the concept of a
25 mere plurality, you've got two or maybe three or maybe four,

1 and then on the other end of the spectrum I've got what you
2 put before me, which is many thousands, which you tell me is
3 probably millions and maybe it's billions and maybe it's
4 trillions and where does it stop. And, you know, the idea of
5 those diverse endpoints with no real clear discernible point
6 in between is not something that's real attractive to the
7 Court. I mean, that's just an invitation for mischief down
8 the road if we were to leave things in that kind of a state,
9 which in large part is why we have claim construction. But
10 I'm trying to probe and see exactly what your support is for
11 this many thousands of pixels.

12 MR. FARAGI: Your Honor, really all I have is the
13 statement in the IPR. And I'm sorry I don't really have much
14 more, you know, to add than that it's many; it's not two.
15 That's the point we were trying to get at.

16 THE COURT: All right. Do you have anything else
17 for me?

18 MR. FARAGI: Just briefly.

19 Slide 13.

20 MR. FARAGI: The second issue is whether it has a
21 storage mechanism, and I just want to point the Court to the
22 Plaintiff's technical tutorial where they say on slide 38 and
23 40 they use this phrase that it's stored in the capacitor.
24 And so we submit that even their tech tutorial confirms that
25 active matrix displays require a storage mechanism, while

1 passive matrix displays obviously don't. But in any event,
2 their own tech tutorial supports this concept.

3 With that, Your Honor, I have nothing further to add.

4 THE COURT: All right. Let me hear from Plaintiff
5 in response.

6 MR. HAMILL: Thank you, Your Honor.

7 THE COURT: Go ahead, Mr. Hamill.

8 MR. HAMILL: And so as Samsung's counsel explained,
9 there are two parts to the -- their proposed construction.
10 With respect to the concept of the pixel circuits having a
11 storage mechanism, we don't dispute that that's the case for
12 active matrix displays, but we think that this is unnecessary
13 to be part of the construction. The experts at trial will be
14 discussing AMOLED displays, and we don't think that's
15 necessary.

16 With respect to the first part, the many thousands, that
17 is simply a statement in the description of related art, and
18 it's not discussing the invention; it's really just getting
19 some background on conventional AMOLED display panels. And
20 that's further evidenced by the statement in one of the --
21 with respect to one of the embodiments that the AMOLED display
22 can contain a plurality of pixel elements.

23 And so what it comes down to in the claims, there's no
24 requirement of how many pixels; it's an AMOLED display panel,
25 and as Polaris' expert explained, the number of pixels is

1 irrelevant as to whether a display panel is an AMOLED display
2 panel, and so we think plain and ordinary meaning is the
3 appropriate construction for this term.

4 THE COURT: Well, in reading Mr. Credelle's
5 declaration, it seems fairly conclusory here. He basically
6 says what you just repeated to me, that the number of pixels
7 is irrelevant, but yet we have this issue of many thousands or
8 a mere plurality. I guess I'm wondering why I'm not hearing
9 something other than, Oh, it's just plain and ordinary
10 meaning; why there's not more joining of the issue with what
11 Defendants have proposed.

12 MR. HAMILL: Your Honor, the conventional AMOLED
13 display panel, I mean, it would just, practically speaking,
14 have a number of pixel elements. The number is not relevant
15 to this dispute. The key is this statement about many
16 thousands. It's not discussing the invention, and so this
17 claim term should not be limited --

18 THE COURT: You're not taking the position that two,
19 three, or four pixels would be adequate here at the other end
20 of the spectrum?

21 MR. HAMILL: Our position is that the number of
22 pixels is not specified by the claim. I think a two-pixel
23 display would be impractical, but that's not really the issue
24 here. The claim doesn't -- it's not about a pixel -- a
25 display that has a certain number of pixels or a certain range

1 of pixels; it's just about an AMOLED display panel. The
2 number of pixels is not specified, and so we don't think any
3 kind of construction that indicates the number of pixels is
4 required.

5 THE COURT: What's your posture on the proposed
6 construction from Samsung at the end of their proposal where
7 it says, 'programmed with a stored voltage via a series of row
8 and column decoders and switches'? It seems to me that's
9 their attempt to convey what an active matrix would be.
10 What's your response?

11 MR. HAMILL: Yes, Your Honor.

12 We don't dispute that an active matrix includes a
13 storage mechanism, but to -- you know, our position is that
14 this language should not be part of the claim. The experts
15 can explain this and perhaps use different language. I don't
16 think that this concept of programming the pixel circuit
17 should be wedded to this precise language, and I don't think
18 this -- it's necessary to have a construction. I think the
19 jury will understand based on what the experts say what that
20 storage mechanism is all about.

21 THE COURT: So do you take issue with the row and
22 column type description of decoders and switches, or -- I
23 mean, you say it should be stored, but you don't want to go so
24 far as to say how it should be stored?

25 MR. HAMILL: Yes, Your Honor.

1 I think it would be more confusing to have a specific
2 definition of that in the claim construction rather than just
3 to let the experts explain the concept.

4 THE COURT: Well, you know, counsel, if your answer
5 to everything is, Let's just let the experts explain it, why
6 do we need claim construction at all? Let's just let the
7 Plaintiffs tell the jury in the first instance what the claim
8 language means.

9 I mean, I'm obligated to conduct a *Markman* hearing
10 pursuant to significant precedent from the Federal Circuit,
11 and it has a viable purpose, and that purpose can't be met
12 with one party telling me basically over and over and over
13 again plain and ordinary meaning, as any fool can plainly see;
14 let's just let the experts tell everybody what it means. I
15 mean, there's got to be an engagement in the process for it to
16 be productive. It can't just be, Let me tell you why they're
17 wrong, but then I'm not going to take on the burden to tell
18 you what it actually should be. And it seems that's what I'm
19 hearing from the Plaintiff here. Maybe that's not right, but
20 that's how it's coming across.

21 MR. HAMILL: Well, Your Honor, with respect to that
22 part of the construction, our position isn't that it's wrong,
23 in contrast of the first part which we do think is wrong; we
24 just don't think that's necessary. But we're not disputing an
25 active matrixes display has a storage mechanism. And so my

1 position -- our position is not that this is wrong, but we
2 don't think this is helpful to include in the construction.

3 THE COURT: Do you have anything else for me,
4 Mr. Hamill?

5 MR. HAMILL: No, Your Honor.

6 THE COURT: Thank you.

7 All right. Let's go to 'video signal' again from the
8 '521 Patent as found in claims 1, 2, 3, 5, and 7.

9 Surprisingly, Plaintiff tells me that it's plain and
10 ordinary meaning.

11 Let me hear from the Defendant first.

12 And Mr. Sirota, why do I need to construe this as limited
13 to an analog signal?

14 MR. SIROTA: Thank you, Your Honor.

15 THE COURT: That will be your first question.

16 MR. SIROTA: That's what I'm here to tell you about,
17 coincidentally.

18 So, Your Honor, if I could -- next slide, please.

19 So. Right. So our construction is 'analog signal
20 representing a converted video data'. And the important thing
21 about this term, Your Honor, is it's not just in the abstract;
22 it's in the claim. And the claim requires that it's received
23 by the video driver, and that's the context for this
24 construction and that's why it does need to be an analog
25 signal.

1 So here's the claim. And as I said, it's a video driver,
2 the video signal is received by the video driver, and that's
3 the context in which we're construing it. And the reason why
4 it needs to be an analog signal, in short, is because the
5 specification tells you that, the IPR tells you that, the
6 claims tell you that. And I'll explain that for you, Your
7 Honor.

8 First, every embodiment -- in every embodiment you have
9 video source 12--that's on the left there in each of these
10 figures--and that converts the signal to analog. That's the
11 signal video.DAC. It puts it on an output bus, and that
12 signal is received by the video driver, and that's the dotted
13 boxes 102, 202, 302, and those embodiments of figure 2, 3, and
14 4.

15 THE COURT: Let me ask you this question.

16 MR. SIROTA: Sure thing.

17 THE COURT: I understand why as a defendant you
18 would want this to be analog, and I understand that there is
19 good arguments that for a signal to work here it needs to be
20 something other than digital, but why is it necessary for
21 purposes of construction to construe signal as analog? Why
22 isn't that really a non-infringement argument that would be
23 made at trial that the meaning of 'signal', which is pretty
24 much plain and ordinary, has to be in this context analog and
25 not digital; therefore, we don't infringe? Why is this really

1 not a non-infringement argument more than it is a compelling
2 need for construction purposes to designate it as you
3 portrayed it here, if that question makes sense.

4 MR. SIROTA: It makes a lot of sense, Your Honor,
5 and I think it's both. I think it may be a non-infringement
6 defense. We're obviously here talking about claim
7 construction, and the point of claim construction, I submit,
8 is to clarify the claims, clarify the issues for the jury. So
9 if the Court should agree that these video signals do need to
10 be analog, we submit that that is appropriate for claim
11 construction to clarify the claim for the jury and clarify the
12 issues.

13 THE COURT: Let me ask another question.

14 In your proposed construction, you've inserted the
15 adjective 'converted video signal'. I don't find 'converted'
16 in the plain language. Is that some type of limitation to
17 what's shown in figure 3's embodiment, or where did you get
18 the concept of 'converted signal'?

19 MR. SIROTA: It's the way it's done--you take the
20 digital video signal that goes into a digital/analog converter
21 and it's converted into analog. You know, if it's -- 'analog
22 signal' is fine, too, but that just, again, adds some
23 clarification as to how it's done. And actually there is
24 actually -- that is actually in the specification here,
25 which was the next thing I wanted to point the Court to, and

1 this is something that the Plaintiff points to repeatedly.
2 It's a quote from the specification that says, "In most
3 systems, the video signals are digital in nature." And they
4 point to that and say, Look, video signals are digital. But
5 again, the issue is the context of this claim and how it's
6 received by the video driver.

7 And here what the patent tells you, what the inventor
8 says, is, Okay, the video signals are digital, but the final
9 processing step in the video source--the video source is
10 outside of that -- is outside of the video -- outside of
11 the -- it's outside of -- it's being input to the system--and
12 that video source converts the digital video signals to analog
13 signals. So on No. 12, converts it and then it gets input.

14 That's exactly what we're saying. This is the portion of
15 the specification that Plaintiff references repeatedly. It's
16 saying what we are saying about how that conversion is done
17 from digital to analog.

18 The next thing, Your Honor, is we see in the IPR and
19 the PTAB, they said here, "The '521 Patent describes."
20 They're describing the '521 Patent, not just an embodiment.
21 And Polaris is telling us what a person of ordinary skill in
22 the art would understand is needed for the video driver to
23 generate a video drive signal. It requires receiving a video
24 signal from a video source, and then Polaris refers to that
25 video signal as the analog video signal; again describing

1 exactly what we're saying. That's what they told the Patent
2 Office, which is consistent with how a person of skill in the
3 art would understand this. It's plain English and it's
4 Polaris' words.

5 And in the IPR Polaris made it clear again that the
6 analog conversion is required here, that a person of ordinary
7 skill in the art would have understood that. And that's not
8 all. We can look at the claims. The claims tell us that, a
9 little bit indirectly, but they tell us that.

10 I'm showing here claim 4. Claim 4 is not asserted but
11 it's instructive. Here it says the video driver includes a
12 second resistor--and you can see that inside the video driver
13 back box there, 102--and the resistor is going to receive an
14 analog signal. I don't think Polaris would dispute that.
15 That's the way resistors work. That's the way the system
16 works. So the second receiver is receiving an analog signal.

17 And then claim 4 also says the resistor is coupled to the
18 video signal. That's the same video signal as claim 1, which
19 says that the video driver is receiving the video signal.
20 Again, it's got to be analog. So the claims tell us that,
21 too.

22 And one more way we can come at it, Your Honor, with the
23 claims, on the left here is an excerpt from the IPR, and all
24 that's there for is to confirm--which, again, I don't think
25 Polaris would dispute--that the output of the video driver is

1 analog to the right side of that box. They said that. They
2 told the Patent Office that. That won't be disputed.

3 You look at a couple of the claims, 3 and 7, and they
4 tell us that the video drive signal is the difference between
5 or the sum of--and we'll get to this a little later, this
6 particular language--but it's the difference between or the
7 sum of the power supply voltage and the video signal. So if
8 the video drive signal is analog, then those two signals that
9 are being summed or it's the difference of, including that
10 input video signal, they have to be analog, too.

11 The left side of the equations that we have there, the
12 video drive signal has to be the same as the right side and
13 the right side has the video signal.

14 So to sum -- in sum, Your Honor, in every discussion in
15 the specification, the claims, what Polaris told the PTAB,
16 it's always and confirms that the video signal has to be
17 analog.

18 THE COURT: All right. What else?

19 MR. SIROTA: That's all for me on this term.

20 THE COURT: Let me hear from Plaintiff, please.

21 Please proceed, Mr. Hamill.

22 MR. HAMILL: Thank you, Your Honor.

23 Before I jump into my slides, I would like to address one
24 of the points that Samsung made, which the description in the
25 bottom of column 1, top of column 2, where the patent

1 describes generating a video drive signal. That is a
2 discussion of the prior art in the patent, and so to the
3 extent it came across as applying to the invention, our
4 position is that is not a description of the '521 patent's
5 invention. But as I'll get to, we don't dispute that the
6 video signal has to be converted to analog at some point, and
7 so I think --

8 So turning to our slides, Your Honor, I won't belabor the
9 point too much that the discussions in the figures relate to
10 embodiments, not to the invention. It's quite clear in the
11 language of the specification.

12 Turning to slide 21, as Samsung's counsel explained, the
13 specification says that the term 'video signal' can certainly
14 apply to a digital signal, and this phrase here, this -- you
15 know, it includes the discussion of converting digital video
16 signals to analog signals. But throughout the patent the
17 analog video signal is referred to as video.DAC. The claims
18 don't specify video.DAC. They don't specify analog. What's
19 specified here in claim 1 is the video driver receiving the
20 video signal and generating a video drive signal indicative of
21 the video signal. Nothing here requires that video signal to
22 be analog.

23 And turning to slide 23, Samsung relied on statements
24 from the IPR, and these don't require the video signal to be
25 analog either. And so the first statement, "One of ordinary

1 skill in the art would have understood that generating a video
2 drive signal requires taking a usually digital video signal
3 and shifting, converting to analog, and amplifying the voltage
4 so that it can properly drive the transistors in the display
5 panel's pixel circuits." So at some point a digital signal
6 does have to be converted to analog. We don't dispute that.
7 But in the context of claim 1, there is no requirement that
8 that conversion happen before the video driver receives it.

9 And then the second passage here, this is simply a
10 discussion of the embodiments, and so this -- as I've
11 discussed before, the same case law that prohibits reading
12 limitations from the embodiments into the claims applies.

13 And with respect to the discussion of the dependent
14 claims, Your Honor, those dependent claims are much narrower
15 than claim 1. They recite specific circuits that are part of
16 the video driver and how inputs -- which inputs are provided
17 to the operational amplifier, for example. And under Federal
18 Circuit case law, as set forth in *Phillips*, if a dependent
19 claim has additional limitations that are not present in the
20 independent claim, then the presumption is that the
21 independent claim should not be construed as having those
22 limitations. And so it's simply not appropriate to take the
23 requirements of the dependent claim and apply those to claim 1
24 here.

25 And then I think that really addresses the dependent

1 claim issues, so I'm going skip to slide 26 here, and I just
2 wanted to address some of the cases that were cited in the
3 briefing on Samsung's side. And those cases --

4 THE COURT: I'm not sure that's going to be
5 particularly helpful. I'm aware of what's in the briefing.
6 I'm really more interested on your application argument.

7 What I take it to be is, in essence you're telling me
8 that video signal, there's no basis to limit it by construing
9 it as analog in the context in which this language is located
10 within the claim. Maybe there's a conversion at some point,
11 maybe the signal is converted into a specific type of signal,
12 but at that point in the claim where the language is used,
13 it's a generic video signal, not a specific analog video
14 signal. Is that in essence what you're trying to tell me?

15 MR. HAMILL: That's correct, Your Honor.

16 THE COURT: Okay. Is there anything else that you
17 want to tell me?

18 MR. HAMILL: No, Your Honor.

19 THE COURT: All right.

20 Mr. Sirota, do you have anything as a follow-up?

21 MR. SIROTA: I do not, Your Honor.

22 THE COURT: Okay. Then we'll move on.

23 And that brings us to 'independent of the positive power
24 supply voltage' from claim 1.

25 Defendants are arguing that this is indefinite. Let's

1 start with Defendants and let them make their best case for
2 that position.

3 MR. SIROTA: Thank you, Your Honor. Neil Sirota
4 again.

5 THE COURT: Please proceed, counsel.

6 MR. SIROTA: So the core of our argument here is
7 that this term is indefinite because there's more than one
8 possible positive power supply voltage in an AMOLED display,
9 which this claim is directed to. Polaris for its part doesn't
10 really address the arguments, the technical arguments we put
11 into the brief, and we'll talk about their response in a
12 moment.

13 The indefiniteness argument arises from an issue
14 identified by Polaris' own expert. And their expert in his
15 expert declaration, Mr. Credelle, points out that there's two
16 different VDDs--this is with respect to the prior art, but it
17 also applies to the '521 Patent--and that's VDD at time 't'
18 equals $t(1)$, and VDD at time 't'. That refers to the
19 beginning of a frame and then the entirety of the frame. And
20 there are two different values.

21 And the reason why you get those two different values of
22 VDD--which we called in our brief 'VDD cur' for current and
23 'VDD vid' for video; those are the same two different VDDs
24 that Mr. Credelle was talking about--the reason you get them
25 is because we're dealing with an active matrix OLED display.

1 And as the '521 Patent explains in an AMOLED display the
2 pixels are each programmed for an entire video frame. And you
3 heard some of this earlier today, and that means it will hold
4 its value. The pixel gets a particular value, puts out a
5 particular color, and it holds its value for the entire video
6 frame. And that's different than passive matrix displays
7 where the pixels are programmed line by line but they're not
8 held for the entire frame. That's very important context here
9 and that's what makes the claim indefinite.

10 And just -- you may have seen this in the technical
11 tutorial. Just to illustrate the passive matrix, they are lit
12 up row by row, they don't hold the value for the entire frame,
13 the prior row is turned off, and with the fast scanning rate
14 the human eye doesn't see that so it works just fine.

15 Active matrix, though, the rows are selected one at a
16 time, but the values are held. You get a better picture that
17 way, you can use a slower scanning rate; there are bunches of
18 advantages to that. So that's why we have active matrix
19 displays. So how do the active matrix displays hold that
20 programming for the full frame? And you heard about it
21 earlier, and, in fact, Polaris doesn't dispute it, and it's
22 explained in Mr. Credelle's declaration. In the IPR he
23 explains that the transistor is controlled by an analog video
24 voltage and it's stored on a capacitor for the duration of the
25 frame. That's the way that works.

1 So we can look at the '521 Patent, and on the right here
2 I've got an excerpt annotated, obviously, from the '521 Patent
3 figure 2, and you see that similar pixel design with VDD
4 supplying the current through a transistor to light up the
5 OLED. That's in the rose color on the right there. And the
6 '521 Patent explains that there is a problem with the prior
7 design because the current driving voltage, VDD, which is
8 positive power -- positive power supply voltage, it has
9 unwanted variations, and that causes the flicker in the OLED
10 when the light is given off.

11 And their solution was to introduce VDD as a component in
12 the video drive signal, and that's the equation at the bottom
13 of this annotated figure--video drive signal equals VDD minus
14 video.DAC. So you see, you've got VDD on the input to both
15 the source and the gate, and that's how you get the driving
16 voltage to be independent of the positive power supply voltage
17 according to the patent. Now, it just, you know, kind of
18 makes sense. In the patent they say they cancel out.

19 But here's the problem. Here's why the claim is actually
20 indefinite, because it is an AMOLED display. And the figures
21 and discussions -- the figures and discussion in the '521
22 Patent leave out an important component. We've talked about
23 it. It's the capacitor. They've left that out of the figures
24 and the discussion. But it's in there. Polaris has admitted
25 they told you that as well. They're not disputing that.

1 So now you have VDD at both the gate and the source, you
2 have VDD at the gate and the source, but the problem here is
3 when it's programmed at time t(1) at the beginning of the
4 frame, the yellow highlighted VDD in the video signal is
5 fixed; it's held on that capacitor. And at the same time the
6 VDD at the top that's driving the current going to the OLED,
7 that continues to vary. There's two VDDs now in this.
8 Because there's a capacitor it has to be.

9 And what does that look like? Illustration here, a
10 couple of frames. VDD at the top, VDD -- that's VDD 't' or
11 what we call 'VDD cur' or current, that varies throughout the
12 whole frame in these two frames. 'VDD vid' or VDD t(1) at the
13 beginning of the frame, that stays constant.

14 THE COURT: Let me ask you a question similar to one
15 I asked you earlier Mr. Sirota.

16 MR. SIROTA: Sure.

17 THE COURT: In listening to your argument here
18 you're going through the various points, and along the way
19 you say, "and it has to be that way." 'Has to be that way'
20 sounds to me, again, like a non-infringement argument; it
21 doesn't sound like here's a reason this language needs to be
22 construed, or this is why this is unclear and needs
23 construction, or this is why it can't be clearly construed
24 and ought to be found indefinite. It seems to me like you're
25 making maybe a good non-infringement argument, but not a

1 compelling case for why the language independent of the
2 positive power supply voltage is actually indefinite,
3 which you know, is a clear and convincing evidence standard
4 that you've got to meet.

5 It's not that your argument's not logical; it's just that
6 I'm just not sure it goes to the issue before the Court today
7 as opposed to the issue that will be before the jury later.

8 Again, if you can tell me why I'm seeing it incorrectly
9 as that, I'd appreciate it. But that's the way it comes
10 across.

11 MR. SIROTA: Thank you, Your Honor, and I appreciate
12 that as well.

13 We believe it's indefinite because you have this claim
14 term, and really it's 'positive power supply voltage', and
15 what does it mean -- well, we could just focus on that--what
16 is it. Is it the voltage at the top that comes into the
17 circuit or is it the voltage that -- that same voltage is
18 brought into the other signal. It's still VDD, it's still the
19 positive power supply voltage, it's just at a different time.
20 They're both power supply voltages, but that is indefinite
21 because how can you have a claim where the power -- a term
22 means two different things to a person of skill in the art.

23 I mean, they should have been and could have been broken
24 out like that because that's the way -- and again, it has to
25 work this way, the claim works this way, and we are in -- you

1 know, we're talking about the claim itself and the language.
2 It doesn't make sense. It wouldn't make sense to a person of
3 ordinary skill in the art. And that's -- you know, again,
4 Mr. Credelle pointed out that there is this issue when he was
5 -- when he put in his declaration.

6 But that's the answer to your question, Your Honor.
7 That's why we believe it should be taken care of now--it is
8 indefinite--rather than at some later point.

9 THE COURT: All right.

10 MR. SIROTA: I'll stop there.

11 THE COURT: Thank you.

12 Let me hear from Plaintiffs in response, please.

13 MR. LIM: Good morning, Your Honor. Sal Lim on
14 behalf of a Polaris.

15 May I proceed?

16 THE COURT: You may proceed. Good morning.

17 MR. LIM: Good morning.

18 Let me just start with slide 26.

19 Counsel just showed you that, quoting from Mr. Credelle's
20 declaration from the IPR proceeding, and I want to point
21 out -- I highlighted these two red marks here. This paragraph
22 Mr. Credelle was talking about the Kim reference, which is one
23 of the prior art references that was asserted by Samsung to
24 try to invalidate the '521 Patent in that proceeding. He's
25 not talking about the patent. I'm about to show you what the

1 patent says.

2 So this is an excerpt from the specification of the '521
3 Patent, and this excerpt specifically talks about what it
4 means to be independent of the power supply voltage, VDD.
5 And in the patent if you look at all the equations and all
6 the places where it talks about what a positive power supply
7 voltage is, it's called VDD. It's not VDD sub cur that
8 counsel just told you about and it's not VDD video driver.
9 Those terms do not appear in the specification. What appears
10 in the specification is an equation where it shows that VDD is
11 canceled out; therefore, that's what it means to be
12 independent of the positive power supply voltage.

13 This is one example. This is in connection with
14 embodiment No. 1 which appears in column 5, lines 11 through
15 23, and there is another similar disclosure that appears in
16 column 6, lines 26 through 36. And Mr. Credelle in his
17 declaration in support of our *Markman* briefing explains this
18 in paragraph 58 through 60 of his declaration. And we
19 provided case law that the examples like this one I just
20 showed you, you know, is sufficient to inform one skilled in
21 the art of the scope of the claim with reasonable certainty.

22 Now, I want to now direct to the argument that counsel
23 just made and all the slides that he went through explaining
24 the two different types of positive power supply voltages.
25 None of those slides or none of the content that he talked

1 about is supported by the declaration of Defendants' expert
2 Mr. Baker. In fact, Mr. Baker provided an opinion that this
3 term is indefinite, but his argument is completely different
4 than what counsel just presented to Your Honor.

5 If you look at Mr. Baker's declaration in paragraph 66,
6 his argument that this term is indefinite is because he says,
7 and I quote, "a POSITA would not have understood the scope and
8 meaning of this language because it is unclear how the
9 identified 'current drive voltage' can at the same time be
10 both 'referenced to' the positive power supply voltage and
11 yet 'independent of' the positive power supply voltage."
12 That's his opinion. If you read that part of his declaration,
13 it says nothing about -- and I'm going to show you. It
14 doesn't say anything about the -- that the positive power
15 supply voltage varies in time, which counsel just presented.
16 His declaration does not contain any opinions about 'VDD vid'
17 or 'VDD cur'. Those terms do not appear in his declaration.

18 THE COURT: So is it your understanding that
19 Samsung's abandoning that earlier invalidity argument?

20 MR. LIM: That's correct, Your Honor, because as you
21 -- as Your Honor noted, the experts are required to submit the
22 declaration before the *Markman* briefing began, so when we
23 submitted our *Markman* brief, we established that Mr. Baker's
24 opinion is flawed, and this is why it's flawed--right?--
25 because the claim language does not require the current drive

1 voltage to be both referenced to the positive power supply
2 voltage and independent of the positive power supply voltage.

3 THE COURT: Is it your view that Samsung should
4 somehow be procedurally precluded from making the argument
5 they made today in light of the argument supported by the
6 Baker declaration in the briefing?

7 MR. LIM: Well, it is certainly unpersuasive because
8 none of the argument that counsel presented today is supported
9 by its expert's declaration, and I think it's up to the Court
10 to decide whether or not the Court is going to take into
11 consideration the argument that counsel presented. But
12 procedurally the argument they presented today was not in the
13 expert's declaration, and they submitted another argument
14 which we addressed in our opening brief, and then in their
15 response brief they presented this new argument that we just
16 talked about, and none of that is supported.

17 THE COURT: I'm asking you should they be precluded
18 from making the argument they're making today.

19 MR. LIM: I would submit they should be, but that's
20 up to the Court to decide.

21 THE COURT: All right.

22 MR. LIM: But even if the Court were to consider it,
23 it's incorrect. Right? Because it's not supported -- none of
24 this is supported.

25 THE COURT: Other than it's not supported by the

1 Baker declaration or another declaration, tell me why the
2 argument I've heard today from Defendant is not correct.

3 MR. LIM: Because the specification, as I've shown
4 you here --

5 THE COURT: Doesn't differentiate between VDD?

6 MR. LIM: Exactly.

7 THE COURT: Okay.

8 MR. LIM: It only talks about VDD. When it's
9 talking about the positive power supply voltage, if you look
10 at all the equations, it's using VDD. It's not using VDD
11 video driver is what they said, it's not using the term VDD
12 current driver; it's only VDD. That's why this term is not
13 indefinite, Your Honor.

14 THE COURT: All right. Anything else for me?

15 MR. LIM: Not on this term, Your Honor.

16 THE COURT: Thank you.

17 Anything further on this term, Mr. Sirota?

18 MR. SIROTA: Just quickly, Your Honor.

19 THE COURT: Go ahead.

20 MR. SIROTA: Thank you.

21 So first thing about the expert declaration, this
22 argument is supported by expert testimony. It's
23 Mr. Credelle's and I showed you some of that.

24 The other issue is that --

25 THE COURT: Which Credelle is the Plaintiff's

1 expert.

2 MR. SIROTA: He is, yes.

3 THE COURT: Okay.

4 MR. SIROTA: And his testimony supports what we're
5 saying.

6 The other issue is with respect to the specification and
7 the equations, here the equations, equation 5 and 6, the
8 problem is, as you see in equation 5, there's a VDD. As a
9 technical matter that is referring and would tell a person of
10 skill in the art that's a constant voltage. In the other
11 equation it's the varying VDD voltage. Again, it's the two
12 different -- a person of skill in the art would know and
13 understand that these are two different VDDs. It's just
14 -- it's confusing and it's indefinite. So the equations don't
15 help them; they actually highlight the indefiniteness, Your
16 Honor.

17 THE COURT: All right. And just so I'm clear,
18 beyond your indefiniteness argument, you're not offering an
19 alternative construction for the Court in response to
20 Plaintiff's plain and ordinary meaning; you're just hanging
21 your hat on the indefiniteness argument. Correct?

22 MR. SIROTA: That's right. We're not offering an
23 alternative construction here.

24 THE COURT: All right. Thank you.

25 Counsel, before we go to the next term, let's take about

1 10-minute recess. We'll come back and pick up with the next
2 term in just a few minutes.

3 Court stands in recess.

4 (Brief recess.)

5 THE COURT: Be seated, please.

6 All right, counsel. We'll continue with the claim
7 construction in the Polaris versus Samsung matter, and we'll
8 next turn to 'the sum of/the difference between the positive
9 power supply voltage and the video drive signal' from claim 2
10 of the '521 Patent.

11 All right. Let me hear argument from Defendant first
12 this time.

13 MR. SIROTA: Thank you, Your Honor. Neil Sirota.

14 THE COURT: Please proceed, Mr. Sirota.

15 MR. SIROTA: Thank you.

16 So here is a couple of issues raised by this term. The
17 first issue is one that, frankly, I don't know that we should
18 have to argue, but 'sum' means 'addition', 'difference' means
19 'subtraction'.

20 And the second issue is that the two signals that are
21 being added or subtracted, the positive power supply voltage
22 and the video signal, or the video drive signal depending on
23 which instance, that they're the same type--they're either
24 both analog or both digital.

25 THE COURT: Where is there support in either the

1 claim language or the specification for this 'which are of the
2 same type'? Can you point me to a specific section of either
3 the spec or elsewhere in the claim that would support that,
4 other than, as I've heard you argue already this morning, it
5 just has to be that way.

6 MR. SIROTA: We obviously have the declaration,
7 expert declaration. Does the spec come out and say it
8 expressly? The spec talks about equations, adding and
9 subtracting signals. It doesn't make any sense that they
10 would be a different type. And, of course, in the examples
11 they are all the same type. But is there a statement in the
12 specification that says they have to be the same type? That
13 statement isn't express; it is implied throughout. And our
14 expert has supported that; their expert has not contradicted
15 it.

16 THE COURT: All right. That's an answer.

17 MR. SIROTA: Good.

18 Okay. So here's the claim, and it's got a couple of
19 instances of this similar language. Claim 2 has 'sum' or
20 'difference'. There are other claims as well that have 'sum'
21 or 'difference' in there. They are implicated as well.

22 So just -- you know, I don't want to belabor 'sum and
23 difference' or 'difference and sum', but, you know, the spec
24 uses the term 'difference between' and then refers directly to
25 a minus sign. That's subtraction. The claim uses the same

1 language, being 'the difference between'. This is claim 3 I'm
2 showing here on slide 43. It's subtraction.

3 Similarly, the spec uses the 'sum of' language in the
4 spec, the same language in the claim, and when they talk about
5 it they show addition, they use a plus sign in these
6 equations. That's pretty clear.

7 And just for clarity, I refer to claims 3 and 7, but
8 the same argument, the same spec language, the same equations
9 relate to claim 2 as well. It's addition and subtraction.

10 Now, Your Honor, Polaris argues that the video drive
11 signal of claim 2 doesn't need to be the sum or difference
12 because it's only indicative of, and basically you don't
13 really have to get to adding or subtracting.

14 First, that argument doesn't make logical sense because
15 to know -- for a person of skill in the art to know if
16 something is indicative of something else, you have to know
17 what that something else is. How else would you know? You
18 first have to know what the sum or difference is, and you can
19 figure out if it's indicative. And 'indicative' is a separate
20 word. We're not asking for that construction; we're asking
21 for a construction of 'the sum of' or 'difference'.

22 And they have to be adding or subtracting. That's
23 required by the claim, and we know that. Actually Polaris
24 admitted that in the IPR. Once again, we're back at the IPR
25 because they're taking different positions in these two

1 proceedings.

2 THE COURT: We've been back there quite a bit today.

3 MR. SIROTA: We have. We have, with good reason.

4 So with respect to claim 2, this is the claim we're
5 talking about, and the Hayafuji reference, so it's the same
6 language we're discussing now, they said, "Hayafuji's voltage
7 assertion circuit does not add"--addition--"the positive power
8 supply voltage to the video signal." That's the sum of
9 language, and they say because they don't do that addition
10 that's required by the claim, it does not disclose a video
11 drive signal that is indicative of the sum of or the
12 difference between the positive power supply voltage and the
13 video signal.

14 So 'indicative of' doesn't mean you don't have to add;
15 you do. And that's exactly the way they explained it to the
16 PTAB, and that's the way this claim should be construed.

17 Okay. I'll move on to the other issue. That is that the
18 signals must be of the same type. And Samsung's expert, he
19 was clear about this. In paragraph 82 of his declaration,
20 which is Exhibit A to our brief, he said that when the signals
21 are added, they must be of the same type. And he said you
22 can't add an analog signal to a digital signal or vice versa
23 because it wouldn't make sense. It doesn't make sense to talk
24 about that when you're talking about adding signals or
25 subtracting. It's a very basic principle in electrical

1 engineering.

2 Polaris' expert, he didn't address the issue. He
3 side-stepped it entirely. He referred to AC and DC voltages,
4 alternating current and direct current. That's not what we're
5 talking about here. That's not the issue.

6 And again, in its brief Polaris says it's irrelevant
7 because we're not dealing with 'indicative of'. We showed why
8 that's actually not correct. But even if it's not correct or
9 even if it were correct, we've still got this issue of claims
10 3 and 7, other claims where you have this addition and
11 subtraction of different signals, and they need to be of the
12 same type. So the dispute would need to be resolved.

13 That's all I have, Your Honor.

14 THE COURT: Thank you. Let me hear from Plaintiff,
15 please.

16 Let me ask you, Mr. Lim, do you agree that you can't add
17 or subtract a digital signal to or from an analog signal, or
18 do you disagree with that?

19 MR. LIM: We would disagree with that.

20 THE COURT: Tell me why.

21 MR. LIM: I think, you know, you could add the
22 values -- the analog representation of a signal is an analog
23 waveform, but it has a value. For example, if it's on a
24 waveform, let's say the value you're looking for is five
25 volts. Right? If you're looking at a digital signal, you can

1 have 3, 4, 5 volts. Right? But in the -- you can add those
2 two together -- maybe not in the same circuit, but you can
3 certainly take an analog voltage of five volts and add it to a
4 digital voltage of five volts, and you can -- the sum of those
5 would be 10 volts. And that would be -- that would qualify as
6 a sum. Right? You don't have to add it by circuit, but you
7 can compare it to two different values. Right? So one could
8 be analog form and one could be digital form.

9 And as Mr. Hamill demonstrated for the Court, the video
10 signal can take either digital form or analog form. It just
11 different ways of representing it. One is in digital, one is
12 in waveform, and in both cases those voltages have a specific
13 value. It's a number that everybody can associate with,
14 whether it's five volts three volts or two volts. You can
15 certainly add -- mathematically add those values together.
16 That's the premise.

17 And Your Honor, if I can just briefly again show the --
18 what -- this is counsel's slide No. 47. So this is the
19 paragraph that the -- basically --

20 THE COURT: Let me ask you this, Mr. Lim.

21 MR. LIM: Okay.

22 THE COURT: If I owe you 10 dollar and you owe me
23 five British pounds, how can we resolve our financial
24 transaction unless I convert my dollars to pounds or you
25 convert your pounds to dollars?

1 MR. LIM: That's correct. That's one way of doing
2 it.

3 THE COURT: They both have value.

4 MR. LIM: They do.

5 THE COURT: But they are different things.

6 MR. LIM: They are different things.

7 THE COURT: How can I add that digital to analog or
8 analog to digital unless I convert one to the other? They
9 both have value, but they are not the same thing.

10 MR. LIM: They are not the same thing. You are
11 right. You have to do a conversion in order to determine the
12 exact value, but the key is they're being represented
13 differently. The analog signal is being represented
14 differently in a waveform. Right? A digital signal is in a
15 digital form --

16 THE COURT: I understand they're in different forms.

17 MR. LIM: Right.

18 THE COURT: Just like those two kinds of money are
19 in different forms--pounds and dollars.

20 MR. LIM: Exactly. But at the end of the day the
21 pound -- the amount of money that you have in your pocket,
22 whether it's in dollars or pounds, it's going to be the
23 equivalent, you know, if you exchange it for another currency.
24 Right? That doesn't mean --

25 THE COURT: But until that exchange takes place,

1 until that conversion takes place, I can't add and subtract
2 dollars and pounds from each other, can I?

3 MR. LIM: No. They are apples and oranges. You
4 have to go through a conversion.

5 THE COURT: And analog and digital are apples and
6 oranges, aren't they?

7 MR. LIM: They are a different form, but they have
8 their value that's being represented; they're just being
9 represented differently. A voltage could be an analog form or
10 it could be a digital form or -- so can current. They are
11 just being represented differently, but mathematically they
12 could have the same value.

13 THE COURT: Well, and a certain number of dollars
14 and a certain number of pounds could have the same monetary
15 value, but they are in different form.

16 MR. LIM: They are in different form, exactly. And
17 the claim doesn't require it to -- the claim language doesn't
18 require the addition or the subtraction to happen at all. The
19 claim -- if we look at the -- I'll get to this later.

20 Let me look -- show you the claim. The claim I have
21 here is indicative of the sum of or the difference between the
22 positive power supply voltage we've been talking about quite a
23 bit and the video signal. The sum of it. Right? It's not
24 saying that you have to add those two together then you do the
25 comparison; the sum could -- you can do it in many different

1 ways. You can -- one example is to add them. You can add
2 them together and you can compare them to the sum, or you can
3 have the positive power supply voltage to be, let's say, five
4 volts and then the video signal, let's say it's five volts.
5 Right? The sum of those would be 10 volts. You can compare
6 it to five plus five, or you could compare it to 10. Right?
7 The 10 doesn't -- the claim doesn't say how you get to the 10.
8 The sum is the 10. Right? It doesn't -- the claim doesn't
9 say you have to add five to five to get to the 10. The claim
10 only says it has to be indicative of the sum of two values.
11 Right?

12 It doesn't specifically ask you to add or, you know, you
13 get to the sum by adding or it doesn't say that you get to the
14 difference by subtracting. The examples that counsel showed
15 in the specification, again, they're embodiments; they're
16 equations to show how these circuits work, but they're not the
17 requirement of the claim. The claim says --

18 THE COURT: Let me ask you this.

19 MR. LIM: Okay.

20 THE COURT: See if I can focus the argument a little
21 bit.

22 Defendants' construction specifically suggests or
23 provides that this language, 'which are of the same type' is
24 necessary. Defendant acknowledges that's not expressly called
25 out in the specification or the claim language. They rely on

1 their expert's declaration for that.

2 What I'd like to hear from you is why is that not
3 necessary or appropriate; why is their declaration not
4 compelling here, given that there's not other support in
5 either the spec or the claim language. But why does it not
6 need 'which are of the same type', if you can tell me that.

7 MR. LIM: Well, I think it starts from the fact that
8 the claim doesn't even require the addition or the
9 subtraction. Right?

10 Let's say Your Honor's right that you can't add dollars
11 directly with pounds. So that's only relevant if the claim
12 was to require for Your Honor to add the two together. Right?
13 If the claim doesn't require you to do that operation, which
14 the claim clearly does not, then it's irrelevant as to whether
15 or not you can directly add dollars to pounds. It's not a
16 requirement of the claim.

17 THE COURT: So would you construe it as attempting
18 to import some kind of a limitation? Is that what you would
19 construe this to be?

20 MR. LIM: Exactly. That's exactly what they're
21 trying to do. They are trying to add two additional
22 limitations to this claim to set up a non-infringement
23 argument later on down the road. Those two requirements are
24 not in the claim. They are trying to import that into the
25 claim so they can use that later on to say, Aha, Your Honor,

1 Samsung does not infringe because these two limitations we
2 added to the claim are not met by the accused devices. That's
3 exactly what they're doing, and there's no support for that at
4 all in the claim or the specification.

5 THE COURT: All right. What else, Mr. Lim?

6 MR. LIM: If I may just show Your Honor the excerpt
7 from the IPR proceeding which counsel has been using quite a
8 bit today, and again, I want to show how Samsung has taken
9 this out of context. Right?

10 So this is slide 47. Counsel says, Aha, this is
11 Mr. Credelle admitting that this limitation has to do adding.
12 Okay? But this is a response to the argument that Samsung
13 made with respect to the reference Hayafuji. Right?

14 So this is the excerpt that they just showed Your Honor,
15 and I'm going to show you, this is exactly where it is in the
16 paper that we filed. And let me just show you the very next
17 paragraph of this response, which I've highlighted here. So
18 what we're talking about here is the Hayafuji reference. It's
19 a different system than the patent. We're not talking about
20 the '521 Patent; we're talking about the Hayafuji reference.

21 And the point that we were making there is that in
22 Hayafuji, "the alleged video signal Vgate is the output of the
23 addition circuit, which calculates the sum of the video signal
24 and the ripple component Vri." Right.

25 So basically what they're trying to -- what Samsung

1 argued there is that, Aha, that meets this limitation. Our
2 point was no it doesn't. That's adding the video signal to a
3 ripple component, not the power -- not the positive power
4 supply voltage. Right?

5 If we just look at the claim -- if we look at the claim
6 language, it says the sum of the or the difference between the
7 positive power supply voltage and the video signal. Right
8 here in Hayafuji they are adding the ripple component to the
9 video signal. So that's why we were arguing that their
10 argument was incorrect in the IPR. We didn't say this claim
11 has a required addition in that paragraph, as counsel
12 contends. Right? This argument is about a different system
13 that did -- that added two different things, which is that
14 -- which does not meet this claim because one of the
15 components required in the claim is positive power supply
16 voltage, and in the Hayafuji reference they're adding the
17 ripple component, which is not the same thing as VDD.

18 THE COURT: All right. What else?

19 MR. LIM: That's it, Your Honor, for this term.

20 THE COURT: Thank you.

21 MR. LIM: Thank you, Your Honor.

22 THE COURT: Anything further on this?

23 MR. SIROTA: Quickly, Your Honor, if I may.

24 THE COURT: All right.

25 MR. SIROTA: I just want to go back to the part of

1 the response that Mr. Lim was just talking about, the IPR
2 response.

3 First of all, I'll just confess I don't understand,
4 whether there's claim language that says 'indicative of a sum
5 or difference', why would you -- how do you not have to get to
6 the sum or difference.

7 Putting that aside, again, in this portion that Mr. Lim
8 was pointing to, they again argue that there's two
9 requirements here; there's both the summing and also the
10 indicative part. And they said the conclusion was, thus, the
11 power supply voltage is not summed with the video signal, this
12 claim 2. Again, they're conceding that's part of the claim.
13 They're saying Hayafuji doesn't meet it, but that's part of
14 the claim language.

15 And then the second part they say, And the video drive
16 signal is not indicative of either the sum or difference. The
17 sum or difference is a requirement of the claim language,
18 whether it's got to be calculated, it's got to be understood,
19 it's got to be known. And that's our point here.

20 THE COURT: If that's the case, if there's got to be
21 a sum or there's got to be a difference, why is the claim
22 language 'indicative of'? Why doesn't it say, Wherein the
23 video drive signal is the sum or is the difference? What's
24 the necessity of this somewhat unusual word 'indicative' here?

25 MR. SIROTA: There are claims that say that. Claims

1 3 and 7 say exactly that; they're more narrow.

2 THE COURT: But this is not claim 2.

3 MR. SIROTA: That's correct. This issue does relate
4 to those claims as well. But you're right, that's not claim
5 2, but they're saying, Yeah, something else is done. Maybe
6 you're adding another signal to it. If you have the power
7 supply voltage and the video signal added together and you add
8 a third signal, the result is still indicative of that sum.
9 But whatever you do to the signal, the starting point is the
10 sum.

11 And even if it's done some other way, say it's not
12 generated that way, I think that's their point--to know if
13 you're infringing, for a person of skill in the art to know
14 the scope, they have to get to the sum; they have to get to
15 what's claimed there--the sum of the power supply voltage and
16 the video signal. Even if the signal's not being generated
17 that way, you still have to understand what it is to know if
18 it's indicative; otherwise, you know, you can't know if it's
19 indicative.

20 Sorry I'm repeating myself, but that's our argument, Your
21 Honor.

22 THE COURT: I'm just curious as to what the
23 rationale and the impact and the effect of including
24 'indicative of' here is. If you were going to say, Wherein
25 the video drive signal is the sum or is the difference, that's

1 very straight forward, but when you back off from that and
2 say, The video drive signal is indicative of the sum, that's
3 basically telling me it's not the actual sum, it's not the
4 actual difference; it's something less than that, but how much
5 less seems to be somewhat unclear.

6 MR. SIROTA: I agree with that. The claim doesn't
7 require the video drive signal to ultimately be the sum or
8 difference. There are claims that do. Claim 2 is broader.
9 It just has to be -- as I said, an example might be it's --
10 there's another signal added to it, and that would still be
11 indicative. If you added five volts to it, that would be
12 indicative of the sum.

13 But again, to look at a signal, if Samsung is generating
14 a signal, how does Samsung know if it's indicative of the sum
15 unless you know what the sum is, what the starting point is?
16 You know, if the claim was a multiple -- you know, it's a
17 multiple of five, I mean, you have to know if your signal is a
18 multiple of five. You have to know what the base is that it's
19 indicative of. Sorry if I'm not being clear.

20 THE COURT: No, you are. But what you're saying, at
21 least as I appreciate it, is to know whether or not it's
22 indicative you have to know what the sum or the difference is.
23 But when you know what the sum or the difference is, then
24 you've already gone past being merely indicative and you've
25 gone to the actual sum or the difference.

1 MR. SIROTA: Well, that's what the claim requires.
2 The claim requires you to know that. The claim requires the
3 sum or difference. It requires that to be known. There's no
4 other way --

5 THE COURT: If the claim requires the sum or
6 difference, then 'indicative of' makes no sense, at least as I
7 can see it. 'Indicative of' is not all the way to the sum or
8 the difference; it's an indication, it indicates, but it
9 doesn't confirm with absolute certainty.

10 That's what I'm struggling with here is I hear you
11 saying, Well, you have to know with absolute certainty what
12 the sum or the difference is to know if it has been indicated.
13 This seems kind of circular to me. But the language in claim
14 2 at least is something less than the actual sum or the
15 difference; it's merely indicative of, if those words are
16 going to have any meaning at all.

17 MR. SIROTA: I would say it's something more. It's
18 an additional limitation on the signal. It doesn't have to be
19 the sum or difference; it just has to be indicative of it.
20 It's something more than just being the sum or difference.
21 And again, you get back to it's got to be the sum or
22 difference, and we're focused on that language what does 'sum
23 or difference' mean. You know, 'indicative', maybe it's
24 indefinite, you know. Your Honor's free to find that.

25 THE COURT: You're a little late on that argument.

1 MR. SIROTA: You're entitled to take judicial notice
2 or whatever the proper procedure would be.

3 THE COURT: All right. Thank you for that
4 suggestion.

5 All right. Let's move on.

6 MR. SIROTA: Thank you.

7 THE COURT: All right. Let's go next to 'current
8 mode isolator circuit' from claim 5 of this '521 Patent.

9 Again, we've got an argument of indefiniteness from
10 the Defendant; however, they do propose an alternative
11 construction if the Court does not find by clear and
12 convincing evidence it's indefinite.

13 But let me hear from Defendant first on this.

14 MR. SIROTA: Thank you, Your Honor. Neil Sirota
15 again.

16 THE COURT: This is your last time up today, is it
17 not, Mr. Sirota?

18 MR. SIROTA: It is. It is. I'm going to miss it.

19 THE COURT: Go ahead.

20 MR. SIROTA: It's indefinite because it's an
21 undefined coin term. I mean, that's the sum and substance of
22 this argument. Polaris says, Hey, look, it's used in the
23 patent, and that somehow supports a plain and ordinary
24 meaning, which, you know, again, we don't know what that is.
25 But we would disagree entirely. We don't think it has a plain

1 and ordinary meaning and we don't think it's defined in the
2 spec.

3 It appears in claim 5. That's where it is. And
4 Samsung's expert Doctor Baker, you know, he was very clear
5 it's not a term that's used in the field. The inventor coined
6 the term.

7 In Polaris' claim construction brief, they said, Well,
8 no, it's a well-known type of circuit and it's used many times
9 in the specification. And they cite Mr. Credelle, paragraph
10 64. But when we go to look at Mr. Credelle's declaration,
11 paragraph 64, he doesn't say it's a well-known type of
12 circuit. He can't because it's not. He only says it's used
13 many times in the specifications.

14 So it is essentially undisputed it's a coined term, which
15 leaves us to look to the many times in the specification it's
16 discussed. And there are four times, and we'll take just a
17 quick look at each one.

18 The first time there is a figure and it points out
19 certain components. There's a description component-by
20 component, connection-by-connection. That's what's there in
21 this instance. There's no indication of what else it might
22 be, what's the scope of this current mode isolator circuit.
23 Nothing tells you what that could be.

24 Then the next two instances, the first one just says that
25 the video driver 202, that box on the left here on slide 56,

1 it uses one. Okay. Then it tells you what it does, what the
2 result is, but it doesn't tell you what the circuit is.

3 In the third instance where it's mentioned, it says the
4 resistors of figure 3 can be different values, so we are still
5 talking about that one and only circuit so far.

6 And the last instance is figure 6, and figure 6 is
7 nothing more than figure 3 but it's transistor-by transistor.
8 So we don't have anything to go by what the definition is,
9 what the scope is. The most we have here is just that one
10 figure.

11 And I'll say, you know, if Your Honor's inclined to find
12 a definition, I don't think there is one here, but that is as
13 broad as it could be. It couldn't be any broader than that.
14 It would just be that figure. That's our alternative.

15 But again, as Doctor Baker pointed out, a person of skill
16 in the art just would not have understood the scope and
17 meaning of the language because he or she would not know how
18 close the circuitry has to be in what they're designing.
19 There's nothing about that. The claim, the spec, the file
20 history, it doesn't tell you anything about what this might
21 be.

22 Again, it's coined; it's not defined. There can't be any
23 reasonable certainty about what it means. And it's,
24 therefore, indefinite. And as I said, to the extent Your
25 Honor thinks it's not, there is nothing in the spec beyond

1 figure 3 and the transistor level diagram that goes with it in
2 figure 6.

3 THE COURT: Let me ask you to look to the column 5,
4 line 65, through column 1, line 1, and let me know if you
5 think that has any application to this issue.

6 MR. SIROTA: I'm turning to it, Your Honor.

7 THE COURT: "In this manner, the current is
8 converted to the voltage signal VT at node 222, which is
9 referenced to the power supply voltage VDD through the
10 resistant load of resistor 206."

11 MR. SIROTA: Right. So it's talking about that
12 figure 3. Right? That's what this discussion is about. I
13 don't think it adds anything definitionally-wise to what the
14 current mode isolator could be. It's describing some
15 functionality, but, you know, that's not telling you what the
16 device is.

17 THE COURT: Could that be indicative of what a
18 current mode isolator circuit is?

19 MR. SIROTA: 'Indicative' is kind of a --

20 THE COURT: We've been down that road.

21 MR. SIROTA: I don't know about that term, Your
22 Honor.

23 Well, I don't think so. Doctor Baker didn't think so.
24 Their expert, you know, didn't say it was, I don't believe. I
25 don't -- so I don't know that that's certainly not

1 definitional.

2 THE COURT: As you said, I'm free to come up with my
3 own answers, and I'm asking what you think of that as a
4 potential answer to a question.

5 MR. SIROTA: That was in a different context, Your
6 Honor, but yes, you are --

7 THE COURT: I can do it there but I can't do it
8 here.

9 MR. SIROTA: You can do it wherever you'd like.

10 THE COURT: Seriously, do you think this has any
11 application to the issue that we're now looking at?

12 MR. SIROTA: I'm reading it again, and again I
13 don't. It's describing the operation of this particular
14 circuit. So this is the way this circuit operates, but
15 there's -- it's not defining what a current mode isolator
16 circuit is, Your Honor. That's how we would view this, that's
17 how our expert viewed it. So I would respectfully disagree
18 that this provides a definition for that term.

19 THE COURT: All right. Anything else you want to
20 present?

21 MR. SIROTA: That's it, Your Honor.

22 THE COURT: Let me hear from Plaintiff.

23 MR. LIM: May I proceed, Your Honor?

24 THE COURT: Please do.

25 MR. LIM: And this will be the last time you hear

1 from me.

2 The specification does teach one of skill in the art what
3 a current mode isolator circuit is. Samsung knows this
4 because that's how they came up with their alternate
5 construction. Right? They specifically pointed to circuits
6 that are not just discussed in the specification, as this --
7 it's also drawn out in two figures.

8 Figure 6, as counsel just showed you, illustrates a
9 transistor level of that circuit. That's an example under
10 federal case -- Federal Circuit case law, those examples in
11 the specification using the exact claim terms, current mode
12 isolator circuit, informs one of skill in the art what type of
13 circuit that is. And those, again, they're examples of that
14 circuit.

15 So providing that example in the specification teaches
16 the POSITA what a current mode isolator circuit is and that's
17 sufficient. They're not raising any written description
18 issue. That teaches one with skilled in the art what type of
19 circuit that is.

20 How else would one describe a circuit of that type
21 without using figures? We actually use figures as well as
22 words. You won't have to define every claim term in the
23 specification using the English language. We're talking about
24 circuits here, and the best way to describe what a circuit is
25 with a circuit diagram. And one skilled in the art with all

1 of the knowledge that they gain from getting an electrical
2 engineering degree from college or a postgraduate degree would
3 know how to read those circuit diagrams and understand what a
4 current mode isolator circuit is.

5 Now, getting to the point about Samsung's alternative
6 construction, so now realizing that this term is not
7 indefinite, so -- well, let me give you the plan B. Let's
8 narrowly construe that to be just examples in the
9 specification. And that's incorrect because here we don't
10 have words of manifest restriction or inclusion. Right? On
11 the contrary, what I have shown here is that the specification
12 specifically says that figure 6 illustrates an exemplary
13 implementation of a current mode isolator circuit. It's just
14 one example. It doesn't have to be exactly that, but that's
15 one example of it. So that's enough to teach one skilled in
16 the art what the circuit is, what type of circuit this is, and
17 that's enough.

18 And that's all I have, Your Honor.

19 THE COURT: All right. Thank you.

20 MR. LIM: Thank you.

21 THE COURT: Anything further from Samsung?

22 MR. SIROTA: Just a sentence or two.

23 The argument you just heard was fine for a term that's
24 not a coined term. This is a coined term. Examples don't
25 tell anybody what it is beyond the particular example.

1 Thank you, Your Honor.

2 THE COURT: All right.

3 Okay. We'll move from the '521 Patent to the '887
4 Patent, and we'll turn to language from claim 1, 'adjusting
5 the luminosity levels of the plurality of strings of LEDs for
6 a plurality of times within the pre-determined period of
7 time'.

8 Let me hear from Polaris on this first, please.

9 MR. MATTSON: Good morning, Your Honor. Robert
10 Mattson for Polaris.

11 THE COURT: Good morning.

12 Please proceed.

13 MR. MATTSON: Thank you.

14 Your Honor, Polaris is proposing a construction for this
15 term, the 'adjusting luminosity level' terms, and that's
16 simply to substitute the word 'brightness' for 'luminosity
17 levels', and that's because 'luminosity levels', 'intensity',
18 and 'brightness' are used interchangeably throughout the
19 specification.

20 As we point out in our brief, Your Honor, if you didn't
21 want to construe that term, the experts could certainly
22 explain luminosity levels are to a jury, consistent with the
23 claim construction order, but we're proposing 'brightness'
24 just to make that process a little simpler.

25 On the other hand, the Samsung construction is rewriting

1 this phrase entirely, and there's three problems with that,
2 Your Honor.

3 First, and I think Samsung even admits this, they're
4 reading in a sentence from the specification almost verbatim.
5 The only thing they're doing is taking out the reference
6 numerals. This is at column 5, lines 20 to 22 of the patent.
7 That's the sentence. And this isn't an example of
8 lexicography. That sentence says that luminosity can be
9 adjusted by changing. It doesn't say that luminosity is the
10 drive voltage and the drive current.

11 And this leads to the second problem with Samsung's
12 construction, Your Honor, which is that they're limiting the
13 adjusting that's in the claims to a specific way of adjusting.
14 And the claims leave open the possibility for various types of
15 adjustments to luminosity. There's no one way that's being
16 forced into the claims, and certainly not what's at column 5,
17 lines 20 to 22.

18 And this leads to the third problem, Your Honor, which is
19 that the Samsung construction is designed to be a
20 non-infringement argument. It excludes pulse width
21 modulation--PWM. PWM, Your Honor, is the very technique that
22 the background section of the patent talks about, and the
23 summary of the invention says that the invention is an
24 improvement on that. We can even take a look --

25 THE COURT: Let me ask you this, counsel.

1 MR. MATTSON: Certainly.

2 THE COURT: It seems to me the fight here is whether
3 or not there's been a disclaimer. Could you address that
4 argument specifically for me?

5 MR. MATTSON: Absolutely, Your Honor.

6 If we could stay on the document camera, please.

7 The sentence that Samsung may say is a disclaimer.
8 Again, disclaimer wasn't brought up in the claim construction
9 briefs. But the sentence that they harp on begins with the
10 word 'merely', which is itself equivocal language. And the
11 full sentence, I'll read it, Your Honor, is, "Merely pulsing a
12 backlight on and off does not implicitly or inherently result
13 in an adjustment to luminosity." That's the sentence that
14 they're quoting from the IPR, and that's what they're hanging
15 their hat on as a disclaimer, maybe. We'll have to hear from
16 Samsung to be sure what their argument actually is. But
17 'merely' indicates that there's other ways of pulsing a
18 backlight on and off that do result in an adjustment to
19 luminosity. It's just that the Seo reference doesn't. And,
20 in fact, the argument is, or was, that Seo actually is I
21 believe it's pronounced --

22 THE COURT: S-E-O.

23 MR. MATTSON: I think the Romanization would be Seo
24 teaches that you keep the display brightness constant as a
25 whole. And the full sentence from Seo, or a larger portion,

1 it says, "Light emission luminance contributed by the pulse
2 component H flicker can be reduced while keeping the display
3 brightness constant as a whole."

4 That's all Polaris had to argue in the IPR, Your Honor,
5 to take care of Seo. There wasn't any discussion about
6 whether pulse with modulation is excluded from the claims.
7 That's not how the -- how Polaris was able to dismiss Seo
8 during the IPR proceeding.

9 I think you'll probably hear something about the figure
10 6, too, because that's the figure that Samsung is relying on
11 in Seo as teaching different luminosity levels. But that's
12 not what figure 6 shows.

13 THE COURT: Figure 6 of that reference.

14 MR. MATTSON: Figure 6 of Seo, Your Honor, yes.

15 This is the argument from the IPR right here. It's on
16 page 29 of the patent and response. "Seo's figure 6 does not
17 show luminosity levels." Well, why not? Because it says,
18 "figure 6 is a calculation result of the Fourier series of the
19 light emission waveform of the area LO, according to the
20 invention." To this day, Your Honor, we don't know what that
21 is. What is the calculation result of the Fourier series?
22 Fourier series are normally frequency domain representations
23 of a signal that's in the time domain, so those are not
24 adjustments to luminosity levels. And the Patent Office
25 agreed.

1 Again, without any discussion about whether or not pulse
2 width modulation is excluded within the claims--this is page
3 27 from the Patent Office decision--the Patent Office
4 concluded, "Neither petitioner nor Doctor Hatalis"--that's
5 Samsung's expert--"explains how this calculation result of
6 the Fourier series of the light emission waveform of the area
7 LO relates to adjusting luminosity levels."

8 So, Your Honor, Polaris' argument on this issue is very
9 straightforward--there never was any disclaimer or disavowal,
10 and there didn't have to be because the Seo reference taught
11 expressly that the brightness levels are kept constant.

12 THE COURT: So really what you've done with your
13 proposed construction is you've just construed luminosity
14 levels as brightness. Really that's about it, isn't it?

15 MR. MATTSON: That's right, Your Honor. That's
16 right.

17 And that's based on the -- primarily -- there's three
18 terms I think they use interchangeably. It's 'intensity',
19 'brightness', and 'luminosity'. And I think 'brightness' is
20 something that a jury would understand a little better than
21 'luminosity levels'.

22 If you look at the summary of the invention and the
23 abstract, there's language there that parallels the language
24 in the claims, but instead of 'luminosity', the summary of the
25 invention and the abstract used the word 'intensity'.

1 'Intensity' is the same thing as 'brightness' in this patent.

2 THE COURT: So, in your view, 'intensity',
3 'brightness', and 'luminosity' are all synonyms.

4 MR. MATTSON: Yes, Your Honor.

5 We submit it's extrinsic evidence to use some dictionary
6 definitions that define 'luminosity' as brightness.

7 THE COURT: All right. What else, Mr. Mattson?

8 MR. MATTSON: That's all for the time being, Your
9 Honor.

10 THE COURT: Let me hear from Samsung, please.

11 MS. BURSON: Mr. Cepregi, could we turn to slide 4,
12 please?

13 So, Your Honor, where the rubber meets the road with this
14 claim limitation is that it's Samsung's position that
15 'adjusting luminosity levels' requires the change in the
16 actual luminosity level, and our position for that is the
17 patent specification clearly points to changing in voltage and
18 current, and when you change voltage and current, then that
19 changes the actual luminosity level.

20 The patent also talks about the prior art that does not
21 change actual luminosity level. Well, Polaris' construction
22 doesn't address this issue at all.

23 If we could move to the next slide, please. Actually
24 slide No. 6.

25 So in the detailed description of the patent here, column

1 5, lines 20 through 31, the patent describes the invention as
2 adjusting drive voltages and drive currents for changing the
3 luminosity. And it goes on to explain why you do this. You
4 do this because when you're moving from a dark frame to a
5 brighter frame, you want to reduce the luminosity of the
6 strings halfway through to have for a smoother transition in
7 the rendering of the image.

8 Likewise, in the patent --

9 If we can move to slide 7.

10 In the background of the invention, the patent describes
11 the prior art. This is the pulse-width modulation scheme.
12 And in this scheme there is no change in the amplitude, the
13 actual luminosity of the pulses; there is only changes in the
14 duration that the light is turned on. And the patent explains
15 it here, In PWM, the LED switches quickly enough that the
16 human eye doesn't perceive that it's going on and off rapidly.
17 So it's perceiving a change in intensity that depends on the
18 duration of the on-state. So it's not actually changing
19 luminosity, but the human eye can't see the quickness of on
20 and off, so it thinks there's a change in intensity.

21 THE COURT: Is this where your disclaimer argument
22 comes in?

23 MS. BURSON: It does, Your Honor. Well -- yes, it
24 does.

25 Let's move to slide 8.

1 And so in this slide we're trying to illustrate what the
2 patent's talking about when it's referring to this prior art
3 PWM. And here we are showing three different duty cycles, so
4 three different examples of the on-state of the LED light.
5 And that's exemplified by the yellow lightbulb at the peaks
6 that you see in each of the duty cycles.

7 So in the first one the light is on 10 percent of the
8 time, and you see the yellow lightbulb. And each time the
9 light is turned on the amplitude is the same; the amplitude
10 does not change. So that's indicative of the fact that the
11 current flowing through to the LED light is not changing, it's
12 the same each time that the light goes on.

13 And that's explained in the -- the baker declaration
14 comports with what's known in the art as a person of skill
15 would understand it, that when you change voltage and the
16 current flowing through to an LED light, then you're changing
17 the actual luminosity. And when you're not changing the
18 current in voltage, you're not changing the actual luminosity.

19 So the on-states here change the pulse-width. So you see
20 a change in the pulse. The longer the light's on, the longer
21 the pulse-width is, but the amplitude is the same each
22 time--10 percent, 40 percent, 80 percent.

23 And if we go to the next slide, this is further discussed
24 in the prosecution history of the '887 Patent, and this is
25 where the disclaimer argument gets into play here. But during

1 the IPR, Samsung cited a reference, the Seo reference. And
2 this is figure 6, part 1. There's actually three parts to
3 figure 6, and we'll talk about that in a minute. But this is
4 figure 6, part 1. And there's no dispute that this disclosure
5 is showing different pulse-widths in a frame, but the
6 amplitude is the same each time. So there's different
7 -- there's a change in the on-state, but the amplitude does
8 not change.

9 So this refers back to counsel's conversation when he
10 put up on the screen statements made by Polaris during the
11 IPR that this is a constant luminosity; there is no change in
12 luminosity. And what Polaris said, then, was that this
13 reference--and we've underlined it here on slide 89--Seo does
14 not teach that luminance levels are adjusted, much less the
15 claim elements 'adjusting the luminosity levels' claims 1, 17,
16 and 13, which is the issue that we're dealing with today.

17 THE COURT: How does that rise to an intentional and
18 a knowing surrender of claim scope?

19 MS. BURSON: Our position, Your Honor, is that it
20 need not arise to a level of disclaimer for it to be important
21 in the claim construction process. The prosecution history
22 informs and is often decisive on the understanding of a claim
23 term because the public gets to see what the inventor, the
24 patentee, understands its invention is by statements in the
25 prosecution history. This is a statement in the prosecution

1 history indisputably that this scheme does not adjust, does
2 not teach the adjusting luminosity levels as taught in claim 1
3 at all.

4 THE COURT: Well, the prosecution history certainly
5 can be informative in this context, but being merely
6 informative is different than being an actual disclaimer. So
7 I'm trying to get you to tell me do you contend that this is
8 an actual disclaimer tantamount to an intentional surrender of
9 claim scope, or is it not a disclaimer but it's otherwise
10 informative as to what a correct construction should be?
11 There's a difference and I'm trying to get you to tell me
12 which of those two it is.

13 MS. BURSON: Your Honor, I think it's both, and
14 -- but I don't think you have to --

15 THE COURT: If it's not a disclaimer and you lose on
16 that one, it's still informative and should still lead me to
17 the construction you want.

18 MS. BURSON: Yes, Your Honor.

19 THE COURT: Okay.

20 MS. BURSON: And we have unrebutted expert testimony
21 on that as well.

22 So -- but we think that it's clear -- it's not just the
23 statement of merely pulsing on and off that we're focused on;
24 it's that whole context of that discussion in that prosecution
25 history, and the conclusion being that this scheme where there

1 is no actual change in luminosity does not meet the claim
2 limitation, and it's there in black and white.

3 So the next slide I wanted to point out --

4 THE COURT: No pun intended--black and white.

5 MS. BURSON: The next slide I wanted to point out
6 that -- you know, so our position is that what's on the left,
7 the Seo scheme is outside the claim scope, and what is is when
8 the actual luminosity level is changed and then you would see
9 that with a change in the pulse amplitude, as reflected by a
10 change or a difference in the current that's flowing through
11 to the backlight.

12 THE COURT: Let me ask you this, Ms. Burson.

13 I hear your argument and I understand what you're saying,
14 but why isn't that just a non-infringement argument? Why is
15 it necessary to be a part of the actual construction of the
16 language from the claim? I mean, I understand you can argue
17 the amplitude doesn't change, therefore, there's no adjusting
18 in the luminosity levels; and what's happening here doesn't
19 meet the claim language, therefore, we don't infringe. And
20 that may be a very good non-infringement argument, but why
21 does it inform the Court as to how it should construe the
22 language of the claims from a claim construction vantage
23 point?

24 MS. BURSON: I think it's what we've heard earlier
25 today--it provides clarity; it will provide clarity to a jury,

1 in evaluating the -- all the evidence they will be presented
2 with, and it also goes to the notice function of the patent
3 -- of the claims. And when you have a clear description that
4 talks about what the invention is, it talks about limitations
5 in the prior art, and then we have prosecution history that
6 refers to those limitations in the prior art as not being
7 within the claim scope, it falls squarely within -- this is
8 what the claim is defined -- has been defined to be by the
9 patentee and the -- when you look at the entire intrinsic
10 record. And this is the only meaning it could have to a
11 person of ordinary skill in the art.

12 THE COURT: What else do you have for me?

13 MS. BURSON: One last slide, Your Honor, and that
14 will be slide 11.

15 And here we just wanted to correct something that --
16 there was a statement made in the reply brief by Polaris and
17 then also here just a moment ago, there are three parts to
18 figure 6, so there is part one which is the one we've been
19 discussing previously, part two, and part three. Part three
20 is the subject of this Fourier series, not part one. So there
21 is some misunderstanding somewhere along the way. The focus
22 in the IPR was on part 1, not part 3.

23 And that's it, Your Honor, unless you have additional
24 questions.

25 THE COURT: No, I don't. Thank you.

1 Anything further from Plaintiff on this?

2 MR. MATTSON: Yes, Your Honor; briefly.

3 Partially to reiterate, Your Honor, but to make the
4 point, it is disputed that figure 6 of Seo is showing
5 pulse-widths. As I said, the Fourier series is a frequency
6 domain representation of a time signal. The word 'period'
7 right there demonstrates that. That is frequency, not time
8 along the X axis. So what it's showing is the -- for
9 different frequencies what the intensity of the light is.
10 That's different from pulse-width modulation where these times
11 that the light is on, that's in the time domain. That's PWM.

12 And Your Honor, just to briefly continue our tour through
13 column 1 of the patent, again, Your Honor, the invention is
14 portrayed as an improvement in the context of PWM. It's not
15 limited to PWM. But the same portion that Ms. Burson pointed
16 to in column 1 talks about using PWM to adjust the intensity
17 of the backlight. And the problem with the prior art
18 described in column 2 is that the intensity isn't adjusted
19 only once per frame, and the invention -- one aspect of the
20 invention, as highlighted here, is to adjust the intensity
21 multiple times per frame.

22 THE COURT: All right.

23 MR. MATTSON: Thank you, Your Honor.

24 THE COURT: Thank you.

25 Okay. Let's go next to 'plurality of strings of light

1 emitting diodes' from claims 1 and 13 of the '887.

2 Since you're there, Mr. Mattson, why don't you go ahead.

3 MR. MATTSON: It was her turn to go first.

4 THE COURT: I'm letting you go first if you want to.

5 MR. MATTSON: Makes no difference to me, Your Honor.

6 THE COURT: I try to switch it up. I don't want one
7 side to think they have the benefit of going first every time.
8 But if you're prepared, tell me why this is plain and ordinary
9 meaning, which you propose.

10 MR. MATTSON: Yes, Your Honor.

11 So this claim term, which is actually a -- the end of the
12 last claim term that we already looked at, the same term is
13 being divided into two for construction purposes, this is
14 plain and ordinary language. Everybody knows what a string of
15 LEDs is now. You have strings of LEDs on Christmas lights.
16 You have strings of LEDs maybe in your kitchen. I was at the
17 Hobby Lobby down the road last night buying post-it notes for
18 the hearing, and right there by the checkout aisle you can buy
19 strips of LEDs.

20 There's LEDs -- I looked at the package. You can snip
21 them to the length you want. The reason you can do that is
22 because they are wired in parallel, or at least a combination
23 of parallel and series.

24 THE COURT: So does 'strings' tell me whether it's
25 in parallel or in series, or does it not?

1 MR. MATTSON: No, Your Honor. It's non-limiting.
2 The claim doesn't require a specific way -- and just to be
3 clear, we're talking about electrical connections. That's
4 what Samsung means by 'series'. The claim doesn't say whether
5 the strings have to be wired in series, in parallel, or some
6 combination. They're completely reading in -- their proposed
7 construction reads in -- basically changes the word 'string'
8 to 'sets connected in series where each set can be selectively
9 turned on and off'. And here again, Samsung's trying to limit
10 the claim to just one way of connecting LEDs when the claim
11 doesn't say how.

12 THE COURT: Are you aware of any support for their
13 use of the word 'in series', or is that just --

14 MR. MATTSON: Yes, Your Honor.

15 THE COURT: -- adding limitation?

16 MR. MATTSON: There is one sentence in the -- I'm
17 going use their slides. There's one sentence in the
18 specification that they hang their hat on, and what their
19 brief does and what their slide does, and that changed, it's
20 the sentence they're relying on that begins with the word
21 'typically'. That word does not evidence a manifest exclusion
22 or manifest restrictive language in the specification. It
23 just means typically. So sometimes each string is coupled to
24 a power supply on one end and to the ground on the other end,
25 but 'typically' is not limiting the connection. Even in the

1 specification the claim doesn't say any -- doesn't have any of
2 this language. But 'typically' doesn't even limit the
3 specification to a series connection.

4 THE COURT: All right.

5 MR. MATTSON: The other thing that they look at in
6 -- is figure 2, and this is the figure that has the strings on
7 it. Well, the LEDs there are represented by dots. This is an
8 abstraction. There's no indication of how the terminals of
9 the LEDs are connected to the ground, to the power source, or
10 to each other. So there's no evidence in this -- or no
11 indication in figure 2 whether the dots are connected in
12 series or in parallel.

13 THE COURT: Do you have criticism of Defendants'
14 construction beyond the use of the 'in series' language?

15 MR. MATTSON: Yes, Your Honor. I have criticism of
16 the 'selectively turning on and off' language.

17 THE COURT: Tell me about that.

18 MR. MATTSON: So there we're in column 3. This is
19 where they get this from. This is a specific embodiment that
20 relates to the situation where we have different colors of
21 LEDs. And the example is red, blue, green. Some of the
22 claims are directed to that. Claim 17, for example, uses
23 different colors for the LEDs. But there again, there is a
24 equivocal language in the specification, and it says,
25 "Preferably, each light string includes either red, blue, or

1 green." So it doesn't have to; it's just a preferred
2 embodiment. And this isn't one of the claims -- when we're
3 talking about claims 1 and 13, those aren't claims that
4 require different color LEDs.

5 And the next sentence beginning on line 25 says, "The LED
6 strings can be selectively turned on or off for providing the
7 various desired colors." So that's the purpose of the
8 'selectively turned on and off' that relates to this unclaimed
9 embodiment, at least in the context of claims 1 and 13.

10 THE COURT: What else do you have for me?

11 MR. MATTSON: That's all, Your Honor.

12 THE COURT: All right. Let me hear from Samsung,
13 please.

14 MS. BURSON: Your Honor, Laura Burson again.

15 THE COURT: Go ahead, Ms. Burson.

16 MS. BURSON: Thank you.

17 The key here is that the claim limitation is 'plurality
18 of strings of LEDs', not 'plurality of LEDs'. And that's
19 essentially what Polaris is arguing; that it's just a
20 plurality of LEDs--no; that there is specific claim language
21 that says 'plurality of strings of LEDs'.

22 THE COURT: You're calling 'strings' 'sets' in your
23 construction. Are 'sets' and 'strings' the same thing?

24 MS. BURSON: Yes, Your Honor. That's as we
25 understand it.

1 If I could have slide 17, please.

2 THE COURT: Do you have some basis to understand it
3 that way, or is that just what it means in your mind?

4 MS. BURSON: Our basis is what is taught in the
5 patent, both in the description at column 3, line 21 and 24
6 that we see on slide 17, and also -- so the -- I'll refer to
7 that language first. It talks about the strings being
8 arranged in a display, and then the language that we saw a
9 minute ago, each string is coupled to a power supply on one
10 end and the ground on the other, and then it says the LED
11 strings can be selectively turned on and off, and that is the
12 understood scenario when you have LEDs connected in
13 series--one wire connecting the successive LEDs to one another
14 in a series, and we see this in figure 2 from the patent.

15 THE COURT: Just a minute. Let's go back to column
16 3, lines 23 through 26. I see 'strings' in here; I don't see
17 'sets' in here. Where am I taught that 'strings' and 'sets'
18 are the same thing?

19 MS. BURSON: I think, Your Honor, the answer to that
20 is we -- as we understood, Polaris is trying to make anything
21 and everything a string, and so we were trying to give some
22 meaning to the term 'string' that tied it directly to the
23 patent specification.

24 THE COURT: All right. What's -- while we're here,
25 what's your response to opposing counsel's argument that this

1 'string coupled to a power supply on one end and ground on the
2 other' is merely illustrative because of the language
3 'typically'? I mean, if it was going to be required every
4 time, it wouldn't sigh 'typically'. What's your counter here?

5 MS. BURSON: I agree that that is -- that can be how
6 you can interpret a description in a patent that uses -- that
7 starts with the word 'typically', but the only example here is
8 an example that talks about each string--so clearly you can
9 have one string by itself--and it's saying each string is
10 coupled on one end to ground and on the other end to the power
11 supply.

12 And we see in the figure there is a PS, power supply, in
13 here. We see 208 is one string--and this is what the patent
14 teaches--206 is another string, 204 is another string, and in
15 each of these strings, the strings themselves are parallel to
16 each other, but the LEDs in each of these strings 208, 206,
17 204, they're connected to one another by one wire. That means
18 connected in series. And so this is --

19 THE COURT: Where do we get this 'one wire in
20 series'?

21 MS. BURSON: We get the -- from the illustration
22 here of 208 and the description in the patent when it talks
23 about figure 2, it talks about the LED strings 202, et cetera,
24 et cetera. This is column 3, lines 40 through 42. And we
25 have each string. The claim requires a plurality of each of

1 these strings.

2 THE COURT: But the word 'strings' doesn't
3 necessarily mean series versus parallel, does it? Can't a
4 string be in parallel as opposed to in series?

5 MS. BURSON: We have -- in figure 2 we have strings
6 in parallel to one another. What we're saying is the LEDs
7 have to be in series because they are in a string.

8 THE COURT: And I'm not talking about the
9 relationship between two different strings of LEDs; I'm
10 talking about the LEDs within a single string, or you might
11 call it a set of LEDs, and whether they're electrically wired
12 in series or in parallel. Does this language from column 3
13 teach that they have to be wired in series as opposed to
14 parallel? And if so, show me how.

15 MS. BURSON: The expert in this case, unrebutted
16 expert testimony, opined that a person of skill in the art
17 seeing that there is a single string connected to a power
18 supply at one end and ground on the other and that it can be
19 selectively turned on and off would imply to a person of skill
20 in the art that we're talking about series connection.

21 THE COURT: And I'm not doubting that that's what
22 your expert says, but my question was where does this portion
23 of the specification teach that; not what has your expert
24 opined in his declaration.

25 MS. BURSON: It teaches that there's ground

1 connection for this string on one end and a power supply
2 connection on the other.

3 THE COURT: And I see that. How is that -- how does
4 that tell me there must be wired in series as opposed to wired
5 in parallel?

6 MS. BURSON: Because the following sentence where it
7 says that the LED strings can be selectively turned on and
8 off, then they are -- that's what you have when you have
9 separate strings; the LEDs within a string are going to all go
10 on and off selectively from the next set of strings on and
11 off.

12 And when the LED's in a string, again, our point is that
13 'string' should have some meaning here because they use the
14 word in the claims is a -- the plain understanding of what a
15 string would be would be a wire connecting one LED to another
16 LED.

17 THE COURT: Well, 'strings' apparently, in your
18 view, mean 'sets' because you're proposing I adopt 'sets' in
19 lieu of the claim language strings. But I still don't see how
20 that informs either the Court or a POSITA that the wiring
21 within that string or set of LEDs is either -- physically
22 coupled either in series or in parallel. That's what I'm
23 struggling with.

24 MS. BURSON: And I think if we go to the next slide,
25 slide 18, there is also statements by the patentee during the

1 IPR where they distinguished a prior art reference that
2 apparently had LEDs connected in parallel, and they said that
3 that was a difference between the reference and the claimed
4 invention, so not in series.

5 So here in this claim construction proceeding, Polaris
6 wants to say 'strings' can mean anything and everything, but
7 in the prosecution history they said that there is a
8 difference between 'parallel' and 'series', and that
9 difference, as I had submitted to you earlier, Your Honor, is
10 the discussion in the patent itself. And while it doesn't use
11 the word 'series', I acknowledge, a person of skill in the art
12 would understand when you refer to a string and you say that
13 they're connected on one end to power and ground on the other
14 and that individually they can be turned on and off would
15 imply the understanding that they are, in fact, connected in
16 series, and this would comport with what the patentee has also
17 told the Patent Office.

18 THE COURT: All right. What else?

19 MS. BURSON: Thank you, Your Honor. That's it.

20 THE COURT: Anything further from Plaintiff?

21 MR. MATTSON: Yes, Your Honor.

22 Just to quickly address the IPR point that Ms. Burson
23 just made.

24 THE COURT: If you-all hadn't been to the PTAB, we
25 wouldn't have much to talk about.

1 MR. MATTSON: They keep a lot of people employed,
2 Your Honor.

3 So I just wanted to highlight here the portion of the
4 quote that you were just shown that was cut off.

5 Polaris didn't have to argue that the claims don't cover
6 parallel because that was never an issue in the IPR. The
7 issue in the IPR raised by Samsung was that they were saying
8 that the Seo reference teaches a series connection, and it was
9 based on a misreading of the reference. There was a technical
10 error. And there was no reason for either Polaris or its
11 expert to limit the claim. The point was is that Seo doesn't
12 teach series, it might teach parallel, but again, since Seo
13 doesn't depict the ground connections, there's no way of
14 telling. And Seo -- I don't think the Seo reference, or much
15 of it, is in the briefing, but in the drawing figure it's very
16 unclear how the connections are made.

17 And the conclusion -- just because Seo doesn't depict
18 ground connections, it is impossible to come to one conclusion
19 or another. And the argument, the conclusion at the end of
20 this page was that -- and this is page 12 from the patent
21 owner preliminary response, Exhibit J in Samsung's brief. The
22 conclusion that Polaris came to is that Samsung's arguments
23 fail because they are conclusory and do not identify with
24 particularity Samsung's position in and they're technically
25 incorrect. It had nothing to do with claim construction,

1 disclaimer, or PWM for that matter, or strings or series or
2 parallel.

3 THE COURT: All right. Thank you.

4 MR. MATTSON: Thank you.

5 THE COURT: All right. Let's go next to the '456
6 Patent, and we'll take up the word 'connection' from claims 1
7 and 9.

8 Let me hear from Samsung first, please.

9 MR. YAGURA: Good morning, Your Honor. Ryan Yagura
10 for the terms for the '456 Patent.

11 THE COURT: Good morning. Please proceed.

12 MR. YAGURA: Thank you, Your Honor.

13 Can I have slide 5? Slide 4, actually. I'm sorry.

14 So Your Honor, the dispute here on the word 'connection'
15 is whether it should be construed as 'physical medium', as the
16 Samsung Defendants propose, or whether it has its plain and
17 ordinary meaning. And the dispute is really whether the term
18 'connection' covers charging over a cable or a wire, as the
19 patent describes, or whether it also covers inductive
20 charging, which is described nowhere in the patent. So that's
21 the nature of the dispute and why we're for a construction of
22 this term.

23 Go to slide 5.

24 If you just take a look at the claims, 'connection'
25 appears in both independent claims, claims 1 and claim 9. And

1 you see just from the structure of the claims itself,
2 'connection' has to have some physical structure. So, for
3 example, you have a first device that has a first port in
4 claim 1, and the first port is configured to receive a
5 connection. Then you have a second device that has a second
6 port and the second port is also configured to receive the
7 other part of that connection. So you have a port on each end
8 of this connection.

9 And a port is described in the patent -- I think the
10 examples are -- it says a jack or a female connector, but
11 essentially it's the cavity like on the bottom of your phone
12 that receives a connector, that's the port. And the purpose
13 of these two devices being connected together is one supplies
14 current across the connection to the other to charge it. So
15 that's claim 1.

16 Claim 2--sorry--claim 9 has the same structure but it
17 adds on top of the first port a first connector of the
18 connection. So now you have a first port, which is the
19 cavity; it is configured to receive a first connector of the
20 connection--the first connector is a physical structure that
21 connects components together; then you have a second device
22 that has a second port, and the second port has a second
23 connector--again, a physical structure; the second connector
24 goes into the second port. And that's how the connection
25 connects.

1 THE COURT: And you understand we're not -- at least
2 ostensibly we're not construing 'port' or 'connector'; we're
3 construing 'connection'.

4 MR. YAGURA: That's right, Your Honor. So this is
5 a long wind-up. But the point I'm trying to make is for the
6 port -- because the port and the connector have physical
7 structure, the connection itself must also have physical
8 structure. So the second connector -- it's the second
9 connector of the connection, meaning if the connector is a
10 physical structure, the connection itself must be a physical
11 structure. If the connector -- if the connection were just
12 air, you wouldn't need an actual connector, first or second
13 connector on either end of it.

14 Let me show you another part of claim 1.

15 If we can go to slide 6.

16 So my monitor went out, but if your monitors are working
17 I can proceed, Your Honor.

18 THE COURT: Mine's working.

19 MR. YAGURA: Okay. Let's just -- I have notes.

20 If we take a look at claim 9 on slide 6, there's further
21 limitation here in claim 9. It also says that's that there's
22 a first logic that's configured to determine the temperature
23 of the connection at the first connector and a third logic
24 that's configured to determine the temperature of the
25 connection at the second connector. So again, one OF THE

1 purposes --

2 THE COURT: Let me stop you, counsel.

3 MR. YAGURA: Yes, sir.

4 THE COURT: There is a button that turns off the
5 monitor at the podium. Somebody may have bumped it
6 accidentally. That may be why the monitor at the podium is
7 off. That may not be why.

8 They're off on your table, too?

9 MR. YAGURA: Thank you, Your Honor.

10 THE COURT: Sorry for the interruption. I'll let
11 you continue.

12 MR. YAGURA: Thanks, Your Honor. I appreciate that.

13 So these two further limitations in claim 9 also tell you
14 that the purpose of these limitations is you want to measure
15 the temperature at the connection on both sides, and if you
16 are supplying too much current, the connector starts to get
17 hot or the connection starts to get too hot and it might fail.
18 So the purpose of measuring these -- the temperature at the
19 connection and at -- specifically at the first and second
20 connector is to make sure that we are not getting to the point
21 where we're in an overheat connection that connection can
22 fail. Again --

23 THE COURT: It's a wireless connection; you don't
24 overheat. I understand.

25 MR. YAGURA: You don't overheat. That's right. And

1 you can't measure the temperature of air nor the temperature
2 of a connector connected to air. It doesn't help you.

3 THE COURT: Slow down a little bit, if you will,
4 please.

5 MR. YAGURA: Yes. Sorry, Your Honor.

6 If we can go to slide 7.

7 So the whole purpose of the invention, Your Honor, is to,
8 of course, measure the temperature of the connection to
9 prevent what they call a catastrophic failure. That's column
10 1, slide [sic] 17 to 30.

11 So just quickly, Your Honor, the whole purpose of the
12 invention is to monitor the temperature of this connection,
13 and if the connection where air, of course this -- you know,
14 we can satisfy the whole purpose of the invention.

15 If you go to slide 8.

16 These are citations from the specification. And I don't
17 think it's worth going through all of them; I just tried to
18 collect them all together. But I think it's worth talking
19 about the first one, column 3, lines 53 to 61.

20 Here it says, "In various embodiments, the first device
21 may be connected to the second device or the hub via a
22 connection 200." Then it says -- in parentheses when
23 describing the connection, it says, "which is generally
24 referred to as a cable or a wire."

25 And it goes on to say, "Similarly, the hub may be coupled

1 to the second device via a connection." And then it goes on
2 to say, "The connection includes a physical medium for
3 conveying signals, one or more wires or fiberoptics and/or
4 power between the devices."

5 That's why, Your Honor, throughout the specification,
6 because of not only the limitations in the claim, also the
7 purpose of the invention, the specification refers to the
8 connection throughout as a physical medium and uses specific
9 examples as cable, wire, or fiberoptics.

10 If you turn to slide 9.

11 Polaris has pointed to two citations in the specification
12 which describe wireless connections, but Your Honor, if you
13 take a look at these two--this is column 5, line 7 to 12 and
14 column 9, lines 31 to 39--you can see, at least in the first
15 citation, the examples are wireless USB, Bluetooth, and WLAN.
16 And those are communication protocols. Those are protocols
17 for transferring data between two devices. There is no way to
18 actually transfer power using those two protocols from one
19 device to another to charge it.

20 And then in the second example, column 9:31 to 39, it
21 actually says when these two devices communicate to each other
22 about how you might decide how to supply power, they would use
23 a data transfer mechanism, either wireless or wired.

24 So although the patent does describe wireless
25 communications, it never -- nowhere in there does it describe

1 wireless power or inductive charging, which is the standard
2 that we're talking about here today. And Polaris acknowledges
3 that in their brief at page 21. Where they talk about these
4 two citations and the three different wireless standards, they
5 acknowledge that these are just for data transfer and they're
6 not used for power transfer.

7 THE COURT: Well, let me ask you this. If you look
8 at the column 5 reference, 7 through 12, it says, "Note that
9 the above descriptions of the first device and the second
10 device and the hub are exemplary only, and other components
11 and systems are envisioned. For example, while the various
12 devices are shown as coupling via wires, the devices may be
13 coupled wirelessly," and then it gives examples.

14 So are we not talking about the actual devices themselves
15 being coupled or connected, and is this not telling the public
16 that those connections can be wireless as opposed to being
17 wired?

18 MR. YAGURA: So the answer is yes, this is informing
19 the public that the connections for data transfer between
20 these devices could be wireless. So, in other words, your
21 phone could communicate with your computer and give it
22 information.

23 THE COURT: I understand. Where does it limit it to
24 data transfer? I understand the examples would relate to data
25 transfer, but they are examples. Where is the actual language

1 regarding the connection between the devices limited to data
2 transfer connections?

3 MR. YAGURA: To me that's found specifically in the
4 text of the claims itself. It has structure, so the claims
5 themselves say that there has to be a physical connection
6 between the two for power transfer for supplying current. The
7 second is here in these specifications -- you're right; these
8 are just examples. It's just noteworthy, Your Honor, that all
9 of the examples are data transfer examples; there is no
10 example here of inductive charging and there's no discussion
11 whatsoever of inductive charging, which is a very different
12 technology than communicating versus wireless means. I
13 think --

14 THE COURT: Was inductive charging known at the time
15 the patent issued?

16 MR. YAGURA: I believe that the WPC standard, the Qi
17 standard for inductive charging, which is the standard today,
18 had already been developed, but it's not cited anywhere in
19 this patent specification nor do they describe it in any way,
20 shape, or form. And, in fact, even that standard doesn't
21 provide for supplying current over an air -- over the air. In
22 other words, no one's really figured out a way to supply
23 current over the air. That standard uses, I believe, a
24 magnetic field, and you put two coils next to each other and
25 those two coils -- when you power up one coil it induces power

1 in another coil.

2 But the patent itself talks about supplying current or
3 reducing current over the connection. Certainly that's not
4 what happens in that Qi standard, which again, is nowhere
5 mentioned anywhere in the specification, though it did exist
6 at the time.

7 THE COURT: Well, and as you understand, the Court's
8 regularly confronted with arguments between what is discussed
9 explicitly in the specification and in the claim language and
10 whether it's a requirement or an example, and then the Court's
11 confronted with the argument that construction is not intended
12 to limit the application of the claims to only what's
13 described in the specification and that there are infringing
14 functionalities that are covered by the claims that are
15 nowhere discussed in the specification because a fair
16 construction of the record would still allow for that.

17 And I get this tension all the time. And certainly an
18 example and what's informative in the specification is
19 something to look at; but how binding that is, how limiting
20 that is, and whether it's limiting or not in the application
21 that's going to be at issue is where the rubber meets the
22 road. And often I don't get a lot of help between those two
23 extremes of, It talks about this, so, therefore, that's what
24 it's got to be and it can't be anything else, versus it
25 doesn't say it can't be this, and then I've got all these

1 other arguments on the other side.

2 To the extent you can help me navigate that chasm, I'd
3 appreciate it, but that's really what I'm struggling with.

4 MR. YAGURA: Sure, Your Honor.

5 Let me make -- just make one point on that, and that is
6 the purpose of the patent--and you can tell this from looking
7 at claims 1 and claim 9--is to measure the temperature across
8 the connection, and that is how you determine whether or not
9 it's getting too hot and it's in danger of failure. And the
10 solution to that is you reduce the current that you provide
11 across the connection.

12 Now, if the connection were just air and you were
13 charging through air, there would be no way to take a
14 measurement of the connection. In other words, magnetic field
15 doesn't have any sort of sense of temperature, so there will
16 be no way to tell whether or not the system were going to fail
17 by a measurement based on the connection or a connector to the
18 connection through this patent.

19 So the whole purpose of the patent and the claim
20 structure -- if you look -- we talked about claims 1 and 9
21 having the port and the connector. That was a long build-up
22 to say that the way you take those measurements is you take
23 them either at the port or the connector or across the
24 connection itself, but in any case, they all have to be
25 physically connected to each other to have the same

1 temperature. If there were just air between them, the air
2 would always be at, you know, we'll call it ambient
3 temperature or room temperature. You would never have a
4 different temperature no matter how much -- how big the
5 magnetic field was that you supplied between the two coils.

6 THE COURT: And so tell me this. If at somewhere
7 down the road after the patent's issued but during its
8 effective life functionality evolves such that charging can
9 be done through the air and now there's no longer a need to
10 measure the temperature, does that preclude that new
11 functionality from being covered by the claims of the patent
12 when, in effect, something the patent was worried about when
13 it was issued has been obviated by a progression or an advance
14 in the functionality when other than that thing they were
15 worried about, overheating, no longer is a problem, otherwise
16 this new functionality that's evolved does practice and read
17 on the actual what the patent does? I mean, if the problem
18 goes away, does that mean that something that doesn't have
19 that problem can never practice the patent?

20 MR. YAGURA: I think two answers to that, Your
21 Honor. One is I agree that if you -- the technology evolves
22 such that you no longer have failure due to overheating in the
23 connection, that sounds like a really good non-infringement
24 argument and it's one we'd really tend to bring.

25 But the second part of it is the patent is real targeted

1 to a very specific type of technology, and that's measuring
2 the temperature of a physical connection to make sure it
3 doesn't fail. If you take away that physical connection, if
4 technology evolves such that you no longer need a connection,
5 it's not that the patent becomes broader to cover it; it's
6 just that the patent is inapplicable.

7 And that's what we're trying to show here is that the
8 patent is directed to a very narrow invention, and it's in a
9 very generic field so -- and it's got a late date of May of
10 2011, so it is a narrow invention, in our view. But the
11 patent is directed to an invention of measuring the
12 temperature across a wired connection or a physical connection
13 so that if it gets too hot that physical connection could melt
14 or burn out.

15 In the world in which -- in a world in which you don't
16 have physical connections, I don't see how this patent would
17 be applicable. And trying to broaden it -- trying to broaden
18 language like 'port' and 'connector' to be some form of
19 transmitter or antenna, you know, those words aren't used
20 anywhere in -- are taught anywhere in here. And I just think
21 that at this point they've gotten -- the technologies have
22 changed so much the patent is just no longer applicable to
23 this new technology.

24 THE COURT: All right. I don't want to get too
25 philosophical with you.

1 MR. YAGURA: Thank you, Your Honor. That's all I
2 have for now.

3 THE COURT: Thank you.

4 MR. YAGURA: Thank you.

5 THE COURT: Let me hear from the Plaintiff.

6 MR. ALBERTI: Your Honor, David Alberti on behalf of
7 Polaris.

8 THE COURT: Good morning.

9 Please proceed.

10 MR. ALBERTI: Okay. Before I get into my slide
11 presentation, I'd just like to address a couple of points
12 counsel made.

13 THE COURT: That's fine.

14 MR. ALBERTI: The first point is this idea that in a
15 wireless connection that you wouldn't be able to measure
16 temperature. That -- I mean, that's just completely incorrect
17 because wireless connections -- this is -- I brought a little
18 show and tell. This is a wireless charging pad that I use,
19 and also I have a phone. And the way a wireless charger works
20 is you just place the phone on top of this. Now, this has
21 within it a connector that allows the current that's generated
22 by the magnetic field to transfer from this device into this
23 device. And there are temperature sensors within the
24 connector on the other end, which includes this magnetic coil,
25 that monitor the temperature. And that's exactly what we've

1 been talking about in Samsung's phones.

2 THE COURT: Interestingly, counsel, I have the same
3 thing in my office, so I know what you're talking about.

4 MR. ALBERTI: Okay. Okay. So there are physical
5 components to a wireless connection. And what Defendants are
6 trying to do is to say, Well, you can't -- the connection
7 itself has to be completely physical, where in the patent it
8 talks about measuring the temperature of the connection at a
9 connector. It doesn't have to be measuring it along the air
10 or anything like that.

11 And these devices, they constantly measure the
12 temperature of a physical device, which is the coil,
13 inside the phone and inside here, to make sure there's
14 not overheating.

15 So this notion that you can't measure temperature and
16 there aren't physical components that form that connection,
17 that wireless connection, is just -- it's incorrect, and I
18 wanted to correct that.

19 So going back to the issue at hand, essentially Samsung's
20 construction is trying to limit the term 'connection', which
21 is broad, to a physical connection, yet I've seen no
22 lexicography, no clear disavowal of claim scope that the
23 patent specification actually talks about using wireless
24 connections. And so all the evidence -- there's no -- again,
25 there's nothing that would justify importing embodiments --

1 limitations from certain embodiments into this claim language.

2 And so let's start with the claim language. The claim
3 language recites 'receiving a connection between a first
4 device and a second device'. It doesn't say 'physical
5 connection', doesn't say 'wire', doesn't say 'cable'; it just
6 uses the word 'connection'.

7 And in the patent specification it's very clear--and I'm
8 looking now at our slide 56--column 5, lines 7 through 12,
9 this isn't talking about limiting it to data transfer; this
10 just says the devices themselves, the first device and the
11 second device, which in the patent claim are the two devices
12 that are trading, you know, power, they can be connected
13 together by wires or wirelessly, e.g., via wireless USB,
14 Bluetooth, WLAN, et cetera.

15 And while some of these are examples of technologies that
16 can transfer data, they can also transfer power as well. I
17 mean, wireless -- a power over WiFi is a thing. Also you have
18 the thing 'et cetera' in here, which means there's other ways
19 of wireless connecting these. And so that's what's discussed
20 at column 5, lines 7 through 12.

21 And then it goes on later at column 9, lines 34 through
22 29 [sic], that says, Well, when you're doing a power -- a
23 charge, you want be able to -- the devices also need to
24 communicate with each other. And, there again, it says that
25 they could communicate either wired or wirelessly, suggesting

1 that you could do this again in a wireless manner.

2 Looking now at the very beginning of the patent--and this
3 is on slide 58--column 1, lines 10 through 16, it talks about
4 when you're trading power between host devices and portable
5 devices, it says, "Typically, the portable device and the host
6 device are connected via a physical connection (e.g., a wire
7 or cable)."

8 So, first thing to note, it says 'typically', which would
9 tell a person of ordinary skill in the art, you know, you
10 could also do it in another way.

11 Second thing I'd like to note about this is it says
12 'physical connection, for example, a wire or cable', and the
13 claims do not say 'physical connection'; the claims only say
14 'connection', suggesting, again, that the patentees meant
15 something different here when they were more broadly claiming
16 the term 'connection' in the claims. So you look at the plain
17 language of the claims supports a broad construction. You see
18 the specification? Supports a broad construction.

19 On claim 59 we have some extrinsic evidence that's cited
20 by our expert Doctor Ricketts in his declaration. I'll just
21 note for the record, despite submitting an expert declaration
22 from Samsung's expert, he didn't even touch this term,
23 although apparently he construed almost every other term, but
24 did not give an opinion that the connection here in this
25 patent was limited to physical. The Court can make of that

1 what it wants to, but we found it interesting, to say the
2 least.

3 And in Doctor Ricketts' declaration he explains that
4 'connection' could be a link wire radio or other medium
5 between two communication devices--standard interpretation of
6 connection. He also notes that the Qi wireless charging
7 standard was available one year before the patent was filed,
8 so certainly a person of ordinary skill in the art would have
9 understood that the Qi standard would be a way of wirelessly
10 connecting and charging devices.

11 THE COURT: Let me interrupt, counsel. And I guess
12 you might call this throwing you a curve ball, but let me ask
13 you this.

14 Let's say for purposes of discussion that you persuade me
15 that connection doesn't have to be physical. How beyond that
16 do I get past language like 'port' and 'connector' being
17 physical? I don't know how you turn a port into a antenna. I
18 don't know how you turn a cavity that receives a plug into a
19 projector of a wireless signal.

20 So even if 'connection' isn't required to be physical,
21 aren't you still caught in the same bind with the rest of the
22 language in the claim such as 'port' and 'connector'?

23 MR. ALBERTI: No, Your Honor, because --

24 THE COURT: It seems to me the arguments that those
25 are not physical is a harder argument to make than the one

1 you're making now, but that's why I'm throwing this at you to
2 get your response.

3 MR. ALBERTI: And we're not arguing that those are
4 not physical. We -- our position is that they are physical
5 and that in wireless charging devices you do have both ports
6 and connectors. And let me -- I'll skip --

7 THE COURT: So, in other words, it doesn't bother
8 you whether those words are -- connote physicality or not.

9 MR. ALBERTI: That doesn't bother us at all. Our
10 position is the connection in its entirety doesn't have to be
11 physical. You could have a connection, you can have a port,
12 you can have connector, and you can have -- like I said, if
13 you see here, even on this wireless charger you see there's a
14 port and you know there's a connector.

15 THE COURT: It has to get power somewhere.

16 MR. ALBERTI: Yeah. Yeah. It's got to have some
17 physicality to it. The entire thing doesn't have to be
18 physical and that's our only point.

19 And again, on that point I'll refer to our slide 61,
20 which is, again, Professor Ricketts' declaration at paragraph
21 31 is, "a connector, as understood by a person of skill in the
22 art, would be the connection point that allowed the provided
23 current to flow. Whether a connection is wired or wireless,
24 a POSITA would understand that a connection in the context of
25 the '456 Patent would include some form of connector." So

1 there has to be a point -- physical point where you're going
2 to get current flow.

3 So we don't have a problem with a port being physical,
4 with the connector being physical; our only point is that the
5 patent clearly contemplates connections that are not in their
6 entirety physical.

7 THE COURT: Well, my question was not to tell you
8 that there's a decision that's been made; it was to tell you,
9 or was to ask you, rather, hypothetically if 'connection' were
10 not required to be physical, are you still in a bind on these
11 other terms. But you've answered that for me.

12 What else do you have for me?

13 MR. ALBERTI: I think that's it, Your Honor.

14 THE COURT: All right. Anything by way of rebuttal,
15 Mr. Yagura?

16 MR. YAGURA: Just one more thing, Your Honor, if I
17 may.

18 THE COURT: Please.

19 MR. YAGURA: May I have slide 5, please?

20 So, Your Honor, if I could just -- if we could just take
21 a look at the language of claim 9. And we didn't need an
22 expert opinion here because we really thought that the
23 language of the claims itself as well as the specification
24 laid out that the connection has to be physical.

25 And let me just give you what I think is the most

1 interesting example of that, and that is you have the -- let's
2 just take the third logic, and the third logic is configured
3 to determine a temperature of the connection at the second
4 connector. That's the sixth limitation down, Your Honor, on
5 the right-hand side.

6 THE COURT: I see it.

7 MR. YAGURA: So the third logic is configured to
8 determine a temperature of the connection.

9 Now, counsel just showed you two devices that touch each
10 other--the pad and the phone. Now, of course, that's just
11 because of gravity. They don't actually have to touch each
12 other. The Qi standards says that as long as the coils are
13 some distance apart, one coil will impart a magnetic field
14 that will induce a current in the other coil.

15 If -- so, for example, if you just have these two
16 side-by-side and one is charging the other, you have air in
17 between, and I don't see how you can have a third logic that's
18 configured to determine the temperature of that air at the
19 second connector if the connector, for example, is a coil, if
20 that's even possible as counsel suggests. But you can't
21 measure the temperature of the connection at that coil
22 because, again, the temperature of air will be the room
23 temperature by definition.

24 So this claim doesn't make any sense unless 'connection'
25 has some physical structure where you can actually measure the

1 temperature add it via the second connector. And because --
2 once you construe 'connection' in a way that's consistent for
3 all the claims, you know, the construction for claim 9 is the
4 same as a construction for claim 1, but claim 9 tells us the
5 connection itself has to be physical because this whole thing
6 is impossible if there is an air gap between the coils and
7 you're trying to measure the temperature of that air gap
8 through what counsel calls a coil.

9 That's it, Your Honor.

10 THE COURT: All right. Thank you.

11 MR. YAGURA: Thank you.

12 THE COURT: Counsel, I have just a minute or two
13 before noon according to my clock, and I'm aware that these
14 last two terms are basically disputed on the basis of
15 indefiniteness only; there's really not an alternative
16 construction proposed by Defendant.

17 Unless there is a strong objection, my inclination is
18 to take these last two terms up on the papers and bring this
19 hearing to a close now that we're at the noon hour. If
20 somebody wants to challenge that, tell me now, but that seems
21 to be the right way to go forward, in my view.

22 MR. ALBERTI: No objection, Your Honor.

23 MR. YAGURA: No objection, Your Honor.

24 THE COURT: Okay. With that, these argued terms,
25 as well as the two I'm taking up on the papers, are under

1 submission. I appreciate your arguments. I will endeavor to
2 get you written guidance by way of a claim construction
3 opinion and order as soon as practical. I can't tell you
4 exactly when that's going to be, but I will give it my best
5 efforts and get something to you sooner rather than later.

6 That completes the claim construction process today with
7 regard to these matters. As I say, they are under submission.
8 You are excused counsel.

9 And the Court stands in recess.

10 (End of hearing.)
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1 I HEREBY CERTIFY THAT THE FOREGOING IS A
2 CORRECT TRANSCRIPT FROM THE RECORD OF
3 PROCEEDINGS IN THE ABOVE-ENTITLED MATTER.
4 I FURTHER CERTIFY THAT THE TRANSCRIPT FEES
5 FORMAT COMPLY WITH THOSE PRESCRIBED BY THE
6 COURT AND THE JUDICIAL CONFERENCE OF THE
7 UNITED STATES.

8
9 S/Shawn McRoberts

04/13/2024

10 _____ DATE _____
11 SHAWN McROBERTS, RMR, CRR
12 FEDERAL OFFICIAL COURT REPORTER
13
14
15
16
17
18
19
20
21
22
23
24
25

Shawn M. McRoberts, RMR, CRR
Federal Official Court Reporter

Concordance

< Dates >

04/13/2024 111:9.
APRIL 11, 2024 1:14.
"one 29:25.
'456 89:5, 89:10, 106:25.
'521 3:24, 7:17, 7:24, 8:13,
 10:22, 15:19, 16:9, 23:8,
 26:19, 26:20, 29:4, 32:17,
 33:1, 34:1, 34:2, 34:6, 34:21,
 37:24, 38:2, 43:10, 53:20,
 59:8, 66:3.
'887 66:3, 73:24, 79:1.
'one 84:19.
 .
 .
< 1 > .
10 7:20, 48:5, 48:22, 51:5, 51:6,
 51:7, 51:8, 51:9, 73:7, 104:3.
10-minute 43:1.
100 1:46, 2:47.
10112 2:29.
102 2:41, 11:22, 24:13.
102--and 27:13.
11 7:23, 38:14, 77:14.
12 8:9, 16:8, 26:13, 88:20, 94:13,
 95:8, 103:8, 103:20.
12--that 24:9.
124 11:21.
13 18:19, 74:16, 79:1, 82:3,
 82:9.
14 11:4.
15 17:7.
16 104:3.
1625 2:35.
17 74:15, 81:22, 83:1, 83:6,
 93:10.
18 86:25.
 .
 .
< 2 > .
2 1:5, 3:4, 7:13, 8:4, 11:19, 23:8,
 24:13, 28:25, 34:3, 43:9,
 44:19, 45:9, 45:11, 46:4,
 55:12, 56:2, 56:5, 57:8, 58:14,
 78:18, 81:6, 81:11, 83:14,
 84:23, 85:5.
2--sorry--claim 90:16.
20 67:6, 67:17, 72:1.
200 93:22.
20006 2:36.

2011 100:10.
202 2:37, 24:13, 60:25, 84:23.
204 84:14, 84:17.
206 62:10, 84:16.
208 84:13, 84:16, 84:22.
21 29:12, 83:5, 95:3.
212 2:30.
213 2:22.
22 67:6, 67:17.
22-CV-469 3:4.
22-CV-469-JRG 1:5.
222 62:8.
23 29:23, 38:15, 83:16.
24 83:5.
25 82:5.
250 2:5.
26 31:1, 37:18, 38:16, 83:16.
27 70:3.
29 69:16, 103:22.
 .
 .
< 3 > .
3 7:13, 23:8, 24:13, 25:17, 28:3,
 45:1, 45:7, 47:10, 48:1, 56:1,
 61:4, 61:7, 62:1, 62:12, 77:22,
 81:18, 83:5, 83:16, 84:24,
 85:12, 93:19.
30 2:27, 93:10.
302 24:13.
31 72:1, 94:14, 106:21.
323 2:14.
34 103:21.
36 38:16.
38 18:22.
383-5300 2:37.
39 94:20.
39--you 94:14.
 .
 .
< 4 > .
4 7:13, 24:14, 27:10, 27:17, 48:1,
 71:11, 89:13.
4,000 17:7.
40 18:23, 73:22, 84:24.
400 2:20.
408-2548 2:30.
42 84:24.
43 45:2.
430 2:14.
430-6334 2:22.

44TH 2:28.
47 48:18, 53:10.
 .
 .
< 5 > .
5 11:8, 23:8, 38:14, 42:7, 42:8,
 48:1, 59:8, 60:3, 62:3, 67:6,
 67:16, 72:1, 89:13, 89:23,
 94:13, 95:8, 103:8, 103:20,
 107:19.
53 93:19.
56 60:25.
56--column 103:8.
577 2:5.
58 38:18.
58--column 104:3.
59 104:19.
 .
 .
< 6 > .
6 38:16, 42:7, 61:6, 62:2, 64:8,
 65:12, 69:10, 69:12, 69:13,
 69:14, 69:16, 69:18, 71:24,
 74:2, 74:3, 74:4, 77:18, 78:4,
 91:15, 91:20.
60 38:18.
61 93:19, 106:19.
64 60:10, 60:11.
65 62:4.
650 2:7.
66 39:5.
 .
 .
< 7 > .
7 4:6, 10:20, 23:8, 28:3, 45:7,
 47:10, 56:1, 72:9, 93:6, 94:13,
 95:8, 103:8, 103:20.
705-1117 2:16.
75670 1:47, 2:48.
75701 2:15.
75702 2:42.
 .
 .
< 8 > .
8 9:17, 12:5, 13:23, 72:25,
 93:15.
80 73:22.
800 2:41.
82 46:19.
821 2:14.

Concordance

825-4300 2:7 .
89--seo 74:13 .
 .
 .
< 9 > .
9 7:13, 89:7, 89:25, 90:16, 91:20,
 91:21, 92:13, 94:10, 94:14,
 98:20, 103:21, 107:21, 109:3,
 109:4 .
9--is 98:7 .
90071 2:21 .
903 1:48, 2:16, 2:43, 2:49 .
923-8546 1:48, 2:49 .
934-8450 2:43 .
94105 2:6 .
9:00 1:15 .
9:31 94:20 .
[sic] 93:10, 103:22 .

DATE _____ 111:10 .
 .
 .
< A > .
A.M. 1:15 .
abandoning 39:19 .
able 69:7, 101:15, 103:23 .
about--the 32:24 .
above 95:9 .
above-described 7:21 .
ABOVE-ENTITLED 111:3 .
absent 7:9 .
absolute 58:9, 58:11 .
Absolutely 68:5 .
abstract 23:21, 70:23, 70:25 .
abstraction 81:8 .
AC 47:3 .
accidentally 92:6 .
According 11:16, 34:17, 69:19,
 109:13 .
accused 53:2 .
acknowledge 87:11, 95:5 .
acknowledges 51:24, 95:2 .
across 22:20, 29:3, 36:10, 90:14,
 98:7, 98:11, 98:23, 100:12 .
Active 18:25, 19:12, 21:9, 21:12,
 22:25, 32:25, 33:15, 33:18,
 33:19 .
actual 5:6, 5:9, 12:14, 16:23,
 57:3, 57:4, 57:25, 58:14,
 71:16, 71:19, 71:21, 72:13,

73:17, 73:18, 75:6, 75:8, 76:1,
 76:8, 76:15, 91:12, 95:14,
 95:25, 99:17 .
Actually 12:23, 22:18, 25:23,
 25:24, 34:19, 36:2, 42:15,
 45:23, 47:8, 64:21, 68:16,
 68:20, 71:23, 72:18, 74:2,
 79:11, 89:13, 94:18, 94:21,
 102:23, 108:11, 108:25 .
add 7:6, 18:14, 19:3, 46:14,
 46:22, 47:16, 47:21, 48:1,
 48:3, 48:6, 48:15, 49:7, 50:1,
 50:24, 51:1, 51:9, 51:12,
 52:10, 52:12, 52:15, 52:21,
 56:7, 109:1 .
add"--addition--"the 46:7 .
added 43:21, 46:21, 53:2, 54:13,
 56:7, 57:10, 57:11 .
adding 44:8, 45:13, 45:22,
 46:24, 51:13, 53:11, 54:2,
 54:8, 54:16, 56:6, 80:15 .
addition 43:18, 45:5, 45:9, 46:9,
 47:10, 50:18, 52:8, 53:23,
 54:11 .
additional 8:24, 30:19, 52:21,
 58:18, 77:23 .
address 28:23, 31:2, 32:10,
 47:2, 68:3, 71:22, 87:22,
 101:11 .
addressed 40:14 .
addresses 30:25 .
adds 5:19, 25:22, 62:13, 90:17 .
adequate 5:9, 20:19 .
adjective 25:15 .
adjust 75:1, 78:16, 78:20 .
adjusted 67:9, 74:14, 78:18 .
adjusting 66:4, 66:15, 67:13,
 70:7, 71:15, 72:2, 74:15, 75:2,
 76:17 .
adjustment 68:13, 68:18 .
adjustments 67:15, 69:24 .
admits 67:3 .
admitted 34:24, 45:24 .
admitting 53:11 .
adopt 86:18 .
adopted 16:23 .
advance 99:13 .
advantages 33:18 .
advise 17:15 .
advised 3:22 .

affirmatively 5:4 .
ago 77:17, 83:9 .
agree 11:19, 16:17, 16:21, 25:9,
 47:16, 57:6, 84:5, 99:21 .
agreed 69:25 .
Aha 52:25, 53:10, 54:1 .
ahead 9:6, 19:7, 41:19, 59:19,
 79:2, 82:15 .
air 91:12, 93:1, 93:2, 93:13,
 96:21, 96:23, 98:12, 98:13,
 99:1, 99:9, 102:9, 108:16,
 108:18, 108:22, 109:6, 109:7 .
AIRPORT 2:5 .
aisle 79:18 .
al 1:13, 3:3 .
ALBERTI 2:3, 2:8, 3:9, 101:6,
 101:10, 101:14, 102:4,
 105:23, 106:3, 106:9, 106:16,
 107:13, 109:22 .
alleged 53:22 .
allow 97:16 .
allowed 106:22 .
allows 101:21 .
almost 67:4, 104:23 .
already 13:15, 44:4, 57:24,
 79:12, 96:18 .
alternate 64:4 .
alternating 47:4 .
alternative 6:10, 42:19, 42:23,
 59:10, 61:14, 65:5, 109:15 .
although 94:24, 104:23 .
ambient 99:2 .
ambiguous 9:12 .
AMOLED 4:2, 11:25, 15:18, 16:2,
 16:10, 16:13, 19:14, 19:19,
 19:21, 19:24, 20:1, 20:12,
 21:1, 32:8, 33:1, 34:20 .
amount 49:21 .
amp 9:24 .
amplifier 9:24, 13:25, 30:17 .
amplifying 30:3 .
amplitude 72:12, 73:9, 73:21,
 74:6, 74:7, 76:9, 76:17 .
and/or 94:3 .
Andrew 2:9, 3:9, 4:8 .
ANGELES 2:21 .
annotated 34:2, 34:13 .
announce 4:11 .
announcement 3:12 .
announcements 3:5 .

Concordance

answer 5:1, 8:17, 22:4, 37:6,
 44:16, 63:4, 83:19, 95:18 .
answered 107:11 .
answers 63:3, 99:20 .
antenna 100:19, 105:17 .
anybody 65:25 .
apart 108:13 .
apparently 86:17, 87:2, 104:23 .
appear 38:9, 39:17 .
appears 38:9, 38:14, 38:15,
 60:3, 89:25 .
apples 50:3, 50:5 .
applicable 100:17, 100:22 .
application 31:6, 62:5, 63:11,
 97:12, 97:20 .
applied 12:17, 14:10 .
applies 8:7, 8:15, 12:15, 30:12,
 32:17 .
apply 29:14, 30:23 .
applying 29:3 .
appreciate 36:9, 36:11, 57:21,
 92:12, 98:3, 110:1 .
approach 9:3 .
appropriate 6:2, 20:3, 25:10,
 30:22, 52:3 .
appropriately 7:18 .
area 69:19, 70:6 .
argue 43:18, 44:4, 55:8, 69:4,
 76:16, 88:5 .
argued 54:1, 109:24 .
argues 45:10 .
arguing 31:25, 54:9, 82:19,
 106:3 .
arguments 24:19, 32:10, 88:22,
 97:8, 98:1, 105:24, 110:1 .
arise 74:20 .
arises 14:8, 32:13 .
around 5:2, 10:7 .
arranged 83:8 .
aside 55:7 .
aspect 78:19 .
asserted 27:10, 37:23 .
assertion 46:7 .
associate 48:13 .
attempt 21:9 .
attempting 7:6, 52:17 .
attractive 18:6 .
available 105:7 .
aware 31:5, 80:12, 109:13 .
away 99:18, 100:3 .

axis 78:8 .
 .
 .
< B > .
B. 65:7 .
back 11:7, 12:5, 27:13, 43:1,
 45:24, 46:2, 54:25, 57:1,
 58:21, 74:9, 83:15, 102:19 .
background 19:19, 67:22,
 72:10 .
backlight 68:12, 68:18, 76:11,
 78:17 .
Baker 2:26, 39:2, 39:5, 39:23,
 40:6, 41:1, 60:4, 61:15, 62:23,
 73:13 .
ball 105:12 .
base 57:18 .
based 12:15, 12:16, 21:19,
 70:17, 88:9, 98:17 .
basic 46:25 .
basically 11:11, 20:5, 22:12,
 45:12, 48:19, 53:25, 57:3,
 80:7, 109:14 .
basis 31:8, 83:2, 83:4, 109:14 .
becomes 100:5 .
began 39:22 .
begin 3:23 .
beginning 32:19, 35:3, 35:13,
 82:5, 104:2 .
begins 68:9, 80:20 .
behalf 3:14, 37:14, 101:6 .
belabor 29:8, 44:22 .
believe 36:13, 37:7, 62:24,
 68:21, 96:16, 96:23 .
benefit 79:7 .
best 32:1, 64:24, 110:4 .
better 33:16, 70:20 .
beyond 5:16, 14:18, 14:19,
 14:21, 16:6, 42:18, 61:25,
 65:25, 81:14, 105:15 .
big 99:4 .
billions 18:3 .
bind 105:21, 107:10 .
binding 97:19 .
bit 16:12, 27:9, 46:2, 50:23,
 51:21, 53:8, 93:3 .
black 7:8, 76:2 .
blue 11:21, 81:21, 81:25 .
Bluetooth 94:15, 103:14 .
BLVD 2:5 .

bother 106:7, 106:9 .
bottom 8:1, 28:25, 34:12, 90:11 .
BOTTS 2:26 .
bound 12:16 .
box 27:13, 28:1, 60:25 .
boxes 24:13 .
Brief 32:11, 32:22, 39:23, 40:14,
 40:15, 43:4, 46:20, 47:6, 60:7,
 66:20, 77:16, 80:19, 88:21,
 95:3 .
briefed 14:15 .
briefing 5:22, 15:1, 31:3, 31:5,
 38:17, 39:22, 40:6, 88:15 .
briefly 18:18, 48:17, 78:2,
 78:12 .
briefs 16:7, 68:9 .
brighter 72:5 .
brightness 66:16, 66:18, 66:23,
 68:24, 69:3, 70:11, 70:14,
 70:19, 71:1, 71:3, 71:6 .
bring 99:24, 109:18 .
brings 31:23 .
British 48:23 .
broad 61:13, 102:21, 104:17,
 104:18 .
broaden 100:17 .
broader 57:8, 61:13, 100:5 .
broadly 104:15 .
broken 36:23 .
brought 15:3, 36:18, 68:8,
 101:17 .
build-up 98:21 .
bumped 92:5 .
bunches 33:17 .
burden 14:21, 22:17 .
BURLINGAME 2:6 .
burn 100:14 .
Burson 2:23, 3:15, 71:11, 72:23,
 74:19, 75:13, 75:18, 75:20,
 76:5, 76:12, 76:24, 77:13,
 78:15, 82:14, 82:15, 82:16,
 82:24, 83:4, 83:19, 84:5,
 84:21, 85:5, 85:15, 85:25,
 86:6, 86:24, 87:19, 87:22 .
bus 24:11 .
business 13:11 .
button 92:4 .
buy 79:18 .
buying 79:17 .
 .

Concordance

. < C > . cable 89:18, 93:24, 94:9, 103:5, 104:12 . cable). 104:7 . calculated 55:18 . calculates 53:23 . calculation 69:18, 69:21, 70:5 . CALIFORNIA 2:6, 2:21 . call 9:10, 35:11, 85:11, 93:9, 99:2, 105:12 . called 32:22, 38:7, 51:24 . calling 82:22 . calls 109:8 . camera 68:6 . cancel 34:18 . canceled 38:11 . capacitor 16:5, 18:23, 33:24, 34:23, 35:5, 35:8 . care 37:7, 69:5 . Case 3:4, 5:11, 8:5, 8:13, 19:11, 30:11, 30:18, 32:1, 36:1, 38:19, 55:20, 64:10, 85:15, 98:24 . cases 31:2, 31:3, 48:12 . catastrophic 93:9 . caught 105:21 . CAUSE 1:5 . causes 34:9 . cavity 90:11, 90:19, 105:18 . centerpiece 14:20 . Cepregi 71:11 . certain 20:25, 50:13, 50:14, 60:19, 103:1 . Certainly 14:17, 29:13, 40:7, 48:3, 48:15, 62:25, 66:21, 67:16, 68:1, 75:4, 97:3, 97:17, 105:8 . certainty 38:21, 58:9, 58:11, 61:23 . CERTIFY 111:1, 111:4 . cetera 84:23, 84:24, 103:14, 103:18 . Chae 3:18 . challenge 109:20 . change 71:15, 71:18, 71:21, 72:12, 72:17, 72:20, 73:10, 73:15, 73:19, 73:20, 74:7, 74:8, 74:11, 76:1, 76:9, 76:10, 76:17 .	changed 76:8, 80:19, 100:22 . changes 71:19, 72:13, 80:7 . changing 67:9, 71:17, 72:2, 72:18, 73:11, 73:16, 73:17, 73:18 . charge 90:14, 94:19, 103:23 . charger 101:19, 106:13 . charging 89:18, 89:20, 95:1, 96:10, 96:11, 96:14, 96:17, 98:13, 99:8, 101:18, 105:6, 105:10, 106:5, 108:16 . chasm 98:2 . checkout 79:18 . CHIEF 1:27 . Christmas 79:15 . circuitry 61:18 . circuits 19:10, 30:15, 51:16, 64:5, 64:24 . circuits. 30:5 . circular 58:13 . citation 94:15 . citations 93:16, 94:11, 95:4 . cite 60:9 . cited 31:2, 74:1, 96:18, 104:19 . Civil 3:4 . claimed 56:15, 87:3 . claiming 104:15 . claims--this 70:2 . clarification 25:23 . clarify 5:19, 13:22, 25:8, 25:11 . clarity 45:7, 76:25 . clear 5:12, 7:15, 18:5, 27:5, 29:10, 36:3, 42:17, 45:6, 46:19, 57:19, 59:11, 60:4, 75:22, 77:3, 80:3, 102:22 . clear--and 103:7 . clearly 8:12, 9:19, 35:23, 52:14, 71:17, 84:8, 107:5 . client 3:16 . clock 109:13 . close 61:18, 109:19 . closer 12:22 . CO. 1:12 . coil 96:25, 97:1, 101:24, 102:12, 108:13, 108:14, 108:19, 108:21, 109:8 . coils 96:24, 96:25, 99:5, 108:12, 109:6 . coin 59:21 . coincidentally 23:17 .	coined 60:5, 60:14, 61:22, 65:24 . collect 93:18 . COLLEGE 2:41, 65:2 . color 33:5, 34:5, 82:4 . colors 81:20, 81:23 . colors. 82:7 . column 21:8, 21:22, 28:25, 38:14, 38:16, 62:3, 62:4, 67:6, 67:16, 71:25, 78:13, 78:16, 78:18, 81:18, 83:5, 83:15, 84:24, 85:12, 93:9, 93:19, 94:13, 94:14, 94:20, 95:8, 103:20, 103:21 . combination 79:22, 80:6 . comes 7:4, 19:23, 36:9, 36:16, 72:22 . coming 22:20 . communicate 6:12, 94:21, 95:21, 103:24, 103:25 . communicating 96:12 . communication 94:16, 105:5 . communications 94:25 . compare 48:7, 51:2, 51:5, 51:6 . comparison 50:25 . compelling 25:1, 36:1, 52:4 . completely 39:3, 80:6, 101:16, 102:7 . completes 110:6 . COMPLY 111:5 . component 34:11, 34:22, 53:24, 54:3, 54:8, 54:17, 60:20, 69:2 . component-by 60:19 . components 54:15, 60:19, 90:21, 95:10, 102:5, 102:16 . comport 87:16 . comports 73:14 . computer 95:21 . conceding 55:12 . concept 11:11, 11:15, 12:10, 12:16, 14:9, 14:18, 14:19, 14:21, 16:21, 17:24, 19:2, 19:10, 21:16, 22:3, 25:18 . conceptualize 17:23 . concluded 70:4 . conclusion 55:10, 75:25, 88:17, 88:18, 88:19, 88:22 . conclusory 20:5, 88:23 . conduct 22:9 .
---	--	---

Concordance

CONFERENCE 111:6 . confess 55:3 . configured 90:4, 90:6, 90:19, 91:22, 91:24, 108:2, 108:7, 108:18 . confirm 58:9 . confirm--which 27:24 . confirms 18:24, 28:16 . confronted 97:8, 97:11 . confusing 22:1, 42:14 . connect 12:8 . connected 9:25, 10:5, 10:7, 10:8, 10:16, 11:11, 11:13, 11:21, 12:6, 12:13, 80:8, 81:9, 81:11, 83:12, 84:17, 84:18, 85:17, 87:2, 87:13, 87:15, 90:13, 93:2, 93:21, 95:15, 98:25, 103:12, 104:6 . connecting 80:10, 83:13, 86:15, 103:19, 105:10 . connection--the 90:20 . connection-by-connection 60:20 . connection. 94:1 . connections 80:3, 88:13, 88:16, 88:18, 94:12, 95:16, 95:19, 96:2, 100:16, 101:17, 102:24, 107:5 . connector--again 90:23 . connector. 106:25 . connectors 106:6 . connects 90:21, 90:25 . connote 106:8 . consider 40:22 . consideration 40:11 . consistent 27:2, 66:22, 109:2 . constant 35:13, 42:10, 68:24, 69:3, 70:11, 74:11 . constantly 102:11 . constructions 9:8 . construe 9:22, 23:12, 24:21, 52:17, 52:19, 65:8, 66:21, 76:21, 109:2 . construed 30:21, 35:22, 35:23, 46:16, 70:13, 89:15, 104:23 . construing 24:3, 31:8, 91:2, 91:3 . contain 16:10, 16:14, 19:22, 39:16 . contains 16:2 .	contemplates 107:5 . contend 75:7 . contends 54:12 . content 38:25 . context 8:3, 12:25, 13:1, 14:5, 14:6, 15:11, 23:23, 24:3, 24:24, 26:5, 30:7, 31:9, 33:8, 53:9, 63:5, 75:5, 75:24, 78:14, 82:9, 106:24 . continue 43:6, 78:12, 92:11 . continues 35:7 . contradict 13:14 . contradicted 44:14 . contradicts 13:9 . contrary 65:11 . contrast 22:23 . contributed 69:1 . controlled 33:23 . conventional 19:19, 20:12 . conversation 74:9 . conversion 26:16, 27:6, 30:8, 31:10, 49:11, 50:1, 50:4 . convert 48:24, 48:25, 49:8 . converted 23:20, 25:15, 25:18, 25:21, 29:6, 30:6, 31:11, 62:8 . converter 25:20 . converting 29:15, 30:3 . converts 24:10, 26:12, 26:13 . convey 21:9 . conveying 94:3 . convincing 36:3, 59:12 . copies 8:24 . core 32:6 . CORRECT 4:7, 4:16, 4:17, 15:6, 31:15, 39:20, 41:2, 42:21, 47:8, 47:9, 49:1, 56:3, 75:10, 77:15, 102:18, 111:2 . corrected 10:11 . correctly 10:16 . counted 6:23 . counter 14:23, 84:4 . couple 28:3, 35:10, 43:16, 44:18, 101:11 . coupled 27:17, 80:23, 83:9, 84:1, 84:10, 86:22, 93:25, 95:13, 95:15 . coupling 95:12 . course 44:10, 93:8, 93:13, 108:10 .	cover 88:5, 100:5 . covered 97:14, 99:11 . covers 89:18, 89:19 . Credelle 8:10, 8:15, 20:4, 32:15, 32:24, 33:22, 37:4, 37:19, 37:22, 38:16, 41:23, 41:25, 53:11, 60:9, 60:10 . credit 17:19 . criticism 81:13, 81:15 . CRR 1:45, 2:46, 111:11 . cur 32:22, 35:11, 38:7, 39:17 . curious 56:22 . currency 49:23 . currents 72:2 . curve 105:12 . cut 88:4 . cycles 73:3, 73:6 . . . < D > . DAC 24:11, 29:17, 29:18, 34:14 . Dacus 2:13, 2:17, 3:7, 3:11 . danger 98:9 . dark 72:4 . data 16:3, 16:4, 23:20, 94:17, 94:23, 95:5, 95:19, 95:24, 96:1, 96:9, 103:9, 103:16 . date 100:9 . Dave 3:9 . David 2:8, 101:6 . day 49:20, 69:20 . DC 2:36, 47:3 . dealing 32:25, 47:7, 74:16 . decide 40:10, 40:20, 94:22 . decision 107:8 . decision--the 70:3 . decisive 74:22 . decoders 21:8, 21:22 . Defendant 5:1, 14:23, 23:11, 24:17, 41:2, 43:11, 51:24, 59:10, 59:13, 109:16 . Defendants 1:15, 2:19, 3:12, 3:14, 13:23, 14:20, 20:11, 31:25, 32:1, 39:1, 51:22, 81:13, 89:16, 102:5 . defense 25:6 . define 64:22, 71:6 . defined 60:1, 61:22, 77:8 . defining 63:15 . definition 22:2, 61:8, 61:12,
--	---	---

Concordance

63:18, 108:23 .
definitional 10:2, 63:1 .
definitionally-wise 62:13 .
definitions 71:6 .
degree 65:2 .
demonstrated 48:9 .
demonstrates 78:7 .
dependent 30:13, 30:14, 30:18, 30:23, 30:25 .
depending 43:22 .
depends 72:17 .
depict 88:13, 88:17 .
Deron 2:17, 3:7 .
describe 64:20, 64:24, 94:12, 94:24, 94:25, 96:19 .
described 13:13, 78:18, 89:20, 90:9, 97:13 .
describes 29:1, 72:1, 72:10, 89:19 .
describes. 26:19 .
describing 26:20, 26:25, 62:14, 63:13, 93:23 .
description 19:17, 21:22, 28:24, 29:4, 60:19, 64:17, 71:25, 77:3, 83:5, 84:6, 84:22 .
descriptions 8:12, 95:9 .
design 34:3, 34:7 .
designate 25:2 .
designed 67:19 .
designing 61:18 .
desired 82:7 .
despite 104:21 .
detailed 71:25 .
determine 49:11, 91:22, 91:24, 98:8, 108:3, 108:8, 108:18 .
developed 96:18 .
device 62:16, 90:5, 90:21, 93:20, 93:21, 94:1, 94:19, 95:9, 95:10, 101:22, 101:23, 102:12, 103:4, 103:10, 103:11, 104:5, 104:6 .
devices 53:2, 90:13, 94:17, 94:21, 95:12, 95:14, 95:20, 96:1, 102:11, 103:10, 103:11, 103:23, 104:4, 104:5, 105:10, 106:5, 108:9 .
devices--standard 105:5 .
devices. 94:4 .
devise 90:3 .
diagram 62:1, 64:25 .

diagrams 65:3 .
dictionary 71:5 .
differentiate 41:5 .
differently 49:13, 49:14, 50:9, 50:11 .
digital 24:20, 24:25, 25:20, 26:3, 26:4, 26:8, 26:12, 26:17, 29:14, 29:15, 30:2, 30:5, 43:24, 46:22, 47:17, 47:25, 48:4, 48:8, 48:10, 48:11, 49:7, 49:8, 49:14, 49:15, 50:5, 50:10 .
digital/analog 25:20 .
diodes 79:1 .
direct 15:10, 38:22, 47:4 .
directed 32:9, 81:22, 100:8, 100:11 .
directly 9:25, 10:5, 10:8, 10:11, 11:13, 12:6, 12:8, 44:24, 52:11, 52:15, 83:22 .
disagree 47:18, 47:19, 59:25, 63:17 .
disavowal 70:9, 102:22 .
discernible 18:5 .
disclaimer 68:3, 68:7, 68:8, 68:15, 70:9, 72:21, 73:25, 74:20, 75:6, 75:8, 75:9, 75:15, 89:1 .
disclose 9:20, 46:10 .
disclosed 7:14 .
disclosure 38:15, 74:4 .
discussed 15:10, 30:11, 60:16, 64:6, 73:23, 97:8, 97:15, 103:19 .
discussing 19:14, 19:18, 20:16, 46:6, 77:19 .
discussion 8:3, 8:7, 13:25, 14:1, 28:14, 29:2, 29:15, 30:10, 30:13, 34:21, 34:24, 62:12, 69:5, 70:1, 75:24, 87:10, 96:10, 105:14 .
discussions 7:16, 14:13, 14:16, 15:2, 15:4, 15:7, 15:9, 29:9, 34:21 .
dismiss 69:7 .
display 3:17, 4:2, 11:25, 15:18, 16:2, 17:12, 19:19, 19:21, 19:24, 20:1, 20:13, 20:23, 20:25, 21:1, 22:25, 30:4, 32:8, 32:25, 33:1, 34:20, 68:24,

69:2, 83:8 .
displays 16:10, 16:13, 18:25, 19:1, 19:12, 19:14, 33:6, 33:19 .
dispute 4:18, 17:16, 19:11, 20:15, 21:12, 27:14, 29:5, 30:6, 33:21, 47:12, 74:4, 89:14, 89:17, 89:21 .
dispute--that 27:25 .
disputed 3:22, 28:2, 78:4, 109:14 .
disputing 22:24, 34:25 .
distance 108:13 .
distinction 12:23 .
distinguish 12:2 .
distinguished 87:1 .
distinguishing 9:19, 11:6 .
DISTRICT 1:1, 1:2, 1:27 .
diverse 17:10, 18:5 .
divided 79:13 .
DIVISION 1:3 .
Doctor 60:4, 61:15, 62:23, 70:4, 104:20, 105:3 .
document 68:6 .
doing 49:1, 53:3, 67:5, 103:22 .
dollar 48:22 .
dollars 48:24, 48:25, 49:19, 49:22, 50:2, 50:13, 52:10, 52:15 .
domain 69:22, 69:23, 78:6, 78:11 .
done 25:23, 26:16, 56:5, 56:11, 70:12, 99:9 .
done--you 25:19 .
dots 81:7, 81:11 .
dotted 24:12 .
doubting 85:21 .
down 16:12, 18:7, 19:23, 52:23, 62:20, 79:17, 93:3, 99:7, 108:4 .
draw 12:23 .
drawing 10:23, 88:15 .
drawn 64:7 .
driving 34:7, 34:15, 35:6 .
due 99:22 .
duration 33:24, 72:14, 72:18 .
during 69:8, 73:25, 74:10, 86:25, 99:7 .
duty 73:3, 73:6 .
.

Concordance

.	equation 34:12, 38:10, 42:7, 42:8, 42:11 .	exchange 49:23, 49:25 .
< E > .		exchanges 14:22 .
E. 1:46, 2:47 .	equations 28:11, 38:5, 41:10, 42:7, 42:14, 44:8, 45:6, 45:8, 51:16 .	excluded 69:6, 70:2 .
earlier 33:3, 33:21, 35:15, 39:19, 76:24, 87:9 .	equivalent 49:23 .	excludes 67:20 .
EASTERN 1:2 .	equivocal 68:10, 81:24 .	exclusion 7:10, 7:11, 80:21 .
effect 17:23, 56:23, 99:12 .	Eric 2:32, 3:15, 8:21 .	Excuse 9:24, 11:8 .
effective 99:8 .	error 88:10 .	excused 110:8 .
efforts 110:5 .	ESE 2:14 .	exemplary 65:12, 95:10 .
either 29:25, 43:23, 43:25, 44:2, 48:10, 52:5, 55:16, 81:25, 86:20, 86:21, 86:22, 88:10, 91:13, 94:23, 98:23, 103:25 .	essence 11:9, 31:7, 31:14 .	exemplified 73:5 .
electrical 46:25, 65:1, 80:3 .	Essentially 13:6, 16:1, 16:4, 60:14, 82:19, 90:11, 102:19 .	Exhibit 46:20, 88:21 .
electrically 85:11 .	established 39:23 .	exist 97:5 .
Electronics 1:12, 3:18 .	estopped 12:22, 14:7 .	expect 17:5 .
elements 16:11, 17:4, 19:22, 20:14, 74:15 .	estoppel 12:14, 12:24, 13:2, 14:3, 14:8 .	expert 8:9, 19:25, 32:14, 32:15, 39:1, 40:9, 40:13, 41:21, 41:22, 42:1, 44:7, 44:14, 46:18, 47:2, 52:1, 60:4, 62:24, 63:17, 75:20, 85:15, 85:16, 85:22, 85:23, 88:11, 104:20, 104:21, 104:22, 107:22 .
elements. 16:14 .	et 1:13, 3:3, 84:23, 84:24, 103:14, 103:18 .	expert--"explains" 70:5 .
elsewhere 44:3 .	evaluating 77:1 .	experts 5:15, 19:13, 21:14, 21:19, 22:3, 22:5, 22:14, 39:21, 66:21 .
embodiment 8:4, 8:8, 11:19, 11:20, 24:8, 25:17, 26:20, 38:14, 81:19, 82:2, 82:9 .	event 19:1 .	explain 5:16, 21:15, 22:3, 22:5, 24:6, 66:22, 72:3 .
embodiments 7:8, 7:14, 7:16, 7:17, 7:18, 7:21, 8:6, 8:13, 8:14, 10:17, 19:21, 24:13, 29:10, 30:10, 30:12, 51:15, 93:20, 102:25, 103:1 .	Everybody 4:11, 22:14, 48:13, 79:14 .	explained 13:15, 19:8, 19:25, 29:12, 33:22, 46:15, 73:13 .
embrace 17:21 .	everything 22:5, 83:21, 87:6 .	explaining 5:15, 38:23 .
emission 69:1, 69:19, 70:6 .	evidence 6:2, 36:3, 59:12, 71:5, 77:1, 80:21, 81:10, 102:24, 104:19 .	explains 33:1, 33:23, 34:6, 38:17, 72:14, 105:3 .
emitting 79:1 .	evidenced 19:20 .	explicitly 97:9 .
employed 88:1 .	evolved 99:16 .	express 12:12, 44:13 .
End 7:20, 17:8, 17:10, 18:1, 20:19, 21:6, 49:20, 79:11, 80:24, 83:10, 84:1, 84:10, 85:18, 86:1, 87:13, 88:19, 90:7, 91:13, 101:24, 110:10 .	evolves 99:8, 99:21, 100:4 .	expressions 7:10 .
endeavor 110:1 .	exact 9:20, 49:12, 64:11 .	expressly 44:8, 51:24, 70:11 .
endpoints 18:5 .	Exactly 10:15, 11:18, 18:10, 26:14, 27:1, 41:6, 46:15, 49:20, 50:16, 52:20, 53:3, 53:15, 56:1, 65:14, 101:25, 110:4 .	extent 29:3, 61:24, 98:2 .
engagement 22:15 .	example 6:18, 30:17, 38:13, 47:23, 51:1, 57:9, 64:9, 64:15, 65:14, 65:15, 65:25, 67:7, 81:21, 81:22, 84:7, 84:8, 90:3, 94:20, 95:11, 96:10, 97:10, 97:18, 104:12, 108:1, 108:15, 108:19 .	extremes 97:23 .
engineering 47:1, 65:2 .	Examples 15:2, 38:19, 44:10, 51:14, 64:10, 64:13, 65:8, 65:24, 73:4, 90:10, 94:9, 94:15, 95:13, 95:24, 95:25, 96:8, 96:9, 103:15 .	extrinsic 71:5, 104:19 .
English 27:3, 64:23 .	excerpt 13:24, 27:23, 34:2, 38:2, 38:3, 53:6, 53:14 .	EYE 2:35, 33:14, 72:16, 72:19 .
enough 65:15, 65:17, 72:15 .		.
entire 33:2, 33:5, 33:8, 33:12, 77:9, 106:17 .		.
entirely 47:3, 59:25, 67:1 .		< F > .
entirety 32:19, 106:10, 107:6 .		fact 5:18, 6:8, 33:21, 39:2, 52:7, 68:20, 73:10, 87:15, 96:20 .
entitled 59:1 .		fail 88:23, 92:17, 92:22, 98:16, 100:3 .
envisioned 95:11 .		failure 93:9, 98:9, 99:22 .
equals 32:18, 34:13 .		fair 97:15 .
		fairly 20:5 .
		falls 77:7 .
		far 21:24, 61:5 .

Concordance

FARAGI 2:32, 3:15, 8:21, 8:23,
9:3, 9:5, 9:7, 9:16, 11:13,
12:18, 13:3, 13:5, 15:22,
15:25, 16:13, 16:25, 17:11,
18:12, 18:18, 18:20.
fast 33:13.
FEDERAL 7:7, 22:10, 30:17,
64:10, 111:12.
FEES 111:4.
female 90:10.
few 43:2.
fiberoptics 94:3, 94:9.
field 60:5, 96:24, 98:14, 99:5,
100:9, 101:22, 108:13.
fight 68:2.
figure--video 34:13.
figured 96:22.
figures 7:13, 7:14, 29:9, 34:20,
34:21, 34:23, 64:7, 64:21.
figures--and 24:10.
file 61:19.
filed 53:16, 105:7.
final 26:8.
financial 48:23.
find 25:15, 58:24, 59:11, 61:11.
fine 8:25, 25:22, 33:14, 65:23,
101:13.
finish 7:2.
FIRM 2:13.
five 47:24, 48:3, 48:4, 48:14,
48:23, 51:3, 51:4, 51:6, 51:9,
57:11, 57:17, 57:18.
fixed 35:5.
flawed 39:24.
flawed--right 39:24.
flicker 34:9, 69:2.
FLOOR 2:28.
flow 106:23, 107:2.
flowing 73:11, 73:16, 76:10.
focus 36:15, 51:20, 77:21.
focused 58:22, 75:23.
follow-up 31:20.
following 86:6.
fool 22:13.
forced 67:16.
FOREGOING 111:1.
form 48:8, 48:10, 49:15, 50:7,
50:9, 50:10, 50:15, 50:16,
96:20, 100:18, 102:16,
106:25.

FORMAT 111:5.
forms 49:16.
forms--pounds 49:19.
forth 5:12, 30:18.
forward 57:1, 109:21.
found 23:8, 35:24, 96:3, 105:1.
four 17:25, 20:19, 60:16.
Fourier 69:18, 69:21, 69:22,
70:6, 77:20, 78:5.
frame 32:19, 33:2, 33:6, 33:8,
33:12, 33:20, 33:25, 35:4,
35:12, 35:13, 72:4, 72:5, 74:5,
78:19, 78:21.
frames 35:10, 35:12.
frankly 43:17.
free 58:24, 63:2.
frequencies 78:9.
frequency 69:22, 78:5, 78:7.
full 33:20, 68:11, 68:25.
function 77:2.
functionalities 97:14.
functionality 62:15, 99:8, 99:11,
99:14, 99:16.
.
.
< G > .
gain 65:1.
gap 109:6, 109:7.
gate 34:15, 35:1, 35:2.
generally 93:23.
generate 6:4, 26:23.
generated 15:8, 56:12, 56:16,
101:21.
generates 5:13, 5:18.
generating 3:25, 29:1, 29:20,
30:1, 57:13.
generic 31:13, 100:9.
gets 6:14, 12:21, 26:13, 33:4,
73:25, 74:23, 100:13.
getting 19:18, 65:1, 65:5, 92:20,
98:9.
GILLAM 2:40.
GILSTRAP 1:26.
give 6:18, 65:7, 83:21, 95:21,
104:24, 107:25, 110:4.
given 4:14, 34:10, 52:4.
gives 95:13.
gotten 100:21.
gravity 108:11.
green 81:21.

green. 82:1.
ground 10:1, 10:6, 12:6, 12:7,
80:24, 81:9, 83:10, 84:1,
84:10, 85:18, 85:25, 87:13,
88:13, 88:18.
ground--that 10:5.
guess 20:8, 105:11.
guidance 110:2.
.
.
< H > .
halfway 72:6.
Han 3:17.
hand 9:1, 66:25, 102:19.
hang 80:18.
hanging 42:20, 68:14.
happen 30:8, 50:18.
happening 76:18.
happens 97:4.
happy 8:17.
harder 105:25.
harp 68:9.
hat 42:21, 68:15, 80:18.
Hatalis"--that 70:4.
Hayafuji 9:20, 9:25, 13:25, 46:5,
46:6, 53:13, 53:18, 53:20,
53:22, 54:8, 54:16, 55:13.
hear 4:4, 8:20, 15:20, 15:21,
19:4, 23:11, 28:20, 37:12,
43:11, 47:14, 52:2, 58:10,
59:13, 63:22, 63:25, 66:8,
68:15, 69:9, 71:10, 76:13,
82:12, 89:8, 101:5.
heard 13:21, 14:23, 33:3, 33:20,
41:2, 44:4, 65:23, 76:24.
HEARING 1:23, 20:8, 22:9,
22:19, 79:18, 109:19.
hearing. 110:10.
heart 4:18.
held 33:8, 33:16, 35:5.
help 42:15, 93:2, 97:22, 98:2.
helpful 23:2, 31:5.
here--when 14:9.
HEREBY 111:1.
highlight 13:24, 42:15, 88:3.
highlighted 35:4, 37:21, 53:17,
78:20.
history 61:20, 73:24, 74:21,
74:25, 75:1, 75:4, 75:25, 77:5,
87:7.

Concordance

Hobby 79:17 .
hold 12:20, 33:3, 33:12, 33:19 .
holds 33:5 .
HONORABLE 1:26 .
HOPE 2:20 .
host 104:4, 104:5 .
hot 92:17, 98:9, 100:13 .
hour 109:19 .
HOUSTON 1:46, 2:47 .
hub 93:21, 93:25, 95:10 .
human 33:14, 72:16, 72:19 .
hypothetically 107:9 .
Hyungkeun 3:17 .
. .
< I > .
i.e. 10:2, 11:17 .
idea 18:4, 101:14 .
identified 32:14, 39:9 .
identify 88:23 .
illustrate 33:11, 73:1 .
illustrated 10:17, 10:18 .
illustrates 64:8, 65:12 .
Illustration 35:9, 84:21 .
illustrative 7:22, 84:2 .
image 72:7 .
impact 56:23 .
impart 108:13 .
implementation 65:13 .
implicated 44:21 .
implication 12:7, 12:11, 12:24 .
implicitly 68:12 .
implied 44:13 .
imply 15:9, 85:19, 87:15 .
import 4:19, 5:2, 52:18, 52:24 .
important 23:20, 33:8, 34:22, 74:20 .
importantly 16:3 .
importing 8:6, 8:14, 102:25 .
impossible 88:18, 109:6 .
impractical 20:23 .
improper 5:4 .
improvement 67:24, 78:14 .
inapplicable 100:6 .
inclination 109:17 .
inclined 61:11 .
include 4:22, 15:2, 23:2, 106:25 .
includes 21:12, 27:11, 29:15, 81:25, 94:2, 101:24 .

including 28:9, 56:23 .
inclusion 65:10 .
incorrect 40:23, 54:10, 65:9, 88:25, 101:16, 102:17 .
incorrectly 36:8 .
indefinite 17:5, 31:25, 32:7, 33:9, 34:20, 35:24, 36:2, 36:13, 36:20, 39:3, 39:6, 41:13, 42:14, 58:24, 59:12, 59:20, 61:24, 65:7 .
indefinite--rather 37:8 .
indefiniteness 32:13, 42:15, 42:18, 42:21, 59:9, 109:15 .
independent 30:20, 30:21, 31:23, 34:16, 36:1, 38:4, 38:12, 39:11, 40:2, 89:25 .
indicate 15:4 .
indicated 58:12 .
indicates 21:3, 58:8, 68:17 .
indication 58:8, 60:21, 81:8, 81:11 .
indirectly 27:9 .
indisputably 75:1 .
individual 16:11, 16:14, 17:4 .
individually 87:14 .
induce 108:14 .
induces 96:25 .
inductive 89:19, 95:1, 96:10, 96:14, 96:17 .
inform 38:20, 76:21 .
information 5:24, 6:8, 6:15, 6:19, 6:21, 13:7, 95:22 .
informative 75:5, 75:6, 75:10, 75:16, 97:18 .
informing 95:18 .
informs 64:12, 74:22, 86:20 .
infringe 24:25, 53:1, 76:19 .
infringing 56:13, 97:13 .
inherently 68:12 .
input 4:21, 6:7, 6:10, 6:20, 8:2, 9:11, 9:25, 10:11, 10:15, 11:1, 11:10, 11:22, 11:24, 11:25, 12:1, 12:4, 12:9, 13:10, 26:11, 26:13, 28:10, 34:14 .
inputs 30:16 .
inserted 25:14 .
inside 27:12, 102:13 .
instance 22:7, 43:23, 60:21, 61:3, 61:6 .
instances 44:19, 60:24 .

instead 70:24 .
instructive 27:11 .
intended 7:22, 97:11 .
intended--black 76:4 .
Intensity 66:17, 70:18, 70:25, 71:1, 71:2, 72:17, 72:20, 78:9, 78:16, 78:18, 78:20 .
intentional 74:17, 75:8 .
interchangeably 66:18, 70:18 .
interested 14:11, 31:6 .
interesting 105:1, 108:1 .
Interestingly 102:2 .
interpret 84:6 .
interpretation 105:5 .
interrupt 105:11 .
interruption 92:10 .
intrinsic 77:9 .
introduce 34:11 .
invalidate 37:24 .
invalidity 39:19 .
invention 7:16, 11:20, 16:18, 19:18, 20:16, 29:3, 29:5, 29:10, 67:23, 70:22, 70:25, 72:1, 72:10, 74:24, 77:4, 78:13, 78:19, 78:20, 87:4, 93:7, 93:12, 93:14, 94:7, 100:8, 100:10, 100:11 .
invention. 69:20 .
inventor 26:7, 60:5, 74:23 .
invitation 18:7 .
irrelevant 20:1, 20:7, 47:6, 52:14 .
is--a 8:7 .
isolator 59:8, 60:22, 62:14, 62:18, 63:15, 64:3, 64:12, 64:16, 65:4, 65:13 .
issued 96:15, 99:7, 99:13 .
issues 25:8, 25:12, 31:1, 43:16 .
itself 5:12, 6:16, 6:24, 37:1, 68:10, 87:10, 90:1, 91:7, 91:10, 96:4, 97:2, 98:24, 102:7, 107:23, 109:5 .
itself--and 84:9 .
. .
< J > .
jack 90:10 .
joining 20:10 .
Joonsik 3:18 .
JUDGE 1:27 .

Concordance

JUDICIAL 59:1, 111:6.
jump 28:23.
jumping 4:6.
jury 5:7, 21:19, 22:7, 25:8, 25:11,
 36:7, 66:22, 70:20, 76:25.
justify 102:25.
 .
 .
< K > .
keep 68:24, 88:1.
keeping 69:2.
kept 70:11.
key 20:15, 49:12, 82:17.
Kim 3:17, 37:22.
kind 6:20, 6:21, 18:8, 21:3,
 34:17, 52:18, 58:13, 62:19.
kinds 49:18.
kitchen 79:16.
knowing 74:18.
knowledge 65:1.
known 55:19, 58:3, 73:14,
 96:14.
knows 17:6, 64:3, 79:14.
KRAMER 2:3.
 .
 .
< L > .
laid 107:24.
language--but 28:6.
large 18:9.
larger 68:25.
last 59:16, 61:6, 63:25, 77:13,
 79:12, 79:17, 109:14, 109:18.
late 58:25, 100:9.
later 28:5, 36:7, 37:8, 50:19,
 52:23, 52:25, 103:21, 110:5.
Laura 2:23, 3:15, 82:14.
law 7:8, 8:6, 8:14, 30:11, 30:18,
 38:19, 64:10.
lead 75:16.
leads 67:11, 67:18.
least 17:21, 57:21, 58:6, 58:14,
 79:22, 82:9, 91:1, 94:14,
 105:2.
leave 18:8, 34:22, 67:14.
leaves 9:12, 60:15.
LED 72:15, 73:4, 73:11, 73:16,
 82:5, 83:10, 84:23, 86:7,
 86:12, 86:15, 86:16.
Leds 66:5, 79:15, 79:16, 79:19,

79:20, 80:10, 81:7, 81:9,
 81:21, 81:23, 82:4, 82:18,
 82:21, 83:12, 83:13, 84:16,
 85:6, 85:9, 85:10, 85:11, 86:9,
 86:21, 87:2.
Leds--no 82:20.
left 11:3, 24:9, 27:23, 28:11,
 34:23, 60:25, 76:6.
legitimate 14:9.
length 79:21.
less 57:4, 57:5, 58:14, 74:14.
letter 7:8.
letting 79:4.
level 12:24, 62:1, 64:9, 66:15,
 71:16, 71:19, 71:21, 74:20,
 76:8.
levels 66:5, 66:17, 66:22, 69:11,
 69:24, 70:11, 70:14, 70:21,
 71:15, 74:14, 74:15, 75:2,
 76:18.
levels. 69:17, 70:7.
lexicography 67:8, 102:22.
lieu 86:19.
life 99:8.
Light 6:8, 7:6, 34:4, 34:10, 40:5,
 69:1, 69:19, 70:6, 72:14, 73:4,
 73:7, 73:9, 73:11, 73:12,
 73:16, 73:20, 78:9, 78:11,
 78:25, 81:25.
lightbulb 73:5, 73:8.
lights 79:15.
Likewise 72:8.
limit 7:9, 31:8, 80:9, 81:2, 88:11,
 95:23, 97:12, 102:20.
limitation 4:19, 5:2, 8:17, 9:21,
 25:16, 52:18, 53:11, 54:1,
 58:18, 71:14, 76:2, 80:15,
 82:17, 91:21, 108:4.
limitations 7:17, 8:6, 8:14,
 30:12, 30:19, 30:22, 52:22,
 53:1, 77:4, 77:6, 92:13, 92:14,
 94:6, 103:1.
limited 20:17, 23:12, 78:15, 96:1,
 104:25.
limiting 67:12, 80:25, 97:19,
 97:20, 103:9.
limiting. 7:22.
line 33:7, 62:4, 82:5, 83:5,
 94:13.
lines 38:14, 38:16, 67:6, 67:17,

72:1, 83:16, 84:24, 93:19,
 94:14, 103:8, 103:20, 103:21,
 104:3.
link 105:4.
list 5:7.
listening 35:17.
lit 33:11.
little 11:21, 16:12, 27:9, 28:5,
 51:20, 58:25, 66:24, 70:20,
 93:3, 101:17.
Liu 2:38, 3:15.
LLC 1:6.
LLP 2:4, 2:19, 2:26, 2:34, 2:40.
LO 69:19, 70:7.
load 62:10.
Lobby 79:17.
located 31:9.
logic 91:22, 91:23, 108:2, 108:7,
 108:17.
logical 36:5, 45:14.
long 5:7, 91:5, 98:21, 108:12.
longer 73:20, 99:9, 99:15, 99:22,
 100:4, 100:22.
Look 26:4, 27:8, 28:3, 34:1, 35:9,
 38:5, 39:5, 41:9, 50:19, 50:20,
 54:5, 57:13, 59:22, 60:10,
 60:15, 60:17, 62:3, 67:24,
 70:22, 77:9, 81:5, 89:24,
 91:20, 94:13, 95:7, 97:19,
 98:20, 104:16, 107:21.
looked 79:12, 79:20.
Looking 17:22, 47:24, 47:25,
 63:11, 98:6, 103:8, 104:2.
LOOP 2:14.
LOS 2:21.
lose 75:15.
lot 17:12, 25:4, 88:1, 97:22.
LTD 1:12.
luminance 69:1, 74:14.
luminosity. 68:13.
 .
 .
< M > .
M. 2:46.
magnetic 96:24, 98:14, 99:5,
 101:22, 101:24, 108:13.
manifest 7:10, 65:10, 80:21,
 80:22.
manner 62:7, 104:1.
Markman 1:23, 22:9, 38:17,

Concordance

39:22, 39:23 .
marks 37:21 .
MARSHALL 1:3, 1:13, 1:47, 2:48 .
mathematically 48:15, 50:11 .
matrix 18:25, 19:1, 19:12, 21:9, 21:12, 32:25, 33:6, 33:11, 33:15, 33:18, 33:19 .
matrixes 22:25 .
MATTER 3:4, 42:9, 43:7, 89:1, 99:4, 111:3 .
matters 110:7 .
MATTSON 2:10, 3:9, 66:9, 66:10, 66:13, 68:1, 68:5, 68:23, 69:14, 70:15, 71:4, 71:7, 71:8, 78:2, 78:23, 79:2, 79:3, 79:5, 79:10, 80:1, 80:14, 80:16, 81:5, 81:15, 81:18, 82:11, 87:21, 88:1, 89:4 .
Mcroberts 1:45, 2:46, 111:9, 111:11 .
me--"receives" 10:25 .
mean 9:14, 12:13, 12:25, 14:5, 14:23, 17:6, 18:7, 20:13, 21:23, 22:9, 22:15, 36:15, 36:23, 46:14, 49:24, 57:17, 58:23, 59:21, 76:16, 84:3, 85:3, 86:18, 87:6, 99:17, 99:18, 101:16, 103:17 .
meaning 4:15, 4:21, 5:1, 5:8, 5:22, 20:2, 20:10, 22:13, 23:10, 24:23, 39:8, 42:20, 58:16, 59:24, 60:1, 61:17, 77:10, 79:9, 83:22, 86:13, 89:17, 91:9 .
means 10:6, 10:10, 10:16, 12:13, 12:25, 14:4, 22:8, 22:14, 33:3, 36:22, 38:4, 38:11, 43:18, 61:23, 80:4, 80:23, 83:3, 84:17, 96:12, 103:18 .
meant 104:14 .
measure 92:14, 93:1, 93:8, 98:7, 99:10, 101:15, 102:11, 102:15, 108:21, 108:25, 109:7 .
measurement 98:14, 98:17 .
measurements 98:22 .
measuring 92:18, 100:1, 100:11, 102:8, 102:9 .
mechanism 16:3, 18:21, 18:25,

19:11, 21:13, 21:20, 22:25, 94:23 .
medium 89:15, 94:2, 94:8, 105:4 .
meet 36:4, 54:14, 55:13, 76:1, 76:19 .
meets 54:1, 71:13, 97:21 .
melt 100:13 .
mentioned 61:3, 97:5 .
mere 16:22, 17:8, 17:24, 17:25, 20:8 .
Merely 17:9, 57:24, 58:15, 68:10, 68:11, 68:17, 75:5, 75:23, 84:2 .
met 22:11, 53:2 .
Miao 2:38, 3:15 .
millions 17:13, 18:3 .
mind 7:4, 83:3 .
Mine 91:18 .
minus 34:13, 44:25 .
minute 74:3, 83:9, 83:15, 109:12 .
minutes 43:2 .
mischief 18:7 .
misreading 88:9 .
misunderstanding 77:21 .
mode 59:8, 60:22, 62:14, 62:18, 63:15, 64:3, 64:11, 64:16, 65:4, 65:13 .
modulation 69:6, 70:2, 72:11, 78:10 .
modulation--pwm 67:21 .
moment 11:7, 32:12, 77:17 .
monetary 50:14 .
money 49:18, 49:21 .
monitor 91:16, 92:5, 92:6, 93:12, 101:25 .
monitors 91:16 .
morning 3:7, 3:13, 3:16, 8:21, 8:22, 15:22, 37:13, 37:16, 37:17, 44:4, 66:9, 66:11, 89:9, 89:11, 101:8 .
move 15:17, 31:22, 46:17, 59:5, 66:3, 71:23, 72:9, 72:25 .
moving 72:4 .
Ms 2:23, 71:11, 72:23, 74:19, 75:13, 75:18, 75:20, 76:5, 76:12, 76:24, 77:13, 78:15, 82:14, 82:15, 82:16, 82:24, 83:4, 83:19, 84:5, 84:21, 85:5,

85:15, 85:25, 86:6, 86:24, 87:19, 87:22 .
multiple 57:16, 57:17, 57:18, 78:21 .
MYERS 2:19, 2:34 .
myself 56:20 .
. .
< N > .
N. 2:41 .
narrow 56:1, 100:8, 100:10 .
narrower 30:14 .
narrowly 65:8 .
nature 89:21 .
nature. 26:3 .
navigate 17:10, 98:2 .
nebulous 17:7 .
necessarily 85:3 .
necessary 19:15, 21:18, 22:24, 24:20, 51:24, 52:3, 76:15 .
necessity 55:24 .
need 5:6, 5:9, 5:16, 8:25, 22:6, 23:12, 23:24, 25:2, 25:9, 45:11, 47:11, 47:12, 52:6, 74:20, 91:12, 99:9, 100:4, 103:23, 107:21 .
needed 26:22 .
needs 24:4, 24:19, 35:21, 35:22 .
Neil 2:31, 3:15, 32:3, 43:13, 59:14 .
Neither 70:4 .
NEW 2:26, 2:29, 40:15, 99:10, 99:16, 100:23 .
next 15:17, 23:18, 25:25, 26:18, 42:25, 43:1, 43:8, 53:16, 59:7, 60:24, 71:23, 73:23, 76:3, 76:5, 78:25, 82:5, 86:10, 86:24, 89:5, 96:24 .
night 79:17 .
No. 1:5, 3:4, 26:13, 38:14, 48:18, 50:3, 71:24 .
nobody 17:5 .
node 11:21, 62:8 .
non-infringement 24:22, 25:1, 25:5, 35:20, 35:25, 52:22, 67:20, 76:14, 76:20, 99:23 .
non-limiting 80:1 .
None 38:25, 40:8, 40:16, 40:23 .
noon 109:13, 109:19 .

Concordance

nor 70:4, 93:1, 96:19.
normally 69:22.
Note 95:8, 104:8, 104:11, 104:21.
noted 39:21.
notes 79:17, 91:19, 105:6.
noteworthy 96:8.
Nothing 13:16, 19:3, 29:21, 39:13, 60:23, 61:7, 61:19, 61:25, 88:25, 102:25.
notice 59:1, 77:2.
notion 102:15.
now--it 37:7.
nowhere 89:20, 94:25, 97:4, 97:15.
number 4:10, 19:25, 20:6, 20:14, 20:21, 20:25, 21:2, 21:3, 48:13, 50:13, 50:14.
numerals 67:6.
NW 2:35.
 .
 .
< O > .
O'MELVENY 2:19, 2:34.
objection 109:17, 109:22, 109:23.
obligated 22:9.
obviated 99:13.
obviously 17:20, 19:1, 25:6, 34:2, 44:6.
of--and 28:5.
of/the 43:8.
offering 42:18, 42:22.
Office 12:19, 27:2, 28:2, 69:24, 70:3, 87:17, 102:3.
OFFICIAL 2:46, 111:12.
offset 6:23, 15:8.
often 74:22, 97:22.
Okay 7:3, 13:4, 26:8, 31:16, 31:22, 41:7, 42:3, 44:18, 46:17, 48:21, 51:19, 53:12, 61:1, 66:3, 75:19, 78:25, 91:19, 101:10, 102:4, 109:24.
OLED 16:11, 16:14, 32:25, 34:5, 34:9, 35:6.
on-state 72:18, 73:4, 74:7.
on-states 73:19.
Once 45:24, 78:19, 109:2.
op 9:23.
open 67:14.

opening 40:14.
operates 63:14.
operation 52:13, 63:13.
operational 9:24, 13:25, 30:17.
opined 85:16, 85:24.
opinion 39:2, 39:12, 39:24, 104:24, 107:22, 110:3.
opinions 39:16.
opposed 11:22, 12:4, 36:7, 85:4, 85:13, 86:4, 95:16.
opposing 83:25.
oranges 50:3, 50:6.
order 3:23, 49:11, 66:23, 110:3.
ordinary 4:15, 4:21, 4:25, 5:8, 5:22, 20:2, 20:9, 22:13, 23:10, 24:24, 26:21, 27:6, 29:25, 37:3, 42:20, 59:23, 60:1, 77:11, 79:8, 79:14, 89:17, 104:9, 105:8.
ostensibly 91:2.
other--the 108:10.
otherwise 56:18, 75:9, 99:15.
ought 35:24.
output 24:11, 27:25, 53:22.
outside 26:10, 26:11, 76:7.
overheat 92:21, 92:24, 92:25.
overheating 99:15, 99:22, 102:14.
owe 48:22.
own 11:16, 12:5, 19:2, 32:14, 63:3.
owner 7:25, 10:22, 88:21.
 .
 .
< P > .
package 79:20.
pad 101:18, 108:10.
page 69:16, 70:2, 88:20, 95:3.
panel 4:2, 11:25, 15:18, 19:24, 20:1, 20:2, 20:13, 21:1, 30:5.
panels 19:19.
paper 53:16.
papers 109:18, 109:25.
paragraph 8:3, 37:21, 38:18, 39:5, 46:19, 48:19, 53:17, 54:11, 60:9, 60:11, 106:20.
parallel 79:22, 79:23, 79:25, 80:5, 81:12, 84:15, 85:3, 85:4, 85:6, 85:12, 85:14, 86:5, 86:22, 87:2, 87:8, 88:6, 88:12,

89:2.
parallels 70:23.
parentheses 93:22.
Park 3:17.
Part 15:1, 16:23, 18:9, 19:13, 19:16, 21:14, 22:22, 22:23, 30:15, 32:9, 39:12, 54:25, 55:10, 55:12, 55:13, 55:15, 74:2, 74:4, 76:15, 77:18, 77:19, 77:20, 77:22, 90:7, 91:14, 99:25.
Partially 78:3.
particular 28:6, 33:4, 33:5, 63:13, 65:25.
particularity 88:24.
particularly 31:5.
parties 9:9, 15:25, 17:17, 17:22.
parts 19:9, 74:2, 77:17.
party 22:12.
passage 30:9.
passive 19:1, 33:6, 33:11.
past 57:24, 105:16.
Patent--and 32:17, 98:6, 104:2.
patentee 7:9, 74:24, 77:9, 86:25, 87:16.
patentees 104:14.
PC 2:13.
peaks 73:5.
people 4:10, 88:1.
per 78:19, 78:21.
perceive 72:16.
perceiving 72:17.
percent 73:7, 73:22.
perhaps 17:12, 21:15.
period 66:6, 78:6.
person 26:21, 27:2, 27:6, 36:22, 37:2, 42:9, 42:12, 45:15, 56:13, 61:15, 73:14, 77:11, 85:16, 85:19, 87:11, 104:9, 105:8, 106:21.
persuade 105:14.
persuaded 14:8.
petitioner 70:4.
Phillips 30:18.
philosophical 100:25.
phone 90:11, 95:21, 101:19, 101:20, 102:13, 108:10.
phones 102:1.
phrase 17:7, 18:23, 29:14, 67:1.
physicality 106:8, 106:17.

Concordance

physically 86:21, 98:25 . pick 43:1 . picture 33:16 . pixel 16:11, 16:14, 17:4, 19:10, 19:22, 20:14, 20:24, 21:16, 30:5, 33:4, 34:3 . pixels 16:2, 16:4, 17:2, 17:12, 17:13, 17:16, 18:11, 19:24, 19:25, 20:6, 20:19, 20:22, 20:25, 21:1, 21:2, 21:3, 33:2, 33:7 . place 49:25, 50:1, 101:20 . places 38:6 . plain 4:15, 4:21, 4:25, 5:8, 5:21, 20:2, 20:9, 22:13, 23:9, 24:24, 25:16, 27:3, 42:20, 59:23, 59:25, 79:8, 79:14, 86:14, 89:16, 104:16 . plainly 22:13 . Plaintiff 1:8, 2:3, 3:6, 3:8, 15:21, 16:5, 16:15, 17:19, 18:22, 19:4, 22:19, 23:9, 26:1, 26:15, 28:20, 41:25, 42:20, 47:14, 63:22, 78:1, 87:20, 101:5 . Plaintiffs 22:7, 37:12 . plan 3:23, 65:7 . play 73:25 . PLAZA 2:27 . Please 3:1, 8:23, 9:6, 10:20, 16:8, 16:12, 23:18, 28:20, 28:21, 32:5, 37:12, 43:5, 43:14, 47:15, 63:24, 66:8, 66:12, 68:6, 71:10, 71:12, 71:23, 82:13, 83:1, 89:8, 89:11, 93:4, 101:9, 107:18, 107:19 . plug 105:18 . plurality 16:16, 16:22, 17:9, 17:24, 17:25, 19:22, 20:8, 66:5, 66:6, 78:25, 82:17, 82:18, 82:20, 82:21, 84:25 . plus 45:5, 51:6 . pocket 49:21 . podium 4:12, 92:5, 92:6 . point--to 56:12 . pointed 37:4, 61:15, 64:5, 78:15, 94:11 . pointing 55:8 . points 17:10, 26:1, 28:24, 32:15, 35:18, 60:18, 71:17, 101:11 .	port 90:3, 90:4, 90:6, 90:7, 90:9, 90:12, 90:17, 90:18, 90:22, 90:24, 91:2, 91:6, 98:21, 98:23, 100:18, 105:16, 105:17, 105:22, 106:11, 106:14, 107:3 . portable 104:4, 104:5 . portion 26:14, 55:7, 68:25, 78:15, 85:22, 88:3 . portions 16:15 . portrayed 25:3, 78:14 . ports 106:5 . POSITA 39:7, 64:16, 86:20, 106:24 . position 5:23, 6:1, 6:6, 10:22, 16:5, 17:18, 20:18, 20:21, 21:13, 22:22, 23:1, 29:4, 32:2, 71:14, 71:16, 74:19, 76:6, 88:24, 106:4, 106:10 . positions 16:1, 17:22, 45:25 . positive"--excuse 10:25 . possibility 6:11, 67:14 . possible 32:8, 108:20 . post-it 79:17 . postgraduate 65:2 . posture 21:5 . potential 63:4 . potentially 17:24 . pound 49:21 . pounds 48:23, 48:24, 48:25, 49:22, 50:2, 50:14, 52:11, 52:15 . Powered 1:5 . PPSV 9:10, 9:13, 9:15, 9:22, 10:7, 10:8, 10:9, 12:7, 12:8, 12:9 . Ppsv--"as 11:1 . Ppsv--so 10:6 . practical 110:3 . practically 20:13 . practice 99:16, 99:19 . pre-determined 66:6 . precedent 22:10 . preceding 8:3 . precise 21:17 . preclude 99:10 . precluded 40:4, 40:17 . Preferably 81:25 . preferred 82:1 . preliminary 88:21 .	premise 48:16 . prepared 7:1, 79:8 . PRESCRIBED 111:5 . present 30:19, 63:20 . presentation 8:16, 13:23, 101:11 . presented 39:4, 39:15, 40:8, 40:11, 40:12, 40:15, 77:1 . presumption 30:20 . pretty 17:7, 24:23, 45:6 . prevent 93:9 . previously 77:19 . primarily 70:17 . primary 9:9 . principle 46:25 . prior 9:19, 11:5, 11:6, 12:2, 12:16, 29:2, 32:16, 33:13, 34:6, 37:23, 71:20, 72:11, 73:2, 77:5, 77:6, 78:17, 87:1 . probably 18:3, 69:9 . probe 18:10 . problem 34:6, 34:19, 35:2, 42:8, 67:11, 67:18, 78:17, 99:15, 99:17, 99:19, 107:3 . problems 67:1 . procedurally 40:4, 40:12 . procedure 59:2 . proceed 3:10, 3:19, 7:1, 9:5, 15:23, 15:24, 28:21, 32:5, 37:15, 37:16, 43:14, 63:23, 66:12, 89:11, 91:17, 101:9 . proceeding 37:20, 37:24, 53:7, 69:8, 87:5 . PROCEEDINGS 46:1, 111:3 . process 22:15, 66:24, 74:21, 110:6 . processing 26:9 . productive 22:16 . Professor 106:20 . program 16:4 . programmed 21:7, 33:2, 33:7, 35:3 . programming 21:16, 33:20 . progression 99:13 . prohibits 8:14, 30:11 . projector 105:19 . pronounced 68:21 . proper 59:2 . properly 30:4 . proposal 21:6 .
---	--	---

Concordance

propose 5:4, 59:10, 79:9, 89:16.
proposed 5:3, 5:18, 5:21, 9:8,
 11:10, 19:9, 20:11, 21:5,
 25:14, 70:13, 80:6, 109:16.
proposing 4:16, 66:14, 66:23,
 86:18.
prosecution 73:24, 74:21, 74:25,
 75:4, 75:24, 77:5, 87:7.
protocols 94:16, 94:18.
provide 76:25, 96:21, 98:10.
provided 8:10, 8:11, 30:16,
 38:19, 39:2, 106:22.
provides 5:24, 51:23, 63:18,
 76:25.
providing 64:15, 82:6.
PS 84:12.
PTAB 12:20, 14:22, 26:19, 28:15,
 46:16, 87:24.
public 74:23, 95:15, 95:19.
pulse 67:20, 69:1, 69:6, 70:1,
 73:20, 76:9.
pulse-width 72:11, 73:19, 73:21,
 78:10.
pulse-widths 74:5, 78:5.
pulses 72:13.
pulsing 68:11, 68:17, 75:23.
pun 76:4.
purpose 22:11, 82:7, 90:12,
 92:14, 92:18, 93:7, 93:11,
 93:14, 94:7, 98:6, 98:19.
purposes 24:21, 25:2, 79:13,
 92:1, 105:14.
pursuant 22:10.
put 12:11, 17:11, 18:2, 32:10,
 37:5, 74:10, 96:24.
puts 24:11, 33:4.
Putting 55:7.
PWM 67:21, 72:15, 73:3, 78:11,
 78:14, 78:15, 78:16, 89:1.
 .
 .
< Q > .
Qi 96:16, 97:4, 105:6, 105:9,
 108:12.
qualify 48:5.
question 7:4, 23:15, 24:15, 25:3,
 25:13, 35:14, 37:6, 63:4,
 85:22, 107:7.
questions 7:2, 8:17, 77:24.
quick 60:17.

Quickly 41:18, 54:23, 72:15,
 87:22, 93:11.
quickness 72:19.
quite 29:10, 46:2, 50:22, 53:7.
quote 26:2, 39:7, 88:4.
quoted 14:2.
quoting 37:19, 68:14.
 .
 .
< R > .
radio 105:4.
raised 43:16, 88:7.
raising 64:17.
range 20:25.
rapidly 72:16.
rate 33:13, 33:17.
rather 5:7, 10:1, 10:6, 11:1, 12:7,
 22:2, 107:9, 110:5.
rationale 56:23.
read 4:15, 4:22, 7:18, 17:21,
 39:12, 65:3, 68:11, 99:16.
reading 20:4, 30:11, 63:12, 67:4,
 80:6.
reads 80:7.
ready 3:10, 3:19.
real 12:14, 18:5, 18:6, 99:25.
realizing 65:6.
Really 14:15, 16:6, 17:1, 17:2,
 17:16, 18:12, 18:13, 19:18,
 20:23, 24:22, 24:25, 30:25,
 31:6, 32:10, 36:14, 45:13,
 70:12, 70:14, 89:17, 96:22,
 98:3, 99:23, 99:24, 107:22,
 109:15.
reason 3:21, 10:15, 24:3, 32:21,
 32:24, 35:21, 46:3, 79:21,
 88:10.
reasonable 38:21, 61:23.
reasons 10:14.
rebuttal 13:18, 107:14.
receive 5:23, 6:8, 6:19, 9:10,
 13:6, 27:13, 90:4, 90:6,
 90:19.
received 4:20, 23:22, 24:2,
 24:12, 26:6.
receiver 27:16.
receives 4:23, 5:13, 5:17, 6:6,
 6:21, 8:1, 9:13, 10:24, 30:8,
 90:12, 105:18.
receiving 3:25, 4:24, 13:11,

13:12, 26:23, 27:16, 27:19,
 29:19, 103:3.
recess 43:1, 43:3, 110:9.
recess. 43:4.
recite 30:15.
recites 103:3.
RECORD 3:5, 77:10, 97:16,
 104:21, 111:2.
red 37:21, 81:21, 81:25.
reduce 72:5, 98:10.
reduced 69:2.
reducing 97:3.
refer 45:7, 83:6, 87:12, 106:19.
reference 6:16, 9:22, 12:9,
 37:22, 46:5, 53:13, 53:18,
 53:20, 54:16, 67:5, 68:19,
 69:13, 70:10, 74:1, 87:1, 87:3,
 88:8, 88:9, 88:14, 95:8.
reference--and 74:13.
referenced 4:1, 6:5, 9:14, 10:1,
 10:5, 10:8, 10:10, 11:15, 12:6,
 12:12, 14:4, 14:14, 14:17,
 15:13, 39:10, 40:1, 62:9.
references 26:15, 37:23.
referred 29:17, 47:3, 93:24.
referring 11:15, 42:9, 73:2.
refers 26:24, 32:18, 44:24, 74:9,
 77:6, 94:7.
reflected 76:9.
regard 110:7.
regarding 96:1.
regularly 97:8.
reiterate 78:3.
reiterates 7:21.
relate 29:9, 45:9, 56:3, 95:24.
related 3:24, 19:17.
relates 70:7, 81:20, 82:8.
relationship 85:9.
relevant 14:15, 20:14, 52:11.
relied 29:23.
relies 7:13, 7:23, 7:25, 8:10.
rely 51:25.
relying 69:10, 80:20.
rendering 72:7.
repeated 20:6.
repeatedly 26:1, 26:15.
repeating 56:20.
reply 77:16.
REPORTER 2:46, 111:12.
representation 47:22, 78:6.

Concordance

representations 69:22 .
representatives 3:16 .
represented 49:12, 49:13, 50:8,
 50:9, 50:11, 81:7 .
representing 23:20, 48:11 .
require 6:9, 18:25, 29:24, 39:25,
 50:17, 50:18, 52:8, 52:12,
 52:13, 57:7, 80:2, 82:4 .
required 21:4, 27:6, 39:21,
 45:23, 46:10, 54:11, 54:15,
 84:3, 105:20, 107:10 .
requirement 4:22, 4:23, 6:6,
 19:24, 30:7, 51:17, 52:16,
 55:17, 97:10 .
requirements 30:23, 52:23,
 55:9 .
requires 6:3, 23:22, 26:23,
 29:21, 30:2, 58:1, 58:2, 58:3,
 58:5, 71:15, 84:25 .
resistant 62:10 .
resistor 27:13, 27:17, 62:10 .
resistor--and 27:12 .
resistors 27:15, 61:4 .
resolve 48:23 .
resolved 47:12 .
respect 13:23, 19:10, 19:16,
 19:21, 22:21, 30:13, 32:16,
 42:6, 46:4, 53:13 .
respectfully 63:17 .
response 7:25, 8:20, 14:11,
 15:21, 19:5, 21:10, 32:11,
 37:12, 40:15, 42:19, 53:12,
 53:17, 55:1, 55:2, 69:16,
 83:25, 88:21, 106:2 .
rest 105:21 .
restriction 7:10, 7:12, 65:10 .
restrictive 80:22 .
result 56:8, 61:2, 68:12, 68:18,
 69:18, 69:21, 70:5 .
rewriting 66:25 .
Ricketts 104:20, 105:3, 106:20 .
right-hand 108:5 .
ripple 53:24, 54:3, 54:8, 54:17 .
rise 74:17 .
rises 12:23 .
RMR 1:45, 2:46, 111:11 .
road 18:8, 52:23, 62:20, 71:13,
 79:17, 97:22, 99:7 .
Robert 2:10, 3:8, 66:9 .
ROCKEFELLER 2:27 .

RODNEY 1:26 .
Romanization 68:23 .
room 4:10, 99:3, 108:22 .
rose 34:5 .
row 21:7, 21:21, 33:12, 33:13 .
rows 33:15 .
rubber 71:13, 97:21 .
Ryan 2:24, 3:15, 89:9 .
 .
 .
< S > .
S-E-O 68:22 .
S. 2:20 .
S/shawn 111:9 .
Sal 2:11, 3:9, 37:13 .
satisfy 93:14 .
saw 83:8 .
saying 10:9, 26:14, 26:16, 27:1,
 42:5, 50:24, 55:13, 56:5,
 57:20, 58:11, 76:13, 84:9,
 85:6, 88:7 .
scanning 33:13, 33:17 .
scenario 83:12 .
scheme 72:11, 72:12, 75:1,
 75:25, 76:7 .
scope 6:11, 7:9, 38:21, 39:7,
 56:14, 60:22, 61:9, 61:16,
 74:18, 75:9, 76:7, 77:7,
 102:22 .
screen 9:8, 16:1, 74:10 .
seated 3:1, 43:5 .
Second 6:1, 18:20, 27:12, 27:16,
 30:9, 43:20, 55:15, 67:11,
 90:5, 90:6, 90:21, 90:22,
 90:23, 90:24, 91:8, 91:12,
 91:25, 92:19, 93:21, 94:1,
 94:20, 95:9, 96:7, 99:25,
 103:4, 103:11, 104:11, 108:3,
 108:19, 109:1 .
section 16:9, 44:2, 67:22 .
seeing 36:8, 85:17 .
seeks 4:18, 5:2 .
seems 5:22, 20:5, 21:8, 22:18,
 35:24, 57:5, 58:13, 68:2,
 105:24, 109:20 .
seen 33:10, 102:21 .
selected 33:15 .
selectively 80:8, 81:16, 82:6,
 82:8, 83:11, 85:19, 86:7,
 86:10 .

send 13:6, 13:7 .
sense 25:3, 25:4, 34:18, 37:2,
 44:9, 45:14, 46:23, 58:6,
 98:15, 108:24 .
sensors 101:23 .
sentence 65:22, 67:4, 67:7, 67:8,
 68:7, 68:9, 68:11, 68:13,
 68:25, 80:16, 80:17, 80:20,
 82:5, 86:6 .
Seo 68:19, 68:20, 68:23, 68:25,
 69:5, 69:7, 69:11, 69:14,
 69:16, 70:10, 74:1, 76:7, 78:4,
 88:8, 88:11, 88:12, 88:14,
 88:17 .
separate 11:1, 11:4, 12:3, 45:19,
 86:9 .
series--one 83:13 .
Seriously 63:10 .
set 3:2, 30:18, 52:22, 80:8,
 85:11, 86:10, 86:21 .
sets 5:12, 80:8, 82:22, 82:23,
 83:17, 86:18 .
several 3:16 .
shape 96:20 .
SHAWN 1:45, 2:46, 111:11 .
shawn_mcroberts@txed.uscou
rts.gov 1:49 .
shifting 30:3 .
short 9:10, 13:18, 24:4 .
show 11:3, 14:21, 37:25, 39:13,
 45:5, 48:17, 50:20, 51:16,
 53:6, 53:8, 53:15, 53:16,
 69:17, 85:14, 91:14, 100:7,
 101:18 .
showed 37:19, 38:20, 41:23,
 47:7, 51:14, 53:14, 64:8,
 108:9 .
showing 27:10, 45:2, 73:3, 74:5,
 78:4, 78:8 .
shown 8:4, 10:18, 11:18, 25:17,
 41:3, 65:11, 88:4, 95:12 .
shows 38:10, 69:12 .
side 11:25, 13:6, 28:1, 28:11,
 28:12, 28:13, 31:3, 79:7, 98:1,
 108:5 .
side-by-side 108:16 .
side-stepped 47:3 .
sides 92:15 .
sigh 84:4 .
sign 44:25, 45:5 .

Concordance

signal. 46:8.
signals 25:9, 26:3, 26:4, 26:8,
 26:12, 26:13, 28:8, 29:16,
 43:20, 44:9, 46:18, 46:20,
 46:24, 47:11, 94:3.
significant 22:10.
similar 5:20, 34:3, 35:14, 38:15,
 44:19.
Similarly 45:3, 93:25.
simple 4:15, 5:8, 10:12.
simpler 66:24.
simply 17:2, 19:17, 30:9, 30:22,
 66:16.
single 85:10, 85:17.
sir 92:3.
situation 12:17, 81:20.
sixth 108:4.
skill 26:21, 27:2, 27:7, 30:1,
 36:22, 37:3, 42:10, 42:12,
 45:15, 56:13, 61:15, 64:2,
 64:12, 73:14, 77:11, 85:16,
 85:19, 87:11, 104:9, 105:8,
 106:21.
skilled 38:20, 64:18, 64:25,
 65:15.
skip 31:1, 106:6.
slides 8:25, 14:25, 28:23, 29:8,
 38:23, 38:25, 80:17.
slip 10:6.
Slow 16:12, 93:3.
slower 33:17.
SMITH 2:40.
smoother 72:6.
snip 79:20.
solution 34:11, 98:10.
Somebody 92:5, 109:20.
somehow 40:4, 59:23.
sometimes 80:23.
somewhat 55:24, 57:5.
somewhere 77:21, 99:6,
 106:15.
soon 110:3.
sooner 110:5.
Sorry 16:13, 18:13, 56:20, 57:19,
 89:13, 92:10, 93:5.
sort 98:15.
sound 35:21.
sounds 35:20, 99:23.
source 11:2, 11:4, 24:9, 26:9,
 26:12, 26:24, 34:15, 35:1,

35:2, 81:9.
source--the 26:9.
speaking 20:13.
spec 13:8, 16:15, 44:3, 44:7,
 44:8, 44:23, 45:3, 45:4, 45:8,
 52:5, 61:19, 61:25.
spec. 60:2.
specific 22:1, 30:15, 31:11,
 31:13, 44:2, 48:12, 67:13,
 80:2, 81:19, 82:20, 94:8,
 100:1.
specifically 38:3, 51:12, 51:22,
 64:5, 65:12, 68:4, 92:19,
 96:3.
specifications 60:13, 96:7.
specified 20:22, 21:2, 29:19.
specify 29:18.
spectrum 17:8, 17:23, 18:1,
 20:20.
squarely 77:7.
standard 36:3, 95:1, 96:16,
 96:17, 96:20, 96:23, 97:4,
 105:7, 105:9.
standards 95:4, 108:12.
stands 43:3, 110:9.
start 3:24, 7:7, 8:24, 32:1, 37:18,
 103:2.
starting 56:9, 57:15.
starts 9:19, 52:7, 84:7, 92:16,
 92:17.
state 15:9, 18:8.
stated 10:21.
statement 6:14, 7:24, 8:1, 9:18,
 10:9, 10:12, 11:14, 11:16,
 11:17, 12:12, 18:13, 19:17,
 19:20, 20:15, 29:25, 44:11,
 44:13, 74:25, 75:23, 77:16.
statements 7:23, 8:11, 8:12,
 8:15, 13:9, 13:14, 29:23,
 74:10, 74:24, 86:25.
STATES 1:1, 1:27, 111:7.
stay 68:6.
stays 35:13.
step 26:9.
stop 7:2, 16:19, 18:4, 37:10,
 92:2.
storage 18:21, 18:25, 19:11,
 21:13, 21:20, 22:25.
stored 18:23, 21:7, 21:23, 21:24,
 33:24.

storing 16:3.
straight 57:1.
straightforward--there 70:9.
STREET 1:46, 2:20, 2:35, 2:47.
string 79:14, 80:7, 80:23, 81:25,
 83:9, 83:21, 83:22, 84:1, 84:9,
 84:14, 84:25, 85:4, 85:7,
 85:10, 85:17, 86:1, 86:9,
 86:12, 86:13, 86:15, 86:21,
 87:12.
string--and 84:13.
string--so 84:8.
strips 79:19.
strong 109:17.
structure 90:1, 90:2, 90:16,
 90:20, 90:23, 91:7, 91:8,
 91:10, 91:11, 96:4, 98:20,
 108:25.
struggling 58:10, 86:23, 98:3.
sub 38:7.
subject 77:20.
submission 110:1, 110:7.
submit 10:2, 10:9, 12:18, 13:9,
 13:13, 16:17, 16:25, 18:24,
 25:7, 25:10, 39:21, 40:19,
 71:5.
submitted 39:23, 40:13, 87:9.
submitting 104:21.
substance 59:21.
substantively 14:6.
substitute 66:16.
substituting 11:11.
subtract 47:17, 50:1.
subtracted 43:21.
subtracting 44:9, 45:13, 45:22,
 46:25, 51:14.
subtraction 43:19, 44:25, 45:2,
 45:9, 47:11, 50:18, 52:9.
successive 83:13.
sufficient 4:15, 5:1, 5:5, 5:14,
 38:20, 64:17.
suggesting 103:25, 104:14.
suggestion 59:4.
suggests 51:22, 108:20.
SUITE 2:5, 2:14, 2:41.
summarizing 16:18.
summary 10:19, 10:21, 10:23,
 16:9, 67:23, 70:22, 70:24.
summed 28:9, 55:11.
summing 55:9.

Concordance

supplied 99:5 .
supplies 90:13 .
supply 10:2 .
supplying 34:4, 92:16, 96:6, 96:21, 97:2 .
support 7:14, 13:13, 18:10, 38:17, 43:25, 44:3, 52:4, 53:3, 80:12 .
supported 6:1, 13:8, 13:12, 39:1, 40:5, 40:8, 40:16, 40:23, 40:24, 40:25, 41:22, 44:14 .
Supports 19:2, 42:4, 59:23, 104:17, 104:18 .
supposed 17:9 .
surely 16:15 .
Surprisingly 23:9 .
surrender 74:18, 75:8 .
Suweon 3:17 .
switch 79:6 .
switches 21:8, 21:22, 72:15 .
synonyms 71:3 .
system 27:15, 53:19, 54:12, 98:16 .
system--and 26:11 .
systems 26:3, 95:11 .
. .
< T > .
t(1 32:18, 35:3, 35:12 .
table 92:8 .
talked 34:22, 38:25, 40:16, 98:20 .
talks 13:10, 38:3, 38:6, 41:8, 44:8, 67:22, 71:20, 77:4, 78:16, 83:7, 84:8, 84:22, 84:23, 97:2, 97:23, 102:8, 102:23, 104:3 .
tantamount 75:8 .
targeted 99:25 .
taught 70:10, 75:2, 83:4, 83:17, 100:20 .
teach 64:2, 65:15, 74:14, 75:2, 85:13, 85:23, 88:12 .
teaches 64:15, 64:18, 68:24, 85:25, 88:8 .
teaches--206 84:14 .
teaching 69:11 .
tech 18:24, 19:2 .
technical 5:7, 18:22, 32:10, 33:10, 42:9, 88:9 .

technically 88:24 .
technique 67:21 .
Technologies 1:5, 3:3, 100:21, 103:15 .
technology 96:12, 99:21, 100:1, 100:4, 100:23 .
tells 23:9, 24:5, 26:7, 60:23, 61:1, 109:4 .
temperature 91:22, 91:24, 92:15, 92:18, 93:1, 93:8, 93:12, 98:7, 98:15, 99:1, 99:3, 99:4, 99:10, 100:2, 100:12, 101:16, 101:23, 101:25, 102:8, 102:12, 102:15, 108:3, 108:8, 108:18, 108:21, 108:22, 108:23, 109:1, 109:7 .
tend 99:24 .
tension 97:17 .
terminal 9:25, 10:4, 10:7, 10:11 .
terminals 81:8 .
terms 3:22, 3:24, 5:12, 5:19, 38:9, 39:17, 64:11, 66:15, 70:18, 89:10, 107:11, 109:14, 109:18, 109:24 .
testimony 41:22, 42:4, 75:20, 85:16 .
TEXAS 1:2, 1:13, 1:47, 2:15, 2:42, 2:48 .
text 96:4 .
Thanks 92:12 .
that--what 36:15 .
themselves 84:15, 95:14, 96:5, 103:10 .
there--the 56:15 .
thereto 9:11 .
They've 14:2, 34:23, 100:21 .
thinks 61:25, 72:20 .
third 56:8, 61:3, 67:18, 91:23, 108:2, 108:7, 108:17 .
though 5:21, 33:15, 97:5 .
thousands 16:2, 16:10, 16:14, 16:17, 16:23, 16:25, 17:4, 17:6, 17:21, 18:2, 18:11, 19:16, 20:7, 20:16 .
three 17:25, 20:19, 48:14, 67:1, 70:17, 73:3, 73:4, 74:2, 77:17, 77:19, 95:4 .
throughout 29:16, 35:11, 44:13, 66:18, 94:5, 94:8 .
throwing 105:12, 106:1 .

tied 83:22 .
time--10 73:22 .
today 33:3, 36:6, 40:5, 40:8, 40:12, 40:18, 41:2, 46:2, 53:8, 59:16, 74:16, 95:2, 96:17, 110:6 .
today--it 76:25 .
together 48:2, 48:15, 50:24, 51:2, 52:12, 56:7, 90:13, 90:21, 93:18, 103:13 .
TONKOVICH 2:4 .
took 10:22 .
top 9:19, 28:25, 35:6, 35:10, 36:16, 90:17, 101:20 .
touch 104:22, 108:9, 108:11 .
tour 78:12 .
trading 103:12, 104:4 .
transaction 48:24 .
TRANSCRIPT 111:2, 111:4 .
transfer 94:18, 94:23, 95:5, 95:6, 95:19, 95:24, 95:25, 96:2, 96:6, 96:9, 101:22, 103:9, 103:16 .
transferring 94:17 .
transistor 33:23, 34:4, 61:7, 62:1, 64:9 .
transistor-by 61:7 .
transistors 30:4 .
transition 72:6 .
transmit 13:7 .
transmitter 100:19 .
Travis 2:44, 3:13 .
trial 5:14, 19:13, 24:23 .
tried 93:17 .
trillion 17:7 .
trillions 18:4 .
try 37:24, 79:6 .
trying 6:12, 9:21, 12:22, 14:24, 17:22, 18:10, 18:15, 31:14, 52:21, 52:24, 53:25, 73:1, 75:7, 75:11, 80:9, 83:20, 83:21, 91:5, 100:7, 100:17, 102:6, 102:20, 109:7 .
turn 43:8, 66:4, 71:11, 79:3, 94:10, 105:17, 105:18 .
turned 33:13, 72:14, 73:9, 80:9, 82:6, 82:8, 83:11, 85:19, 86:7, 87:14 .
Turning 7:13, 7:20, 7:23, 8:9, 29:8, 29:12, 29:23, 62:6,

Concordance

81:16 .
turns 92:4 .
tutorial 18:22, 18:24, 19:2,
 33:11 .
two--this 94:13 .
two-pixel 20:22 .
TYLER 2:15, 2:42 .
type 21:22, 25:16, 31:11, 44:2,
 44:10, 44:11, 44:12, 46:18,
 46:21, 47:12, 51:23, 52:6,
 60:8, 60:11, 64:12, 64:18,
 64:20, 65:16, 100:1 .
type--they're 43:23 .
types 38:24, 67:14 .
Typically 80:21, 80:23, 80:25,
 81:2, 84:3, 84:4, 84:7, 104:5,
 104:8 .
 .
 .
< U > .
ultimately 57:7 .
unclaimed 82:8 .
unclear 35:22, 39:8, 57:5,
 88:16 .
undefined 59:21 .
underlined 74:13 .
understand 12:24, 13:3, 16:20,
 17:8, 17:18, 21:19, 24:17,
 24:18, 26:22, 27:3, 42:13,
 49:16, 55:3, 56:17, 65:3,
 70:20, 73:15, 76:13, 76:16,
 82:25, 83:2, 87:12, 91:1,
 92:24, 95:23, 95:24, 97:7,
 106:24 .
understanding 39:18, 74:22,
 86:14, 87:15 .
understands 74:24 .
Understood 7:5, 27:7, 30:1,
 39:7, 55:18, 61:16, 83:12,
 83:20, 105:9, 106:21 .
Underwood 2:44, 3:13, 3:14,
 3:20 .
undisputed 60:14 .
UNITED 1:1, 1:27, 111:7 .
Unless 7:4, 48:24, 49:8, 57:15,
 77:23, 108:24, 109:17 .
unnecessary 19:12 .
unpersuasive 40:7 .
unrebutted 75:20, 85:15 .
until 49:25, 50:1 .

unusual 55:24 .
unwanted 34:9 .
upstream 13:11 .
USB 94:15, 103:13 .
uses 44:24, 44:25, 45:3, 61:1,
 81:22, 84:6, 94:8, 96:23,
 103:6 .
using 41:10, 41:11, 53:7, 64:11,
 64:21, 64:23, 78:16, 94:18,
 102:23 .
 .
 .
< V > .
value 5:24, 6:13, 6:15, 6:22,
 33:4, 33:5, 33:12, 47:23,
 47:24, 48:13, 49:3, 49:9,
 49:12, 50:8, 50:12, 50:15 .
values 32:20, 32:21, 33:16,
 47:22, 48:7, 48:15, 51:10,
 61:4 .
vantage 76:22 .
variations 34:9 .
varies 35:11, 39:15 .
various 35:18, 67:14, 82:7,
 93:20, 95:11 .
vary 35:7 .
varying 42:11 .
VDC 11:2, 11:4 .
Vdd"--that 11:1 .
Vdd--which 32:22 .
Vdds 32:23, 35:7, 42:13 .
Vdds--this 32:16 .
verbatim 67:4 .
versa 46:22 .
versus 3:3, 43:7, 85:3, 96:12,
 97:24 .
Vgate 53:22 .
via 21:7, 93:21, 94:1, 95:12,
 103:13, 104:6, 109:1 .
viable 22:11 .
vice 46:22 .
vid 32:23, 35:12, 39:16 .
view 16:1, 40:3, 63:16, 71:2,
 86:18, 100:10, 109:21 .
viewed 63:17 .
voltage. 39:11 .
voltages 36:20, 38:24, 47:3,
 48:12, 72:2 .
volts 47:25, 48:1, 48:3, 48:4,
 48:5, 48:14, 51:4, 51:5,

57:11 .
Vri. 53:24 .
vs 1:10 .
VT 62:8 .
 .
 .
< W > .
wanted 13:22, 13:24, 25:25,
 31:2, 76:3, 76:5, 77:15, 88:3,
 102:18 .
wants 87:6, 105:1, 109:20 .
WASHINGTON 2:36 .
waveform 47:23, 47:24, 48:12,
 49:14, 69:19, 70:6 .
way. 35:19 .
ways 12:19, 12:21, 48:11, 51:1,
 68:17, 103:18 .
wedded 21:17 .
well-known 60:8, 60:11 .
whatever 7:1, 56:9, 59:2 .
whatsoever 96:11 .
Wherein 55:22, 56:24 .
wherever 63:9 .
Whether 9:9, 14:7, 17:1, 18:20,
 20:1, 40:10, 48:14, 49:22,
 52:14, 55:4, 55:18, 57:21,
 68:2, 69:6, 70:1, 79:24, 80:4,
 81:11, 85:11, 89:15, 89:16,
 89:17, 89:19, 97:10, 97:20,
 98:8, 98:16, 106:8, 106:23 .
white 76:2, 76:4 .
whole 35:12, 68:25, 75:24, 93:7,
 93:11, 93:14, 98:19, 109:5 .
whole. 69:3 .
width 67:20, 70:2 .
Wifi 103:17 .
will 5:15, 16:15, 19:13, 21:19,
 23:15, 33:3, 36:7, 63:25,
 76:25, 77:1, 77:14, 93:3,
 98:15, 108:13, 108:14,
 108:22, 110:1, 110:4 .
willing 17:20 .
wind-up 91:5 .
wire 83:13, 84:17, 84:19, 86:15,
 89:18, 94:9, 103:5, 104:6,
 104:12, 105:4 .
wire. 93:24 .
wired 79:22, 80:5, 85:11, 85:13,
 86:4, 94:23, 95:17, 100:12,
 103:25, 106:23 .

Concordance

wireless 92:23, 94:12, 94:15,
94:23, 94:24, 95:1, 95:4,
95:16, 95:20, 96:12, 101:15,
101:17, 101:18, 101:19,
102:5, 102:17, 102:23,
103:13, 103:17, 103:19,
104:1, 105:6, 105:19, 106:5,
106:13, 106:23 .
wirelessly 95:13, 103:13,
103:25, 105:9 .
wires 94:3, 95:12, 103:13 .
wiring 86:20 .
within 6:11, 11:10, 17:24, 31:10,
66:6, 70:2, 77:7, 85:10, 86:9,
86:21, 101:21, 101:23 .
without 64:21, 70:1 .
WLAN 94:15, 103:14 .
wondering 20:8 .
word 12:20, 45:20, 55:24, 66:16,
68:10, 70:25, 78:6, 80:7,
80:13, 80:20, 80:21, 84:7,
85:2, 86:14, 87:11, 89:6,
89:14, 103:6 .
words 5:7, 7:9, 27:4, 58:15,
64:22, 65:10, 95:20, 96:22,
98:14, 100:19, 106:7, 106:8 .
work 24:19, 27:15, 36:25,
51:16 .
working 91:16, 91:18 .
works 5:16, 27:16, 33:14, 33:25,
36:25, 101:19 .
world 100:15 .
worried 99:12, 99:15 .
worth 93:17, 93:18 .
WPC 96:16 .
written 64:17, 110:2 .
.
.
< Y > .
YAGURA 2:24, 3:15, 89:9, 89:12,
91:4, 91:19, 92:3, 92:9, 92:12,
92:25, 93:5, 95:18, 96:3,
96:16, 98:4, 99:20, 101:1,
101:4, 107:15, 107:16,
107:19, 108:7, 109:11,
109:23 .
year 105:7 .
yellow 35:4, 73:5, 73:8 .
YORK 2:26, 2:29 .
you-all 87:24 .