

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC. and
MOTOROLA MOBILITY LLC,
Petitioner,

v.

THETA IP, LLC,
Patent Owner.

IPR2023-00697 (Patent 10,129,825 B2)
IPR2023-00698 (Patent 10,524,202 B2)¹

Record of Oral Hearing
Held: July 24, 2024

Before JEFFREY S. SMITH, THOMAS L. GIANNETTI, and
BARBARA A. BENOIT, *Administrative Patent Judges*.

¹ The parties are not authorized to use this style heading for any subsequent papers.

IPR2023-00697 (Patent 10,129,825 B2)
IPR2023-00698 (Patent 10,524,202 B2)

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The above-entitled matter came on for hearing on Wednesday, July 24, 2024, commencing at 1:00 p.m., by video conference.

P R O C E E D I N G S

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1:01 p.m.

JUDGE BENOIT: Good afternoon. We are convened for oral argument for two inter partes reviews in which Lenovo and Motorola, Motorola Mobility, are challenging patents owned by Theta IP.

The inter partes reviews are IPR2023-00697 challenging claims in U.S. Patent No. 10,129,825 and IPR2023-00698 challenging claims in U.S. Patent No. 10,524,202.

I'm Judge Benoit. Also appearing by video today are Judges Giannetti and Smith. Let's start with appearances, if we can. Petitioner?

MR. MELWANI: This is Dinesh Melwani, lead counsel on behalf of Petitioner.

JUDGE BENOIT: Welcome. Do you have anyone else joining from your side today, sir?

MR. MELWANI: I do. We have Will Uhr, backup counsel who will be doing the presentation on behalf of Petitioners, Sangwoo Ahn, backup counsel as well and I believe Matthew Mosteller on behalf of Petitioner Lenovo.

JUDGE BENOIT: Thank you, and welcome to all of you. Who's representing Patent Owner today?

MR. HAND: Good afternoon. This is Aaron Hand, lead counsel for Patent Owner Theta IP, LLC. With me today is Corey Johanningmeier, pro hac, and he will be the primary presenter this afternoon.

1 JUDGE BENOIT: Welcome to you too. A single transcript of this
2 hearing will be entered into the record for each of the IPRs, and that will be
3 the official record of the hearing.

4 As you probably are aware, to have a clear record you should identify
5 yourselves before speaking and mute yourself when you're not speaking.
6 Also, please identify specific slide numbers when referring to the
7 demonstratives and also, if you refer to papers or exhibits of specific cases,
8 identify the case as well as the Exhibit No., Paper No. and specific page so
9 we can follow along.

10 It's important that if you encounter any difficulties, please let --
11 technical difficulties, let us know immediately. We will pause the hearing
12 and allow technical issues to be addressed. It's important to us that each of
13 the parties have the opportunity to be heard today.

14 As you know, the judges each have the demonstratives, papers and
15 exhibits available to us on our computers. If you would please give us a
16 moment to open the document if you're referring to a paper or exhibit so that
17 we can follow along more easily.

18 As indicated in the hearing order, each party has a total of 60 minutes
19 to argue today. Petitioner has the ultimate burden of establishing
20 unpatentability, will proceed first to present its case and may reserve rebuttal
21 time. Patent Owner also may reserve surrebuttal time.

22 Petitioner, you may begin when ready.

23 MR. UHR: Thank you, Your Honor. For the record, this is William
24 Uhr on behalf of Petitioners. And may it please the Board, I would like to
25 reserve 12 minutes for rebuttal, please.

26 JUDGE BENOIT: All right, thank you.

1 MR. UHR: I'm going to attempt to share Petitioners' demonstratives
2 here as I go through my presentation. Okay, I trust that those are available
3 now via the Share Screen.

4 PETITIONER - ORAL ARGUMENTS

5 MR. UHR: Turning to Slide 2 of Petitioners' demonstratives, this is a
6 roadmap of the issues that I will discuss today. Without diverting too much
7 time from the disputed issues, I'd like to begin with a brief overview of the
8 challenged patents and the one prior art reference in dispute, Rauhala.

9 All of the disputes in both IPRs relate to the disclosure of the Rauhala
10 reference. Following the overview, I will address the five groups of
11 disputed claim elements that are shown in the bullets on the bottom of the
12 slide.

13 Turning to Slide 3, the two challenged patents in these proceedings
14 are the '825 and '202 Patents. These patents are related and they share a
15 common specification. Both claim priority through chains of continuations
16 to provisional applications which were filed on March 1st, 2003. The parties
17 have treated this date as the effective priority date in these proceedings.

18 Moving to Slide 4, Claim 1 of the '825 Patent, which is shown on the
19 left, and Claim 7 of the '202 Patent, which is shown on the right, are
20 representative of the claims at issue here. All of the challenged claims in
21 these proceedings are method claims that recite variations of a method for
22 power dissipation, reduction or control in the receiver of a wireless
23 transceiver of a battery powered portable device.

24 JUDGE BENOIT: Could I interrupt you right there before you start
25 on the next slide? The receiving of a wireless signal having a desired signal
26 and an interferer signal in that challenged Claim 1 -- go back one slide.

1 MR. UHR: Yes.

2 JUDGE BENOIT: Patent Owner says that the wireless signal there is
3 the same thing as the input spectrum signal in the patent. Do you agree with
4 that?

5 MR. UHR: It says it's the same as the input -- could you repeat the
6 question, please?

7 JUDGE BENOIT: Sure, that the wireless signal is also referred to as
8 the input spectrum signal. Sorry, input signal spectrum.

9 MR. UHR: I think that's correct, Your Honor. I don't think
10 Petitioners have any issue with that.

11 JUDGE BENOIT: Okay, thank you. So the other thing that Patent
12 Owner characterizes is that Claim 1 requires measurement of two different
13 components of one received signal spectrum. Do you agree with that?

14 MR. UHR: I agree that the claim recites receiving a wireless signal,
15 having a desired signal and an interferer signal. Beyond that, I'm not sure
16 what the distinction is that you're asking about.

17 JUDGE BENOIT: All right, that's fine. Thank you.

18 MR. UHR: Sure. To briefly walk through Claim 7 of the '202 Patent,
19 which I think is demonstrative and will help to highlight the disputed issues
20 in this case, Claim 7 recites in a preamble, a receiver having a signal path
21 with an amplifier, a filter and a mixer.

22 And this is shown in Figure 14 of the challenged patents. There is an
23 amplifier, a mixer and a filter, and they are all connected by a horizontal line
24 that represents the signal path.

25 Moving to Slide 6, the claim next recites that the receiver is
26 configured to receive a wireless signal, having a desired signal and an

1 interferer signal. Here, for example in Figure 11, 11B, the patents represent
2 a desired signal and interferer signals on a bar chart, and they are plotted
3 according to their frequency on what the patents refer to as a spectrum.

4 Moving to Slide 7, the claim recites that the circuits are designed to
5 function between a worst-case condition. And here the worst-case condition
6 is also shown by Figure 11B where the desired signal is relatively low in
7 comparison to the interferer signal which is shown with a large bar on the
8 chart.

9 Slide 8, the circuit also functions between a best-case condition. An
10 example of that would be shown in Figure 9B where the desired signal is
11 relatively large and the interferer signal is relatively small. The first method
12 step of Claim 7 is receiving the wireless signal, having the desired signal and
13 the interferer signal by the receiver.

14 The specification explains that the signals are received by an antenna
15 and pass to a low noise amplifier. The general position of the amplifier --
16 the antenna, excuse me, that receives the signal is shown toward the left of
17 Figure 14 and highlighted on the slide.

18 The next method step is determining the strength of the desired signal.
19 Specification describes signal strength indicator circuits which are
20 highlighted in Figure 14 and a computational circuit which are connected to
21 the indicator circuits.

22 The specification suggests that some combination of these signal
23 strength indicators and computational circuit accomplish the determining.
24 And as the --

25 JUDGE SMITH: Counsel, can you -- before you go to the next slide,
26 counsel, this is Judge Smith. Can you tell me, those boxes, 1470, 1472,

1 1474, is one of these the desired signal and another one would be the
2 interferer signal? Is that what's happening with these boxes?

3 MR. UHR: Well, that's not entirely clear, Your Honor. The
4 specification suggests that these signal strength indicators actually measure a
5 cumulative signal on the signal path. And it would be the cumulative signal
6 that might be -- would be measured at 1470, for example, and might be
7 compared to the cumulative signal measured at 1474.

8 How the exact determining is determining the strength of the desired
9 signal is accomplished is not exactly clear, based on the specification.

10 JUDGE SMITH: Well, okay. But this circuit somehow is receiving
11 one input signal and from this one input signal it determines both the
12 strength of the desired signal and the strength of the interferer signal. But
13 the circuit doesn't explain how it does it. Is that what you're telling us?

14 MR. UHR: That's right, Your Honor.

15 JUDGE SMITH: Okay, thank you.

16 MR. UHR: So moving ahead to Slide 11, there's another determining
17 step here. And this is determining the strength of the interferer signal,
18 similar to the step that we just discussed. It appears, from the specification,
19 that some combination of these signal strength indicators and computational
20 circuits are achieving this determining, but it's not exactly clear how,
21 exactly, the determining is done.

22 The next step on Slide 12, comparing the strength of the desired signal
23 relative to the strength of the interferer signal, this is in line with the
24 previous two method steps. Here again, the best understanding from the
25 specification is that some combination of the

1 signal strength indicators and the computational circuit achieve the
2 comparing, though there is no explicit description of how the comparing is
3 done.

4 JUDGE SMITH: I'm just curious, counsel. Can you tell me, this
5 filter, 440, what is being filtered? Do you know?

6 MR. UHR: My understanding would be that a portion of the signal
7 passing through the filter, certain frequencies would be filtered from that
8 signal. But the parties don't dispute in this case the operation of the filter.

9 JUDGE SMITH: Okay. I'm just wondering, does it filter the desired
10 signal or the -- is it separating, is this filter separating the desired from the
11 interfering signal? Do you know?

12 MR. UHR: I'm not aware of any description in the specification that
13 says that, no.

14 JUDGE SMITH: Okay, thank you.

15 MR. UHR: The last method step, based on the comparison and then
16 skipping ahead slightly, dynamically adjusting one or more of an impedance,
17 a bias or a gain of one or more of the plurality of circuits in the signal path.

18 Here, power and gain control circuits 1485 and 1480 are shown in
19 Figure 14. And they're shown as connected to the circuits in the signal path,
20 such as the amplifier, mixer and filter. The specification states that the
21 power gain control circuits control the parameters of the signal path circuits.

22
23 Turning to Slide 14. Lastly, Claim 7 purports to provide control of
24 power dissipation on the receiver. This is really the crux of what the
25 challenged patents allege as the inventive contribution. With reference to
26 Figure 13, the patents state that conventional devices would maintain power

1 dissipation at a constantly high level to account for those worst-case signal
2 conditions that happen occasionally.

3 This high level is represented by Line 1310 in Figure 13. And the
4 supposed advantage offered by the patents is that power dissipation can be
5 adjusted over time, according to varying signal conditions. As a result, high
6 power is only used when needed, leading to a lower average power
7 dissipation, which is represented by the dotted Line 1330 in Figure 13.

8 Now turning to Slide 15, there are two grounds of invalidity in each of
9 the IPR proceedings here. All of the grounds share the Rauhala reference in
10 common. And all the parties' disputes, at this point, relate to the mapping of
11 Rauhala to certain claim elements or groups of claim elements.

12 Now on Slide 16, Rauhala published nearly three years before the
13 earliest priority date of the challenged patents. It identified the same
14 problem and provided essentially the same solution that the challenged
15 patents provide.

16 Slide 17, Rauhala shows a signal path that is functionally identical to
17 the signal path shown in the challenged patents. The signal path extends
18 from the antenna on the left through the box labeled DET, for detector, on
19 the right.

20 And the signal path included an amplifier, a mixer and a filter among
21 other circuits. A control circuit, 22, highlighted at the bottom of Figure 2, is
22 connected to the circuits in the signal path and controls supply currents for
23 those circuits.

24 Just as in the challenged patents, Rauhala proposes adjusting circuit
25 parameters according to signal conditions. Albeit using slightly different

1 wording, Rauhala identifies the same advantage as the challenged patents --
2 reducing energy consumption and improving battery life.

3 JUDGE BENOIT: Sorry, counsel. Could you go back to Slide 17 for
4 a minute?

5 MR. UHR: Yes, of course.

6 JUDGE BENOIT: But that's Paragraph 6. That's the paragraph that
7 you rely on in the '697 Petition at Page 21, for the receiving a wireless
8 signal, having a desired signal and an interferer signal. And you point to a
9 receiver monitors a signal strength on a received channel and a neighboring
10 channel is that first sentence in Paragraph 6 for the receiving wireless signal.

11 Can you help me understand how, that receiving the two separate
12 channels reads on the receiving a wireless signal having those two
13 components, a desired signal and an interferer signal?

14 MR. UHR: Yes, Your Honor. The Petitioners' position is that a
15 person of ordinary skill in the art would read the disclosure of Rauhala and
16 understand that Rauhala is concerned with interference of a received channel
17 by the neighboring channels, meaning that they have to be received at the
18 same time.

19 Because Rauhala is concerned with interference, Petitioners don't
20 think that there's any other reasonable way to interpret the reference other
21 than that the neighboring channels and the received channel are received at
22 the same time.

23 Unless you have any further questions, I'll continue.

24 JUDGE SMITH: I guess, just to clarify, I think -- well, is the circuit
25 measuring the signal strength of the desired signal and the interfering signal?
26 And, I mean, this figure's just showing RSS which is the desired signal.

1 Paragraph 13, which describes this figure, about the middle of it, says,
2 the detector, DET, provides information about the signal strength, RSS, on
3 the channel to which the receiver is tuned. But there's nothing in this figure
4 about detecting the interfering signal.

5 MR. UHR: Sure, Your Honor. I think, if memory serves, I think, I
6 would refer to Figure 4 of Rauhala. Figure 4 of Rauhala is the figure that
7 shows both RSS and RSSn being provided by the detector. And I may have
8 a slide on that, but I plan to get to that concept.

9 JUDGE GIANNETTI: Mr. Uhr, this is Judge Giannetti. Is it your
10 hypothesis that in Rauhala both signals are received at the same time, by the
11 same receiver?

12 MR. UHR: That's correct, Your Honor.

13 JUDGE GIANNETTI: And what do you rely on for that?

14 MR. UHR: We rely on both the plain text of Rauhala and Dr. Baker's
15 expert testimony that -- basically explaining that the receiver of Rauhala and
16 that a person of ordinary skill in the art would have recognized that this
17 receiver works in this way.

18 To work in a way that Patent Owner suggests does not make technical
19 sense, according to both of the experts. They both recognize that reading
20 Rauhala to require retuning does not actually produce a useful system.

21 JUDGE GIANNETTI: But Rauhala talks about tuning, doesn't it?

22 MR. UHR: I believe it mentions a tuner but it does not mention
23 retuning, and certainly not in the way that the Patent Owner suggests.

24 JUDGE GIANNETTI: All right, well, why don't you continue? And
25 we may come back to this. I think we probably will.

1 MR. UHR: Okay, thank you, Your Honor. So just as in the
2 challenged patents, Rauhala proposes adjusting circuit parameters according
3 to signal conditions.

4 And turning to Slide 18, just like the challenged patents, Rauhala's
5 receiver operates in both best-case conditions and worst-case conditions.
6 For example, the top row of the chart in the top-left corner of Slide 18 shows
7 the best-case condition.

8 Here, the received signal strength, RSS, is high and the signal strength
9 on the neighboring channel, RSSn, is low, and the converse is represented by
10 the bottom row of that chart.

11 Looking now at Slide, 19, there are five disputes concerning the
12 mapping of Rauhala with the elements of the challenged claims. The first
13 three are common to both of the patents. Those are the determining
14 impedance and signal path issues.

15 The fourth relates to a comparing step that's unique to the '202 Patent.
16 And the fifth relates to drive current, which is unique to the '825 Patent. I
17 plan to address these issues in the order that they're shown on this slide.

18 Now, beginning first with the determining elements, as I mentioned,
19 this is common to both the '202 and '825 Patents. In the '202 Patent, the
20 determining elements are recited as steps of determining strengths of the
21 interferer and desired signals. In the '825 Patent, they are recited as circuits
22 for determining strengths of the interferer and desired signals.

23 The parties dispute whether Rauhala's RSS and RSSn indications
24 satisfy these elements. So looking at Slide 21, Patent Owner's primary
25 argument seems to be that Rauhala's receiver must be retuned after
26 providing the RSS indication and before providing the RSSn indication.

1 Patent Owner argues that Rauhala, therefore, cannot meet these
2 limitations. Patent Owner's argument is incorrect for at least two reasons.
3 It's incorrect as a matter of claim interpretation and it's also incorrect on the
4 factual record. Either reason, alone, would be sufficient ground for the
5 Board to reject Patent Owner's position.

6 JUDGE SMITH: Counsel, would you just go back to that slide?

7 MR. UHR: Yes, Your Honor.

8 JUDGE SMITH: You show a detector there, is that correct, in
9 yellow?

10 MR. UHR: Yes, Your Honor.

11 JUDGE SMITH: And the signals are separate signals coming from the
12 detector?

13 MR. UHR: Yes, RSS and RSSn.

14 JUDGE SMITH: Okay, and RSSn is the desired signal? Is that it?

15 MR. UHR: Yes.

16 JUDGE SMITH: And RSSn is signal from a neighboring -- is that a
17 neighboring signal? Is that correct?

18 MR. UHR: It's referred to in Rauhala as the strength of the signal on a
19 neighboring channel and --

20 JUDGE SMITH: Yeah.

21 MR. UHR: -- here, it would be interfering with the received channel
22 signal strength.

23 JUDGE SMITH: So, it shows them on the same line but that doesn't
24 tell you about the timing of the situation, does it?

1 MR. UHR: The same line, by itself doesn't necessarily tell you about
2 the timing, but the remaining context of Rauhala and, in particular, its
3 disclosure about -- and I do have a slide on this that I'm attempting to find.

4 Rauhala specifically discusses -- I'm looking at Slide 26 here --
5 adjusting the currents based on the value of RSSn and RSS that are taken at
6 the same time. So Petitioners' position is that, not just looking at the single
7 line shown in Figure 4, on which RSS and RSSn are transmitted, but looking
8 at the overall context of how these values are described, a person of ordinary
9 skill in the art would understand that they're determined at the same time.

10 JUDGE SMITH: What is that small A shown? It looks like an input
11 to Box 42.

12 MR. UHR: The small A, if I recall correctly, is -- it may be
13 mentioned only briefly. I think it is an indication of a channel.

14 JUDGE SMITH: A channel to which the receiver is tuned. Isn't that
15 what it indicates?

16 MR. UHR: If I recall correctly, yes, that's correct.

17 JUDGE SMITH: Well, why would you need that if the channel isn't
18 going to be -- the receiver isn't going to be retuned?

19 MR. UHR: Well, Your Honor, it's not that the receiver is not retuned
20 at all. It's just Petitioners' position is that the receiver is not retuned between
21 making these determinations.

22 For example, one might tune to a particular channel and that defines
23 what the RSS is and what the RSSn is. And then if you were to retune to
24 another channel, that might flip the RSS and RSSn.

1 JUDGE SMITH: How does this receiver receive the signal that
2 produces RSS and the signal that receives RSSn? Does it receive those
3 signals at the same time?

4 MR. UHR: Yes, Your Honor. A person of ordinary skill in the art
5 would understand that a channel that the receiver is attempting to receive
6 and decipher would also be received along with neighboring channels.
7 They're all being transmitted over the Ether at the same time and, therefore,
8 received by the receiver.

9 JUDGE SMITH: All right, thank you.

10 JUDGE BENOIT: So, counsel, let me follow up with that. It said in
11 your petition you rely on a previous statement in Paragraph 17 that the
12 Control Unit 42 receives from Detector DT an indication about either the
13 received channel strength RSS or strength or strength of any signal on a
14 reception band which later, you've indicated, as RSSn.

15 You know, that's either/or. And then the paragraph continues with
16 saying the Signal A from the receiver's tuner control indicates the channel.
17 So how do you reconcile that with the statement you're now highlighting
18 regarding the -- at the same time?

19 I mean, Paragraph 17 seems unambiguous that the detector provides
20 either the received channel strength or the neighboring channel signal
21 strength.

22 MR. UHR: Well, Your Honor, Petitioners' position is that the most
23 natural way to read that would be that it's simply an imprecise description at
24 that particular paragraph, where it says either/or.

25 But when you read -- when a person of ordinary skill in the art would
26 read the entire context of Rauhala and understand that the adjustments are

1 being made based on RSS and RSSn, especially looking at the portion of
2 Rauhala at Paragraph 18 that says that the comparisons for those values,
3 RSS and RSSn, are made at the same time, a person of ordinary skill in the
4 art would conclude that those values are determined at the same time.

5 Unless there's a follow-up question, I'll continue.

6 JUDGE BENOIT: Wait. Sorry, can you show me in your petition
7 where you made the argument of receiving at the same time?

8 MR. UHR: Your Honor, I don't believe that Petitioners specifically
9 called out receiving at the same time. That was an argument that was made
10 in response to Patent Owner's argument that there's somehow a same time
11 requirement imposed by these claims, which Petitioners disagree with.

12 JUDGE BENOIT: Well, again -- so you're saying receiving a wireless
13 signal having a desired signal and an interferer signal doesn't require them to
14 be received at the same time?

15 MR. UHR: The claims don't say anything about the timing of the
16 received signal, no.

17 JUDGE BENOIT: So can you explain to me your understanding of
18 receiving a wireless signal, having a desired signal and an interferer signal?

19 MR. UHR: Sure. Petitioners' understanding and Dr. Baker's
20 understanding is that there is a wireless signal that has a portion, or a portion
21 of the frequency with desired information. And there is other frequency
22 portions of the signal that may interfere or disrupt the receiver's ability to
23 decipher the desired information.

24 JUDGE BENOIT: So RSS is measuring the signal on the received
25 channel? Is that correct?

26 MR. UHR: Yes, Your Honor.

1 JUDGE BENOIT: And RSSn is receiving -- is measuring the signal
2 strength on the neighboring channel?

3 MR. UHR: Yes, Your Honor.

4 JUDGE BENOIT: So how do you get the measurement of the
5 combined signal? You know, I'm trying to ask it without using the words, at
6 the same time because that seems to create, you know, some issues.

7 But the claim requires a wireless signal having two components: a
8 desired signal and an interferer signal. And it seems, based on, you know,
9 the discussion we're having about Rauhala, is that Rauhala measures a signal
10 strength on one or -- of two channels and also measures the signal strength
11 on another of the two channels.

12 So it seems like Rauhala is measuring signal strengths on channels as
13 opposed to measuring the signal strength of two parts of the received signal.

14 MR. UHR: Well, Your Honor, there's no distinction in the patents
15 between channels and what may be two parts of a wireless signal. The
16 patent simply describes desired signals. And then elsewhere, at other
17 frequencies, there are interferer signals.

18 And in Rauhala, the received channel and the neighboring channels
19 would be exactly that. They would just be signals that are at different
20 frequencies. And the neighboring channels would tend to interfere with the
21 received channel.

22 JUDGE BENOIT: Okay, thank you.

23 MR. UHR: Thank you, Your Honor.

24 JUDGE SMITH: Let me, if I could just add -- I just have a couple of
25 questions based on your answers to the questions from my colleagues.

1 I guess the first question, the Paragraph 17 of Rauhala, I agree with
2 you, it says these signals are compared at the same time. I don't read this as
3 saying they're determined at the same time.

4 You know, I guess, to your point about the tuner, this value A that's
5 shown in Figure 4, going into Box 42, determines a channel. So if it's set to
6 channel -- whatever channel RSS is -- if it's set to that, if it's tuned to that,
7 how is it going to measure anything about a channel that it's not tuned to?
8 How does a circuit measure a signal that it's not tuned to?

9 MR. UHR: Well, Your Honor, the signal A, simply determines which
10 channel is the receive channel. The signal A doesn't exclude measurement
11 of any neighboring channels.

12 JUDGE SMITH: It -- say that signal A determines what channel the
13 receiver is tuned to, so the receiver is tuned to a channel. If a receiver is
14 tuned to a channel, how does it measure a signal on a channel that the
15 receiver is not tuned to? Did you understand what I'm asking you?

16 MR. UHR: Yes, I think so, Your Honor. And the answer would be
17 that, in addition to measuring the strength of the signal that the receiver is
18 tuned to, it also measures strengths of the neighboring channels to
19 accommodate for interference that might be caused by those neighboring
20 channels.

21 JUDGE SMITH: But measured by tuning to the neighboring channel
22 and then measuring the strength of the neighboring channel, according to
23 Paragraph 17. Am I missing something?

24 MR. UHR: Your Honor, Petitioners do not agree with that
25 characterization of the Rauhala reference to the extent that the Patent Owner

1 makes it. Dr. Baker has testified that the receiver in Rauhala would not have
2 to be tuned or retuned to determine the strength of a neighboring channel.

3 JUDGE SMITH: Yeah, I'm asking how it does it. How does it
4 determine strength of a neighboring channel if it's not tuned to that channel?
5 Well, where is that in the disclosure, I guess, number one. And number
6 two, how does it do it, at all?

7 MR. UHR: Your Honor, I don't believe that it is explicitly spelled out
8 in the disclosure of the --

9 JUDGE SMITH: Is it implicitly spelled out in your disclosure?

10 MR. UHR: Your Honor, Petitioners' position is that a person of
11 ordinary skill in the art would understand that Rauhala does this.

12 JUDGE SMITH: I mean, you keep saying that, but, I mean, a person
13 of ordinary skill in the art can look at this and say, well, it did in the first two
14 sentences of Paragraph 17, or the first three sentences, a person of ordinary
15 skill in the art would read this.

16 It's tuned into one channel and measures the strength of the signal on
17 that channel; it's tuned into a second channel, measures that strength. Then
18 after it has both of those values, then it compares those two values at the
19 same time. That's another way a person of skill could read this. I mean, this
20 is how I read it, looking at it.

21 Now, I'm saying I'm a person of skill, but that, to me, seems a
22 reasonable way to read it.

23 MR. UHR: Well, Your Honor, I think that gets to the idea that
24 reading it that way would render Rauhala basically useless or render the
25 measurements meaningless. As Dr. Baker testified, the signal strengths can
26 change in an instant. So measuring them at different times and then

1 adjusting the parameters based on measurements taken at different times
2 would not be a useful way to operate a system.

3 JUDGE SMITH: Well, I mean, he just kind of gives us that
4 conclusion, that the signals can change at an instant, but he doesn't say how
5 often do they change, how frequently do they change. Do they change every
6 second, every half a second, every micro-second?

7 I mean, you know, it could be that these signals, if you're on a mobile
8 device and you're stationary and there's no storm clouds over your head, it
9 could be these signals are relatively stable for an extended period of time.
10 So having a delay of a few micro-seconds wouldn't really affect the
11 performance of the circuit.

12 I mean, it's true when you say that the signal strength can change.
13 That's true. But, you know, in terms of what we expect, do we expect them
14 to change so often that just taking a measurement a few micro-seconds apart
15 would render this thing -- do we expect that? I won't take up any more of
16 your time, sorry.

17 MR. UHR: Well, Your Honor, I think the short answer is yes. Dr.
18 Larson agreed that reading -- the reading Rauhala this way would be a
19 significant impractical handicap. And now I'm referring to Slide 28.

20 So, you know, whether there is an exact time duration within which
21 this would be reasonable, I don't think is in dispute. Both sides' experts
22 realize that reading Rauhala this way would be a suboptimal -- would result
23 in a suboptimal system.

24 JUDGE BENOIT: Great. Thank you, counsel. I appreciate this
25 remark. I think there's some other issues that you wanted to continue with,
26 so please carry on.

1 MR. UHR: Yes. Thank you, Your Honor. I'm going to move to
2 Slide 9, and I'm going to try and address the remaining issues relatively
3 quickly.

4 So the next issue would be impedance, and it's essentially a claim
5 construction issue. The parties dispute whether impedance should be
6 admitted to the opposition of alternating current and exclude the opposition
7 to direct current. The intrinsic and extrinsic record both make clear that
8 impedance is not so restricted.

9 Turning to Slide 31, there is no real dispute that Rauhala teaches
10 adjusting resistances within a circuit. And this is shown in the top left,
11 highlighted in green. Patent Owner argues that adjusting impedance as
12 claimed excludes this three-branch structure because impedance is limited to
13 the opposition of alternating current.

14 Turning to Slide 32, the intrinsic evidence does not support Patent
15 Owner's limiting construction. There's no definition of impedance in the
16 specification. The specification does not distinguish between circuits with
17 alternating current and direct current. And the specification does not even
18 include the terms, alternating current or direct current.

19 Turning to Slide 33, I think one of the essential points of dispute
20 between the parties is that there are some definitions of impedance,
21 including these definitions that are cited by both parties, that specify that
22 impedance is the opposition to alternating currents, but there are also other
23 primary definitions, such as the ones highlighted on the slide, that make no
24 such reference to alternating current.

25 The fact that there are definitions that are in line with what Patent
26 Owner proposes, but that there are also definitions that are broader than what

1 Patent Owner proposes, I don't think that that makes a sufficient record for
2 narrowing the impedance terms as Patent Owner urges now.

3 Turning to Slide 35, both experts agree as to the formulas for
4 calculating impedance and impedance is represented in these formulas with
5 the letter Z. The formulas confirm that Rauhala's resistances are indeed
6 impedances.

7 In each of the formulas, impedance includes resistance and reactance
8 components. And when the reactance components are zero, such as in a
9 circuit including only resistors and lacking capacitors or inductors, like the
10 three-branch structure in Rauhala, impedance is simply equal to the
11 remaining resistance value. In other words, impedance simplifies down to
12 resistance. Dr. Larson agreed with this on cross-examination, and that's
13 shown on Slide 36.

14 Now, moving to Slide 37, even if the Board adopts Patent Owner's
15 narrow construction, which Petitioners maintain that it should not, Rauhala
16 teaches adjusting an impedance as claimed. There is no dispute that
17 impedances are adjusted in Figure 6 of Rauhala. In particular, the three-
18 branch structure, as shown, highlighted red in this slide, the cumulative
19 resistance of that structure is adjusted, which causes Collector Current KI,
20 highlighted in green, to change.

21 When KI changes by virtue of the current mirror set up, including the
22 transistor Q1 and transistor Q2, the Collector Current I, labeled blue, will
23 change. And as a result, impedance of transistors within the differential
24 amplifier will change.

25 JUDGE GIANNETTI: Counsel, this analysis isn't in Rauhala, is it?
26 This is your analysis.

1 MR. UHR: I'm sorry, could you repeat the question?

2 JUDGE GIANNETTI: I said that this is not an analysis that comes
3 out of Rauhala. This is your analysis, isn't it, on what happens to the
4 currents?

5 MR. UHR: Well, this is not my analysis, Your Honor. This is Dr.
6 Baker's analysis.

7 JUDGE GIANNETTI: I know, Dr. Baker's. But I'm talking about
8 when Rauhala talks about varying resistances and base currents,
9 they're talking about the resistors R1, R2 and R3 that you cite in your
10 petition, isn't it?

11 MR. UHR: That's correct, Your Honor.

12 JUDGE GIANNETTI: Well, isn't really what the reference is about
13 and not what might be happening in transistor Q2 or the differential
14 amplifier? It's really talking about varying the currents for those three
15 resistors, isn't it?

16 MR. UHR: Well, Your Honor, I would disagree with the
17 characterization that --

18 JUDGE GIANNETTI: Well, that's what being controlled, isn't it? I
19 mean, that's what's being designed. They're not trying to control what you're
20 talking about, the impedances that you're talking about. They're talking
21 about changing those resistance values by switching the resistors in and out.

22 MR. UHR: Your Honor, I agree that that's what they're talking about
23 in Rauhala.

24 JUDGE GIANNETTI: So why are we focusing on what's happening
25 inside transistor Q2? I don't see why that's relevant.

1 MR. UHR: Because the resistors are the practical way of adjusting
2 the impedance within the differential amplifier which is what is actually
3 important here.

4 JUDGE GIANNETTI: All right, but this is something that's come up
5 rather late in this proceeding. Wouldn't you agree?

6 MR. UHR: Your Honor, I would say that this was raised in direct
7 response to Patent Owner's construction for impedance. And Petitioners'
8 remedy for responding to a new construction would be to identify proper
9 reply evidence which Petitioners have done by pointing to the same --

10 JUDGE GIANNETTI: We'll hear from your opponent on this.
11 Maybe you could go on to one of the other issues.

12 MR. UHR: Sure, Your Honor. Moving to signal path, with respect to
13 the signal path terms, the parties dispute whether Rauhala's three-branch
14 resistor circuit is within the signal path.

15 Now looking quickly at Figure 47, as I just discussed, there is no
16 dispute by the parties --

17 JUDGE GIANNETTI: This is the same issue we just discussed, isn't
18 it?

19 MR. UHR: It is, and I just wanted to quickly make the point that the
20 impedances that Dr. Larson agrees are changed are within the differential
21 amplifier which Patent Owner says is the signal path.

22 JUDGE GIANNETTI: Well, but the question is, what is the patent
23 talking about? And it's talking about biases, and I don't think we're talking
24 about biases, are we?

25 MR. UHR: Your Honor, no, I'm not referring to biases here.

26 JUDGE GIANNETTI: Okay, thank you.

1 MR. UHR: So stepping away from that and recognizing that the
2 Board considered the parallel resistor structure to be outside the signal path,
3 based on the preliminary record, on the fully developed record, however,
4 there's significant evidence that shows that the three-branch structure is also
5 within the signal path.

6 Looking at Slide 42, the challenged claims recite signal path in terms
7 of the components that it has: an amplifier, a filter and a mixer. And these
8 are shown in Figure 14, to the right.

9 Now looking at Slide 43, Rauhala Figure 2 shows a functionally
10 identical signal path also having an amplifier, a filter and a mixer. And with
11 the --

12 JUDGE GIANNETTI: Well, so this is -- just a second here. I know
13 you're short on time, but doesn't this just relate to two or three claims that are
14 before us? Seems to me you're spending an inordinate amount of time on an
15 issue that's only relevant to a few claims.

16 MR. UHR: Well, Your Honor, all three of the remaining issues here,
17 they only relate to subsets of the claims. You're correct. This issue does not
18 relate to all of the claims.

19 JUDGE GIANNETTI: Okay. And you can use your time as you
20 wish.

21 MR. UHR: Okay, now there's no dispute from Patent Owner, and Dr.
22 Larson agreed on cross-examination that the red line is, indeed, a signal
23 path. Petitioners' position is that the -- and looking at Slide 44 -- Petitioners'
24 position is that the entirety of Figure 6, including the three-branch resistor
25 structure, corresponds to an amplifier in the signal path.

1 JUDGE GIANNETTI: Will you explain the dotted -- how do you
2 explain the dotted lines in Figure 6?

3 MR. UHR: The dotted --

4 JUDGE GIANNETTI: And the fact that different numbers, different
5 numerals, are assigned to different portions of the figure, 61 and 62?
6 They're shown as separate items, aren't they?

7 MR. UHR: Your Honor, that may be for the purpose of convenience
8 for identifying different portions but --

9 JUDGE GIANNETTI: Okay. It's just a matter of convenience? Well,
10 it's more than that, though, isn't it, really? I mean, if you look at the
11 description, it describes them differently.

12 MR. UHR: Well, you know, at least one thing that the Petitioners
13 would point to is that the control signals are shown as, in Figure 2, as
14 entering the amplifier. And they're also shown here as entering the circuit
15 62.

16 Dr. Baker testified that, based on this and other portions of Rauhala,
17 that a person of ordinary skill in the art would understand that this whole
18 structure is within the signal path.

19 Moving to Slide 48, I just want to briefly touch on the two remaining
20 issues. Comparing, the comparing element is limited to the '202 Patent, and
21 the parties here dispute whether Rauhala's signal to noise ratio or bit error
22 ratio is described in sufficient detail to satisfy the claim's step. It is, and the
23 claims require no more than what Rauhala discloses.

24 Turning to Slide 51, the claim simply recites the difference, right?

25 JUDGE BENOIT: Counselor, just to let you know, you're at 48
26 minutes now, so you're eating into your rebuttal time.

1 MR. UHR: Okay, I will take just a couple minutes to wrap up. Thank
2 you, Your Honor. The claim here simply recites comparing the strength of
3 the desired signal relative to the strength of the interferer signal.

4 There is no specification in the claim about how or what form the
5 strength of the desired signal must be in, what form the strength of the
6 interferer signal must be in, and how that comparing is accomplished or
7 calculated.

8 JUDGE GIANNETTI: So, counsel, Judge Giannetti again. You
9 would agree that there's no explicit disclosure of comparing in Rauhala. Is
10 that correct? Do you agree with that?

11 MR. UHR: No, Your Honor, I wouldn't agree with that. Based on
12 what's claimed here, what's claimed is simply a comparison of the strengths
13 and a ratio as disclosed by Rauhala and pointed out by Dr. Baker is, by its
14 nature, a comparison.

15 JUDGE GIANNETTI: All right

16 MR. UHR: Just --

17 JUDGE GIANNETTI: No matter how it's arrived at, even if it's
18 arrived at by not comparing two numbers or dividing two numbers, it's -- I
19 know that the Patent Owner contends that there are alternative means of
20 computing signal to noise ratio that don't involve taking ratios.

21 And you would still agree that that would qualify. Is that correct?

22 MR. UHR: I'm not sure that I fully understood the question. But
23 based on what the claim says here and that there's -- I'm sorry. I don't want
24 to answer a question that you didn't ask.

1 JUDGE GIANNETTI: Okay, well, I think your position is that a ratio
2 is inherently a comparison, so then any way of arriving at that ratio would fit
3 within the claim. Is that correct?

4 MR. UHR: Your Honor, I wouldn't say that it's inherently a
5 comparison. I would say that it is a comparison.

6 JUDGE GIANNETTI: It doesn't matter how you arrive at that? It
7 would still be within the claim. Is that your position?

8 MR. UHR: That's correct, yes. That's --

9 JUDGE GIANNETTI: Thank you.

10 MR. UHR: And at this point, I'd like to reserve the remainder of my
11 time for rebuttal.

12 JUDGE BENOIT: All right, you will have about ten minutes of your
13 rebuttal time. Patent Owner, you may begin when ready.

14 MR. JOHANNINGMEIER: All right, thank you very much Your
15 Honors. And I just want to convey, on behalf of Theta and friends that are
16 still with us, that they appreciate your time and attention to this matter.

17 I'm going to attempt to be short. I'll reserve, what you say, a few
18 minutes for rebuttal, if necessary, but it may not be and I'm going to attempt
19 to answer some of the questions that you all had on the previous ones as I go
20 along.

21 Now -- and please interrupt me if anything's unclear or disagreeable in
22 any way.

23 PATENT OWNER - ORAL ARGUMENTS

24 Theta IP, LLC

25 MR. JOHANNINGMEIER: Now, I want to start -- we'll go to our
26 slides, Slide 2. We'll start with the determining. As Your Honors know,

1 this is the one element that goes to all claims and of all patents. And if the
2 Board agrees with us on this, then that's basically all we have to do, so that's
3 why we're starting with this.

4 So, and we're going to start with what the claim requires, which is
5 receiving a wireless signal, having a desired signal and having an interferer
6 signal. So the thing that's very clear from the claim is that these are
7 components of the received signal, right, and the received spectrum.

8 You're receiving a signal spectrum. It has a component that's desired.
9 It has a component that's interference or maybe more components that are
10 interfering. And you have to determine the strength of each of those
11 components. That's very clear from the claims.

12 Now, it's in Claim 3. We've shown on Slide 4 just the language.
13 There's also supporting language in the spec that you're receiving at the input
14 to the system a signal that has desired signal as well as noise and possibly
15 interfering signals as well. So there's a spectrum of signals coming in.
16 Those are the components you need to pull out and measure in the claims.

17 Patent Claim 7 on Slide 5 is the same way, receiving a wireless signal,
18 having these two components and then determining the strength of these two
19 components. And then again, on Slide 6, we just duplicated the disclosure
20 there as well.

21 So in, you know, and on Slide 7, we've also duplicated -- we've shown
22 the way that the patent describes this. It shows -- it breaks out the various
23 components of the receiving spectrum into a bar chart and shows a desired
24 signal that shows several interferers. It has a dotted line that wiggles -- and
25 that would be the noise for, that would be received.

1 So the rest of it is just using this method to show the different
2 spectrums that can be received and to basically teach different ways you
3 would react based on what you are receiving and the determinations that you
4 make.

5 Now, I believe there was -- before we go any further, I think there was
6 a question early on about Figure 14, and this is in Petitioners' Slide 11. And
7 I think I heard my opposing counsel say that it isn't clear how this works.

8 Well, it is actually clear how this works, so I thought I would just go
9 ahead and explain that. Figure 14 shows multiple signal strength indicators
10 at different points in the path.

11 And now, this is obviously just one embodiment, right, but if you
12 want to read about -- and where it's described in the spec it's actually
13 described in association with Figure 4. And then in the '825 Patent, that
14 would be starting in Claim 6 at Line 50. But essentially, the way that it
15 works in this embodiment is they're measuring the signal strength at the --
16 where it comes in which would include all of the components.

17 They're employing a filter to basically filter out non-desired signals
18 and then measuring it again so that they're getting a signal strength that
19 includes everything, a signal strength that doesn't include the interferers.
20 And then from that, you can determine what portion, you know, then you
21 can subtract, basically or compare and determine what portion was
22 interferers by what portion got filtered out by the filter, by just measuring
23 before and after.

24 So Figure 4 shows that as well. That's just one way that you can do
25 this. And that's what's being shown here. But what's clear here is you have
26 multiple signal strength indicators that are measuring the signal. They're

1 measuring it at different points and they're basically determined by a non-
2 method determining the full signal, the portion that got filtered out as the
3 interferer signal. And then from that, you can determine what portion is the
4 desired. So that just hopefully clarifies how that works in the embodiment.

5 Now --

6 JUDGE SMITH: Is that -- counsel, can I ask you, in the '825 Patent in
7 Figure 4, is that the same thing that's going on in Figure 4?

8 MR. JOHANNINGMEIER: In 14? I mean, yes, fundamentally, it's
9 the same concept. What's shown in Figure 4 is measuring SSI1 440
10 measuring before you've adjusted the filter and then after a filter, measuring
11 it again and seeing -- you know, you basically can see the relative signal
12 strengths from that and then make determinations that way.

13 So now, it's clear from the patents what's required by the claims is you
14 have to receive a signal spectrum and you need to determine both of these
15 components. Well, as I can tell from the questions of the panel, I think
16 you've understood our presentation.

17 It doesn't -- what Rauhala discloses is not that. Rauhala is disclosing
18 one detector that can be tuned to one channel or it can be retuned to another
19 channel, and it's measuring two signal strengths on two neighboring
20 channels.

21 There's very clear disclosure in Rauhala of the retuning. I have it, but
22 on a slide. I have it on Slide 11. The detector provides information about
23 the signal strength on the channel to which the receiver is tuned, receives
24 from detector an indication about either the received channel signal strength
25 or the signal on any other -- basically a neighboring channel.

1 And Signal A indicates which channel it's being tuned to. So that's
2 what's actually disclosed in Rauhala that doesn't show up in their slides but
3 was obviously in Your Honors' questions so I know that it's understood.

4 This is a different approach. And Professor Larson, going back to
5 Slide 8, pointed this out in his declaration and then consistently to the extent
6 he was asked in his testimony, the Rauhala system cannot determine both of
7 these things because it requires retuning to another channel.

8 And when you retune to another channel, you're not directly
9 measuring the interference received from when you were tuned to the first
10 channel, right. And he uses an example that I think helps explain it. And,
11 you know, and myself and, everybody, I think, here is old enough to
12 remember tuning a radio with a dial.

13 But, you know, if you're on a radio station, you may well hear static.
14 And that static may well come from a neighboring channel, right. But if
15 you're measuring the signal strength received on Channel 98.7, you know,
16 part of that may be static, part of that may be the desired signal.

17 If you retune to Channel 99.3 and measure that signal strength, you've
18 measured the signal strength of that channel but you have not measured the
19 contribution of that channel to static on the first channel, right.

20 And I think that it -- I have a diagram on Page 10 that was -- is an
21 attempt to illustrate this graphically as opposed to in words. But, you know,
22 the blue lines on this graph showing the two signal strengths, now we agree
23 that you can retune Rauhala to measure those two strengths, but measuring
24 RSSn is not a measurement of an interferer signal on the original spectrum
25 that you received.

1 What I've actually shown on this chart is the two interferer bars here
2 that I just picked. The smaller one is meant to indicate potentially some
3 bleed over interference from Channel 99.3 on Channel 98.7. There may well
4 be interference from a neighboring channel on another, but what the claims
5 require, you have to measure that interference, right, and you don't measure
6 that interference by measuring the signal strength of the neighboring
7 channel.

8 You would have to actually look at the original spectrum and find a
9 way to figure out the interference that's being received there -- measure the
10 static on Channel A as opposed to measuring the strength of Channel B.

11 And that's a fundamental distinction, so, you know, the way that
12 Rauhala has disclosed same time, you know, after a few micro-seconds, it
13 doesn't really matter in the end, well, the only thing that Rauhala has
14 disclosed to be measuring is a neighboring channel signal strength that is not
15 a measurement of the interferer signal on the originally received spectrum.

16 So that's the sort of fundamental point here that all of this falls down
17 on and all of the claims should be upheld on. There's no --

18 JUDGE BENOIT: Counsel, could I ask one question about that? So -
19 -

20 MR. JOHANNINGMEIER: Yeah.

21 JUDGE BENOIT: -- when Rauhala is measuring the received
22 channel, is it measuring both the desired signal and the interferer signal on
23 the received channel?

24 MR. JOHANNINGMEIER: Yes, because all Rauhala says that it can
25 do is measure a received signal strength which is the total received strength

1 at that tuned frequency. So it is -- RSS actually is not, by itself, the desired
2 signal. It is the desired signal plus all interferers that you're receiving.

3 All Rauhala is disclosed to be able to do is detect the total signal
4 strength at that point, you know, at that tuning, right. So the interferers
5 would be a component of that, the desired would be a component of that.
6 Rauhala doesn't teach you how to extract one or the other.

7 Now, obviously, the 825 Patent does. As I just showed in Figure 4, it
8 teaches you one way to do that. And there's potentially many others. But
9 Rauhala doesn't teach measuring any of these components. It teaches
10 measuring a signal strength on Channel A and a signal strength on Channel
11 B.

12 So -- and there's really no way to dispute that. It just, you know, and I
13 don't want to try to say it can be done at the same time. I think that, you
14 know, Judge Smith had it right that, you know, the way we interpret it is it
15 has to -- it does -- it's capable of latching one and comparing the two
16 together but there's no disclosure of determining both of those things at the
17 same time. There just isn't.

18 And this is an anticipation ground, even the obviousness combination
19 in these IPRs, they're only relying on anticipation for the disclosure here.
20 And this is actually very important --

21 JUDGE SMITH: Can I ask you -- counsel, can I ask you about that
22 point, the petitioners' point that if they are measuring these signals, not
23 simultaneously, the thing wouldn't work, so it wouldn't make sense to read it
24 that way. What do you think of that?

25 MR. JOHANNINGMEIER: Well, I mean, I think that Rauhala
26 discloses a bad invention. I mean, basically, there is no requirement that this

1 work or make sense or be practical, right. Rauhala discloses measuring
2 these two things.

3 And both experts actually have said, yeah, that's a kind of a crappy
4 way to do it, right. And I think Professor Larson called it impractical. I
5 think Professor Baker said it would be meaningless. But, you know, the test
6 here isn't whether or not the system within Rauhala would work because,
7 again, this is an anticipation ground, right.

8 The question is what does Rauhala either explicitly or inherently
9 disclose. And if it discloses something explicitly that is just a bad solution,
10 that's not us. That's not our -- that doesn't invalidate the patent, right. The
11 patent actually discloses a better way of doing the things that it claims than
12 Rauhala.

13 So all of the arguments that we heard, you know, in the last hour,
14 these are a repetition of a person of ordinary skill would know his or a
15 person -- that's obviousness talk, right. That is basically, you know -- and
16 that's not what they brought.

17 They didn't argue single reference obviousness. They didn't argue
18 obviousness combination throughout this entire proceeding. They're relying
19 on explicit disclosure for all of these arguments and it's just not in Rauhala.

20 The only things that are in Rauhala are in my Slide 11, right, where it
21 says there's a detector that provides information about the signal strength on
22 the channel to which the receiver is tuned. So you can't get from that
23 disclosure to what is claimed. It's just not there. It's not inherently there.
24 It's not explicitly there. So --

25 JUDGE GIANNETTI: Counsel, let me interrupt you there for a
26 second.

1 MR. JOHANNINGMEIER: Sure.

2 JUDGE GIANNETTI: Isn't there an obviousness ground in the 698
3 case?

4 MR. JOHANNINGMEIER: I believe there is, yes.

5 JUDGE GIANNETTI: At least in -- Rauhala and Saito?

6 MR. JOHANNINGMEIER: Yes, there is a combination but they're
7 not using -- there's a combination that's argued for other elements of
8 dependent claims. So with respect to these elements, they're only arguing --
9 they only ever argue anticipation by Rauhala.

10 And they don't even say this would alternatively be obvious, based on
11 Rauhala. So we haven't had testimony on that. But with respect to the
12 elements in dispute, I think my opposing counsel said as much. It's only
13 about Rauhala's disclosure here.

14 So the obviousness combination just hasn't -- that wasn't disputed. I
15 think we, you know, there were some initial arguments but the actual
16 disputes that have coalesced here are all about what does Rauhala provide as
17 potentially anticipatory disclosure, so --

18 JUDGE GIANNETTI: Mr. Hand, let me ask you something. I
19 understand your position on Rauhala. There is a receiving a spectrum of
20 components, right, just receiving -- your theory is that it tunes to one
21 frequency and then tunes to another frequency. It retunes. Isn't that your
22 theory?

23 MR. JOHANNINGMEIER: Well, yeah, I mean, that's the explicit --

24 JUDGE GIANNETTI: That's what you said, right? What if that --
25 hypothetically, what if that retuning took place very quickly? In other
26 words, what if, instead of what we would think of as a radio with somebody

1 manipulating a dial or even pushing a button, that this was a very quick
2 transition, an electronic transition in the nature of a scan?

3 So you have a cell phone for example, that's able to scan the
4 neighboring stations and make the kinds of calculations that Rauhala
5 describes. What do you think about that theory?

6 MR. JOHANNINGMEIER: Well, I think that it wouldn't actually
7 matter because, to my earlier point based on Slide 10, you know, no matter
8 how quickly it does the measurement of the neighboring channel, the
9 measurement of the signal strength of the neighboring channel is not a
10 measurement of the interferer on the first channel, right.

11 JUDGE GIANNETTI: Isn't the theory that the neighboring -- what
12 you're trying to do is make adjustments based upon neighboring channels
13 rather than noise? I mean, I know --

14 MR. JOHANNINGMEIER: Well, no. And --

15 JUDGE GIANNETTI: -- there's a difference. But in terms of an
16 undesired signal, if you're on a cell phone or some other kind of electronic
17 device, you don't want the neighboring signals to interfere with your desired
18 signal. And so you might have a radio that's able to scan and very quickly
19 tune stations in the area and make calculations based on that.

20 And I have trouble accepting the idea that this Rauhala disclosure is
21 inoperative or it's not -- this is a company -- I think it came out of Nokia
22 which knows a thing or two about cell phones. And I wonder whether they
23 would really describe something that doesn't work. So --

24 MR. JOHANNINGMEIER: Yeah.

1 JUDGE GIANNETTI: -- why don't you explain to me why that's not
2 a possible interpretation of what Rauhala discloses, this scanning radio that
3 can move very quickly from signal to signal?

4 MR. JOHANNINGMEIER: Right, well, I think the clarification
5 needs to be that it doesn't work to do what's claimed, okay. So, I mean yes,
6 I'm sure the Rauhala system worked well. They got a patent on it. You
7 know, it actually said it's reputable.

8 So, but we have to go back to what the claims require. Right, the
9 claims here require that you receive a signal and you have to measure two
10 components of that signal, right.

11 So, what Professor Tsividis wants to do, is he wants to measure the
12 desired portion of the signal and measure the interference or static portion of
13 the signal and then compare those two and make a whole series of different
14 adjustments based on those relative positions, the figures in the patent that
15 show these being higher, those being higher.

16 So his patent, Professor Tsividis's patents are all about making
17 dynamic adjustments to the circuit based on the components, the frequency
18 components of the received signal, right. And it's even the case that one of
19 those -- that some of that static may be from a neighboring channel.

20 But it isn't the signal strength. It's a portion of the neighboring
21 channel that bleeds over. And this is why I tried to show on Slide 10, the
22 interferer, the small red bar that's actually interference on Channel A from
23 Channel B so that our patents very much that -- want to determine the
24 strength of the static or the interference on Channel A.

25 But you don't get that by measuring the total signal strength on
26 Channel B, right. It's sort of the -- you know, you actually -- the claims

1 require measuring the interferer signal component of Channel A. And that is
2 not -- so what Rauhala is saying is you can essentially look at the
3 neighboring channel strength and somehow use that as an indicator of what,
4 you know, what's going on.

5 And both experts are saying, essentially, that's not a good approach.

6 JUDGE GIANNETTI: Just going back to my hypothetical, what if
7 this retuning in Rauhala would take place very quickly, say, in a micro-
8 second or less? Would that change your theory?

9 MR. JOHANNINGMEIER: No.

10 JUDGE GIANNETTI: How would that fit into the --

11 MR. JOHANNINGMEIER: It wouldn't change my theory because,
12 again, what you're retuning to measure is not the interferer strength. And so,
13 and first of all --

14 JUDGE GIANNETTI: So, let me just put a fine point on this. So in
15 your view, any retuning at all, even if it's at a very high speed -- any retuning
16 at all would not fall within this claim. Is that correct?

17 MR. JOHANNINGMEIER: Right, and this is coming from actually
18 the testimony of Professor Larson that I have on Slide 9, right, because of
19 the retuning requirements. And he says the alleged second measurement,
20 taken only after tuning, is essential to the receiver on a new channel would
21 not be a measurement of the original received interferer signal.

22 It doesn't matter how fast you get over there to that other channel.
23 You're no longer measuring the interferer component received on the first
24 channel. You're measuring the total strength of the second channel. It's a
25 different measurement.

1 So it makes no difference how fast you get there or whether it's
2 simultaneous. It doesn't honestly, even though -- we know it's not
3 simultaneous because there's only detector disclosed in Rauhala. But no
4 matter how quick it is, the thing that Professor Larson testified and
5 understood and the way the patent's disclosed is a different measurement
6 than what Rauhala is disclosing. And so --

7 JUDGE GIANNETTI: But isn't it true that in both Rauhala and in the
8 patent that we're talking about, in both patents, ultimately you have to
9 separate out the interfering signals and analyze them separately. Isn't that
10 true?

11 MR. JOHANNINGMEIER: Well, it's not true for Rauhala.

12 JUDGE GIANNETTI: Why is that?

13 MR. JOHANNINGMEIER: It's true in the Tsivdis patents that the
14 claims require you to measure the interfering signal. It says, in determining
15 the signal strength of the interfering signal.

16 JUDGE GIANNETTI: Yes.

17 MR. JOHANNINGMEIER: Okay, but in Rauhala there's no such
18 disclosure. All it --

19 JUDGE GIANNETTI: Well, what if you take the neighborhood,
20 neighboring signals as the potentially interfering signals? Doesn't Rauhala
21 do the same thing?

22 MR. JOHANNINGMEIER: No.

23 JUDGE GIANNETTI: It doesn't?

24 MR. JOHANNINGMEIER: No, that's the whole point, is that
25 measuring the strength of the neighboring channel isn't measuring the

1 interference of that channel on the first channel. There's two different
2 things, right.

3 So channels -- and this is why, in the diagram on 10, I brought --

4 JUDGE GIANNETTI: And why is that? Because of the lapse of
5 time?

6 MR. JOHANNINGMEIER: No. It's because of the frequency,
7 basically the fact that frequencies bleed over into each other and interfere
8 with each other. So I drew this on Slide 10 as two --

9 JUDGE SMITH: Counsel, let me -- you keep bringing me to Slide
10 10. I think it'd be better for me to understand if you actually look at Slide 7
11 because this is actually from the patent.

12 You have the desired signal in Slide 7 and then you have the
13 interfering signals. Are you saying that when it's tuned to receive the
14 desired signal, these interfering signals are not on the frequency of the
15 channel that's transmitting these interfering signals?

16 MR. JOHANNINGMEIER: Well, what's shown here is actually the
17 component of the signal spectrum that is coming from interference. So this
18 could be the component of the neighboring channel that is actually
19 interfering, right. You know, not all of the signal strength of the
20 neighboring channel interferes with the first channel.

21 The analogy to Slide 10, with the interferer bars here, it might be the
22 red bars that are shown in Slide 10 and the smaller of the red bars in 9-10
23 might be the interferer from the second channel on the first channel, right.

24 But the point of Slide 10 is that the interferer from the second channel
25 on the first channel is only a portion of the signal strength of the second

1 channel, right. Not all of the signal strength of the second channel bleeds
2 over into the first. And so --

3 JUDGE SMITH: Well, I guess what I'm asking is what's being shown
4 in Figures 2A and 2B? Those things labeled interferers, are those the
5 frequencies of the interfering channels or are those similar to those red bars
6 that you have in Slide 10 that actually aren't at the frequency of the
7 interfering channel?

8 MR. JOHANNINGMEIER: These are shown as -- so what is shown
9 in Slide -- in Figure 2A, for example, are two interferers at two frequencies
10 of particular strengths measured by the height of the bar, right.

11 So I guess the thing that's causing maybe this problem is that you have
12 to look at the received signal spectrum as a window of frequencies, okay.
13 So you're going to tune on the center channel. You're going to say, I want
14 99.3. You're going to receive stuff in a range, right, a spectrum of signals
15 that are going to be received, right.

16 And the tuner, it takes all of that in, right. And so what they're
17 showing here is across these frequencies at a specific spectrum, a specific
18 tuning, you're getting a desired component of a certain height, 206, and
19 you're getting two interferers at two different frequencies at 208 and 210 of
20 different heights, right.

21 But this is actually -- the strength of these interferers must be
22 measured in the claims. So --

23 JUDGE GIANNETTI: But isn't the problem here though that in
24 Rauhala, the problem is you're operating a cell phone and there's signals
25 around you and you want to adjust the power of your phone, you take into

1 account the strength of these interfering -- potentially interfering signals.

2 That's not what's shown on your graph here.

3 You're treating this interferer as something different than the second
4 channel. You know, I think the interferer in Rauhala would be the frequency
5 of 99.3.

6 MR. JOHANNINGMEIER: Well, that's actually incorrect, okay.

7 That's -- I don't mean to be -- so the --

8 JUDGE GIANNETTI: Tell me.

9 MR. JOHANNINGMEIER: So what's -- the interferer, there is no
10 interferer disclosed in Rauhala. What Rauhala --

11 JUDGE GIANNETTI: Well, they don't call it an interferer.

12 MR. JOHANNINGMEIER: Right, so they call it --

13 JUDGE GIANNETTI: But isn't that the whole point of it, is that there
14 are close frequencies out there and how do we avoid how much power do we
15 have to -- how much juice do we have to use to avoid these competing
16 signals?

17 MR. JOHANNINGMEIER: Right, but the issue is that the
18 neighboring channel signal strength is not -- is a different measurement than
19 the interferer on the first channel, right. If you think about, like a radio
20 station --

21 JUDGE GIANNETTI: But that's not what Rauhala's looking at. It's
22 looking at these neighboring channels. It's not --

23 MR. JOHANNINGMEIER: Yeah, it's looking at neighboring
24 channels --

25 JUDGE GIANNETTI: It's not looking at the red bars --

26 MR. JOHANNINGMEIER: Right.

1 JUDGE GIANNETTI: -- in your Slide 10. It's looking at the second
2 blue bar.

3 MR. JOHANNINGMEIER: Right, and my point is the second blue
4 bar is not the interferer that's required by the claims.

5 JUDGE GIANNETTI: It might be if you're on your cell phone. You
6 might not want to hear some conversation on another channel.

7 MR. JOHANNINGMEIER: No, what might happen is you might be
8 on your cell phone and hear, very faintly in the background, some noise or
9 interference or static, right. And that might be coming from -- it might have
10 originated from a neighboring channel.

11 But it's very weak, right. It's a very weak static in the background.
12 Measuring the total strength, that sound, that neighboring channel, like, you
13 know, the transmission and power of the total received signal isn't the same
14 thing as measuring the amount of interference that you get on the other
15 channel.

16 So you're not hearing the full volume conversation on the neighbor's
17 cell phone channel. You're hearing a shhhh -- some static that --

18 JUDGE GIANNETTI: You know, I'm having trouble with your
19 distinction. Because it seems to me that one could analogize or even
20 compare the second channel or the neighboring channels to the interferers in
21 the patents. I think that's what the point is, isn't it?

22 MR. JOHANNINGMEIER: The neighboring channels do contribute
23 interference, right, and so, yes. And that is actually what Rauhala is doing.
24 They are trying to use a neighboring channel signal strength indicator as a
25 way of approximating the interference. Both experts say that's bad.

1 But the point is that the claims don't cover that. The claims say you
2 have to actually measure the level of interference that you received. You
3 cannot guess at it by measuring the strength of the neighboring channel.

4 JUDGE SMITH: Can you show us -- Mr. Hand, can you show us in
5 your specification where the specification makes this distinction between the
6 neighboring signal and the interfering signal that's caused by the neighboring
7 signal?

8 MR. JOHANNINGMEIER: Well, so -- and, sorry. This is Mr.
9 Johanningmeier, by the way. I probably didn't introduce myself properly.
10 But, yes, let me --

11 JUDGE GIANNETTI: Well, your name says Mr. Hand.

12 MR. JOHANNINGMEIER: Oh, is -- on the screen?

13 JUDGE SMITH: Yes.

14 JUDGE GIANNETTI: Yes, sorry about the confusion.

15 MR. JOHANNINGMEIER: Well, that's my co-counsel here. The
16 825 Patent, I think it's -- so --

17 JUDGE SMITH: It looks like in column five, starting on line 31,
18 where it words, describing Figures 2A and 2B. And I don't see the
19 distinction that you're making between a neighboring signal and an
20 interfering signal.

21 MR. JOHANNINGMEIER: So the disclosure that we want is actually
22 the -- it starts with the discussion of the receiver receiving a spectrum, right.

23 So when a receiver is at -- so going up in that column, at 20, when a
24 receiver is actively receiving a desired signal each block has as its input the
25 desired signal as well as noise and possibly interfering signals, right.

1 So what this is requiring is your -- and there's various types of noise
2 that can be received. You have thermal noise, shock noise, other noise
3 generated by the circuit in addition to received noise generated by external
4 through the chip.

5 So essentially, a lot of interferers are coming in. And the claim
6 requires measuring the signal strength of the interferer. Now, the broadcast
7 strength on the neighboring channel isn't that. It's -- what you have to
8 measure in the claims is the received interference level.

9 So if you take, you know, to go back, because there's one spectrum
10 that has multiple components, right. And all of those components, if you
11 stack them together, make the received signal strength, right. So if you take
12 the desired strength and the interferer strength and you put them on top of
13 each other, then -- and so I tend just to use a visual reference, if you stack
14 these things up you're going to get a total signal strength.

15 And that total signal strength has some portion that's the desired, some
16 portion that is the interferer, you know, maybe some portion that's other
17 interferers. But there's a total signal that includes all of that, bundled
18 together. That's what you're going to break apart and you're going to
19 measure the desired part and the interferer part.

20 So that's everything under the Gaussian curve on the left on Slide 10,
21 the two interferer bars -- you know, those and the desired signal, together,
22 make the total signal strength because you have some window of received
23 spectrum that you are receiving when you're tuned to that channel.

24 If you switch over here to the other channel and tune to the other
25 channel, you're receiving a different set of components that's a different
26 desired signal and different noise and whatever. Measuring that different

1 total signal strength doesn't tell you anything about the contribution of this
2 channel to this channel -- Channel B to Channel A.

3 So basically, it just -- the entire -- what is being measured in Rauhala
4 is they're using the neighboring channel signal strength as a proxy or as an
5 indicator of the level of noise that could be there. It's just not anticipatory
6 disclosure of measuring the interference on the first channel.

7 JUDGE GIANNETTI: So, you reject my hypothesis that when
8 Rauhala talks about the second, this neighboring signal, that that could not
9 be an interfering signal in your patent, and -- you reject it?

10 MR. JOHANNINGMEIER: What I would say, is, some portion of
11 this RSSn, as shown in blue on Slide 10, could be interference that shows up
12 --

13 JUDGE GIANNETTI: I'm talking about the main signal.

14 MR. JOHANNINGMEIER: Hmm?

15 JUDGE GIANNETTI: It's somebody else's cell phone and you're
16 trying to figure out how much power you need to avoid interference from
17 that other cell phone.

18 MR. JOHANNINGMEIER: Right, and so --

19 JUDGE GIANNETTI: How about that scenario? Do you buy that?

20 MR. JOHANNINGMEIER: Well, yes, that's the fundamental goal,
21 right. And the fundamental goal is to know the level of interference that is
22 received on my phone from your phone, right.

23 JUDGE GIANNETTI: But the other phone's frequency is the -- that's
24 the interfering signal in Rauhala, isn't it?

1 MR. JOHANNINGMEIER: No. No. Well, okay, so to be clear,
2 what Rauhala is using -- they're not calling this an interferer. They're
3 basically --

4 JUDGE GIANNETTI: Well, I know they're not -- they don't use
5 those terms, but that's --

6 MR. JOHANNINGMEIER: No, well that --

7 JUDGE GIANNETTI: I'm going to use that term because that's what
8 it looks like to me.

9 MR. JOHANNINGMEIER: Right, but, I mean, this is anticipation
10 here, right. So, but just to be precise, RSS_n, right, is what Rauhala is using
11 to make an inference about what power level should be used, right.

12 But we have to go back to what --

13 JUDGE GIANNETTI: It's more than an inference. It's actually
14 measuring the strength of that signal.

15 MR. JOHANNINGMEIER: Yes, exactly.

16 JUDGE GIANNETTI: Yes.

17 MR. JOHANNINGMEIER: Of that signal. It is measuring --

18 JUDGE GIANNETTI: If you accept my hypothesis that that signal is
19 an interfering signal, how do you distinguish your patent?

20 MR. JOHANNINGMEIER: Because that signal isn't. I don't accept
21 that hypothesis. When I say, what I'm trying to point out is that --

22 JUDGE GIANNETTI: I'm asking you to.

23 MR. JOHANNINGMEIER: A portion of RSS_n is interference. It
24 shows up as interference on the first channel -- a portion of it. Some portion
25 of this blue bar shows up as the small red bar next to the first channel, okay.
26

1 So there's -- some portion of the neighboring channel will interfere
2 with the first channel. But the point is, what portion? The claim's requiring
3 you to measure the portion of RSSn that interferes with the first channel.

4 JUDGE GIANNETTI: All of it.

5 MR. JOHANNINGMEIER: No. That just isn't the way that physics -

6 -

7 JUDGE GIANNETTI: Somebody else's cell phone --

8 MR. JOHANNINGMEIER: Right.

9 JUDGE GIANNETTI: -- is interfering with my cell phone.

10 MR. JOHANNINGMEIER: Yes, but you're not -- so I guess the way
11 to think about it is, if you hear interference, you're not hearing the full
12 volume that they would on their phone. You're hearing some static. You're
13 hearing some noise.

14 You're hearing a contribution to what you receive from -- it's kind of
15 like if a person was outside this room talking, we may be able to hear them
16 talking during this call, right.

17 JUDGE GIANNETTI: I don't want to belabor this --

18 MR. JOHANNINGMEIER: But that's the way --

19 JUDGE GIANNETTI: I think we're talking past each other. I think I
20 understand what your position is. Don't necessarily agree with it, but why
21 don't you move on to something else.

22 MR. JOHANNINGMEIER: Well, and this is --

23 JUDGE GIANNETTI: I don't want to take up all your time.

24 MR. JOHANNINGMEIER: I understand, but, I mean, this is actually
25 -- this is very important just to finish the analogy. If there's someone

1 standing outside talking, if I measure the decibel level of their voice, okay.

2 Let's say they're talking at 40 decibels. I've taken a measurement.

3 But what I actually want to know is, what is the level that I'm hearing
4 here in this room, through this window, right. And it might be 20 decibels
5 because there's some muting coming across, right. So I'm not hearing the
6 full level of their conversation. I'm hearing, you know, a lower volume of it.

7 So what --

8 JUDGE GIANNETTI: But what if you took the measurement on your
9 side of the window?

10 MR. JOHANNINGMEIER: Yes, if I took the measurement on my
11 side of the window, I would not be doing what Rauhala was doing.

12 JUDGE GIANNETTI: Isn't that what's going on in the patent?

13 MR. JOHANNINGMEIER: That's what's going on in Tsividis's
14 patent. It's taking the measurement on my side of the window.

15 I'm measuring what I hear of the interference, right. Rauhala is
16 measuring the level of the conversation outside. So what I hear is less. The
17 --

18 JUDGE GIANNETTI: Why do you say that? It's the same receiver.

19 MR. JOHANNINGMEIER: Well, it's differently tuned, right. The --
20 so I guess there's one receiver. Rauhala requires you to retune it. When you
21 retune it, you change the levels of all of the frequency spectrum components.
22 That's what Dr. Larson says. Once you've retuned it, you've changed
23 everything and now you're measuring a signal strength on that channel.

24 It's the equivalent to measuring a, you know, the volume of a voice a
25 long way away versus measuring the volume of a voice, actually, that I hear,
26 right. So, I mean, what the Tsividis patents are concerned with is, you

1 know, what's the desired level of -- that I can hear of this conversation and
2 then how much noise can I hear from outside.

3 And I have to measure -- I mean, I've got parts of the truck that just
4 went by. If I measured the sound of that truck outside, that's Rauhala. But
5 the patent's requiring me to measure the sound of that truck that I receive,
6 the level of that sound in my ears, right.

7 So, on the received spectrum, you have to measure the interference
8 that's received with the desired signal at the time on the input. And so that's
9 the distinction as best I can explain it.

10 JUDGE GIANNETTI: All right, thank you.

11 MR. JOHANNINGMEIER: All right.

12 JUDGE BENOIT: So not to -- sorry. I know we have other issues
13 and you're almost at 40 minutes, but --

14 MR. JOHANNINGMEIER: Yeah.

15 JUDGE BENOIT: So my understanding is that your argument is that
16 Rauhala does not disclose, as arranged in the claim, because Rauhala is
17 measuring a channel that includes a composite signal rather than measuring
18 individually the signal strength of that desired signal and the signal strength
19 of the interfering signal.

20 And if I'm measuring a channel rather than the portions of the signal,
21 it's fundamentally different than your claim. Is my understanding correct of
22 your position?

23 MR. JOHANNINGMEIER: That is much better than I could have
24 stated it. That is exactly right. Yes.

25 JUDGE BENOIT: Thank you. And again, you're at 40 minutes, so --

26 MR. JOHANNINGMEIER: Yes, I understand. So --

1 JUDGE SMITH: Let me just real quick -- let me make sure I
2 understand it, just real quickly. So when you're saying you don't care how
3 strong or how weak the neighboring signal is, but what you care about is the
4 strength of the interference on the desired signal?

5 MR. JOHANNINGMEIER: Right.

6 JUDGE SMITH: When you receive the desired signal, how much of
7 the signal strength of that desired signal is from the neighboring signal. The
8 neighboring signal stuff, you don't care?

9 MR. JOHANNINGMEIER: Right, the Tsiviidis patents don't look at
10 the strength of the neighboring signal. They look at the portion of that that
11 shows up on, you know, and interferes with the desired signal on --

12 JUDGE SMITH: And even if the neighboring signal is 10 times
13 stronger than the desired signal, if it's not interfering, you don't care?

14 MR. JOHANNINGMEIER: Right, exactly. We -- the Tsividis
15 patents require you to actually measure the interference that you're receiving
16 and not, you know, basically infer it from a neighboring channel strength.
17 So yes, that's the exact distinction.

18 It's about signal components. The Tsividis patents are actually
19 looking at components of the received signal and figuring out how much of
20 that is interference, how much of that is desired, and then basing all of the
21 things on that.

22 And you just simply -- you know, as Professor Larson explained and
23 we've tried to explain, it's just -- what Rauhala is doing is a different way, an
24 inferior way of accomplishing -- trying to accomplish a similar result.

25 JUDGE SMITH: Okay, thank you. I understand your point. I don't
26 want to take up any more of your time.

1 MR. JOHANNINGMEIER: Yeah, okay. Well, and I appreciate the
2 dialogue and I want to make sure that it's clear now. So, in my next slide --
3 this is really comparing evidence really quickly. I mean, this here, let's just
4 go to Slide 15.

5 The claims require comparing the strength of the desired signal
6 relative to the strength of the interference signal. So this is, again, why you
7 have to have both signal strengths of the two components. You compare
8 those.

9 Rauhala gives you basically a detector in a black box. What they say
10 does the comparing is a black box that doesn't even have as an input the
11 received signal strength. So what they're saying is the desired and
12 interference signal, RSS and RSSn, don't even go into the black box that
13 they're saying does the comparison in Rauhala. That's 53. It's in 23 in
14 another figure.

15 So all they have is they have SNR. They say SNR is a ratio. Well, it's
16 a signal to noise ratio so it isn't even necessarily the signal to interferer ratio.

17 And, you know, I think we very clearly laid out, and there's no
18 disagreement, that there are other ways to calculate SNR that don't do a
19 comparison. That's Professor Larson's testimony on Slide 16.

20 But, you know, so if there's alternatives, it's not inherently disclosed.
21 It's certainly not explicitly disclosed. And all of this repeated talk about,
22 well, a person of ordinary skill would just get it, is again, obviousness talk.
23 And this is an anticipation ground.

24 So they haven't shown anticipatory disclosure in Rauhala of the
25 specific comparison. And it's not a question of how it's done. It's about

1 what's compared. They have not shown a comparison of the desired signal
2 to the interferer signal components.

3 Also we have -- I have on Slide 16 -- I won't reread it, but Professor
4 Larson's testimony on this. Again, largely unrebutted. There is no -- on
5 Slide 18 again, there's just no comparing disclosure. I mean, it falls down,
6 basically, on the fact that the black box that they're saying does a
7 comparison doesn't even have the inputs that they say are compared in the
8 disclosure.

9 So there simply isn't any anticipation here. It's not explicitly
10 disclosed. And it's not inherently disclosed unless there's only one way to do
11 it, and there isn't only one way to do it, according to Professor Larson.

12 So they're comparing, that goes to all of the claims of the 202 Patent.
13 The first issue went to all of the challenged claims. Now the next ones I
14 want to talk about, just briefly, go to certain claims of the 825, the varying in
15 impedance.

16 Now the important point here is that varying -- and this goes to their --

17 MR. HAND: 805.

18 MR. JOHANNINGMEIER: Yeah, 805 and 202. This goes to Claim 8
19 of 805 which I've got on Slide 20. So Claim 8 of the 825 requires an
20 impedance to vary. That impedance has to be in a signal path and has to
21 cause a bias current to be decreased. And for this claim, all three of those
22 elements aren't met.

23 So let's start with the sort of, I guess, claim interpretation issue -- well,
24 let's start where the slides go. So let's -- Slide 21. A bias current and an
25 impedance variation is two separate elements in these claims.

1 So essentially, as I think Your Honor pointed out, Rauhala discloses
2 resistors being changed in order to affect the things that it does. We pointed
3 out that those resistors are not impedance, as a matter of patent
4 interpretation. We also pointed out that they aren't in a signal path.

5 And so on reply, petitioner came back with this theory that there is
6 somehow indirect changing of impedance within the differential amplifier
7 based on the fact that you changed the bias current.

8 But the first rebuttal point to that is simply that the bias current
9 change and the impedance change are two separate controls, two separate
10 claim elements. The patent describes them as different degrees of freedom,
11 different controls.

12 The figures show them as different controls. Varying impedance is a
13 separate disclosed control from varying bias current. And, you know, it is,
14 as a matter of Ohm's Law, you know, the voltage equals the current times
15 the resistance. If you change -- those things are proportional -- so if you
16 change a bias current, you're going to change voltage or resistance. It's
17 basically just a fact of fundamental physics and E101.

18 So the -- they're pointing to essentially indirect effects later on caused
19 by the fact that you changed the bias current. That's not what the claims are
20 talking about. It doesn't meet the claim elements. I have multiple slides on
21 why those are separate measurements.

22 On Slide 25, I'll just point out that, you know, impedance being an
23 alternating circuit parameter, the alternating current parameter, a frequency
24 component parameter is the definition that petitioners started with in this
25 case, Professor Baker started with in this case, so this is the definition that

1 we applied to say that those resistors aren't an impedance. The Board
2 doesn't --

3 JUDGE GIANNETTI: Counsel, let me ask you a quick question.
4 Maybe this is hypothetical also, but let's say you're having a discussion with
5 a person of ordinary skill in the art and trying to describe a circuit to that
6 person.

7 And this is -- I've forgotten exactly what the definition is here, but in
8 most cases it's a person with an engineering degree or computer science
9 degree and a couple years of experience in the field. Why don't you just
10 accept that from me.

11 But if you're having a discussion about a circuit diagram and you refer
12 to a resistance R10 and you say that it has an impedance of 5 Ohms, do you
13 think they would understand what you were talking about?

14 MR. JOHANNINGMEIER: Yes, actually. So, yeah.

15 JUDGE GIANNETTI: So isn't this largely an academic debate over
16 the difference between impedance and resistance?

17 MR. JOHANNINGMEIER: Well so it is true that, you know,
18 that a resistance has an impedance that's equal to its resistance. The question
19 usage, and specifically usage within the patent -- because you know, to the
20 extent we're doing claim construction, you have to look at the patent and
21 how it uses the terms and how Professor Tsividis uses the terms.

22 It is -- you know, when I was in engineering, you know, he was
23 talking -- first we would talk resistance and capacitance and whatever. At
24 some point you're taught frequency domain, and then the concept of
25 impedance is introduced.

1 It's very common and typical to use the word resistance when you're
2 referring to DC, direct current, circuits, and to use impedance when you
3 refer to frequency varying RF signal circuits. And this is what actually
4 Professor Tsividis does in the patents, and so that's why we made this
5 argument.

6 JUDGE GIANNETTI: Well sir, maybe that's true if you're teaching
7 a course in electrical engineering, but if you're just talking to a person of
8 ordinary skill and trying to describe a circuit, and you said well, it's an
9 impedance of 5 OHMS, they'd understand perfectly what you were talking
10 about.

11 MR. JOHANNINGMEIER: Yes.

12 JUDGE SMITH: I'm not talking about -- we're not talking about
13 engineering grad school here. We're talking about persons of ordinary skill
14 in the art, in the, I would say less than an academic environment. We're
15 talking about the real world.

16 MR. JOHANNINGMEIER: Well right, and I don't disagree. I mean,
17 so I guess the sort of larger point here is that whether or not you call those
18 things an impedance, the resistors, they're not in the signal path and that the
19 Board has already basically found twice. So I won't revisit the -- I mean, it's
20 in our brief very clearly.

21 But those resistors are not in the signal path. What has happened now
22 is that petitioners have come up with a new theory based on, you know,
23 pointing to a diagram in Rauhala that shows a diff amp, and drawing red and
24 green and blue and purple text around it that I think Your Honor has pointed
25 out is their analysis and not -- so you know, all I would say to that most
26 precisely is that this is again an anticipation ground.

1 And so if you have to draw red and green and blue text and follow the
2 current, and then get to some purple text that basically says it's well known
3 that this would be true, you're not talking anticipated in disclosure anymore,
4 you're talking about, at best, obviousness which they have not argued.

5 So their new theory on what is the -- on the signal path elements, and
6 the impedance elements can just be -- it just doesn't make it. There's no
7 disclosure in Rauhala of that. What is in Rauhala is -- I have it on Slide 32
8 and 33, are the figures that Professor Larson annotated that show the signal
9 path, that show the dotted lines, the separate components of this.

10 Even if you consider the bias currents to be part of that circuit, it's not
11 in the signal path of that circuit. The signal path of the circuit is showing
12 yellow on the slides, and that's basically very clear. So those claims should
13 survive for all the reasons given in the Board's institution decision, and all
14 the reasons given in the 330 patent re-hearing decision. The fact that, you
15 know, bias currents might be necessary to the operation of the device doesn't
16 mean that they're in the signal path.

17 And finally, the patent number didn't cover the drive current issues, so
18 I -- the petitioner didn't cover the drive current issues, so I'll just leave it to
19 what we have in our specs. And if you don't have any other questions, I'll
20 just reserve whatever I have left for surrebuttal.

21 JUDGE BENOIT: You have seven minutes left.

22 MR. JOHANNINGMEIER: Okay.

23 JUDGE BENOIT: You used 53 minutes.

24 MR. JOHANNINGMEIER: All right, thank you. I appreciate the
25 dialogue.

26 MR. UHR: Your Honor?

1 JUDGE BENOIT: Whenever you're ready.

2 PETITIONER - REBUTTAL

3 MR. UHR: Okay. Thank you, Your Honor. I just want to hit two
4 points, including one point on the determining issue that I think Your
5 Honors have rightly focused on. And this concerns Slide 10 of patent
6 owner's demonstratives. I think largely Your Honors have recognized the
7 problem with patent owner's analogy to an FM tuner. But I just -- I really
8 want to hit this point and make clear what the petitioners' position on this is.

9 So patent owner seems to be saying that 99.3 somehow cannot be an
10 interferer signal relative to 98.7. But there really -- there appears to be no
11 support for this kind of distinction in the challenged patents whatsoever.
12 The examples of the challenge patents show desired signals and interferer
13 signals on frequency charts that do not have any units.

14 So based on those charts and the associated descriptions, interferer
15 signals are simply signals that are at different frequencies than the desired
16 signal. And that's exactly what patent owner has shown in its figure on Slide
17 10. 98.7 and 99.3 are at different frequencies on this particular frequency
18 spectrum. So there really is no reason to say that 99.3 is not an interference.

19 JUDGE SMITH: And actually, Counselor, if I could just maybe put a
20 side point on your comment. It's actually, there's a desired signal and an
21 interferer signal that are both components of a received signal. So there's
22 one received signal that has these two components.

23 So it's not just that there's a desired signal and an interfering signal
24 and they can both be received separately and you figure out how -- It's that
25 there's one composite signal that's received, and from that composite signal
26 you determine how much of it is desired and how much of it is interfering. I

1 think that that's patent owner's point. But could you speak to that? You
2 have one composite signal that's separated into component parts.

3 MR. UHR: Well, Your Honor, I think that the patents don't put any
4 kind of boundary around what a composite signal can be.

5 JUDGE SMITH: The claim does.

6 MR. UHR: The --

7 JUDGE SMITH: The claim says receive a wireless signal, having a
8 desired signal and an interferer signal.

9 MR. URH: Correct, Your Honor. So petitioners' position is that in
10 the case of an FM radio, the wireless signal would be the overall frequency
11 spectrum on which all radio stations are transmitted. They're at different
12 frequencies.

13 And if a particular person wants to navigate to 98.7, then that's the
14 desired signal. And then, 99.3 according to the patent -- because it's at a
15 different frequency, 99.3 is an interferer signal.

16 JUDGE SMITH: But it interferes -- it may not interfere. And you
17 wouldn't know that unless you looked at the received signal and separated it
18 into component parts.

19 MR. UHR: That may be, Your Honor, but I don't think that there's
20 any basis in the description of the patents for drawing a distinction that way.

21 JUDGE SMITH: I mean, if it doesn't interfere it's not an interfering
22 signal, is it?

23 MR. UHR: Your Honor, if it doesn't interfere, it's not an interfering
24 signal. I agree with that statement, but I think Counsel for patent owner
25 even said that some portion of 99.3 does interfere with 98.7. And petitioners
26 are not aware of any portion of the patents that describe how to pull out

1 static from an actual FM radio station if we're sticking with patent owner's
2 analogy. Unless there's any further questions on that, the second point --

3 JUDGE BENOIT: Sorry, I have one more question. So, do you agree
4 that the measurement of the received channel strength in Rauhala includes
5 both the signal strength of the desired signal and the interfering signal, that
6 the received channel strength includes both?

7 MR. UHR: The received channel -- do I agree that the received
8 channel strength includes both the desired signal and the interferer signal?

9 JUDGE BENOIT: Yes.

10 MR. UHR: I don't believe that that's what Rauhala discloses. I
11 believe that Rauhala discloses this, the received channel strength is
12 measured by RSS and that strengths of neighboring channels or interferers
13 are measured by RSSn.

14 JUDGE BENOIT: So my question is, how do you bridge the gap
15 between measuring a channel and the wireless signal that has composite
16 signals? I mean, Rauhala measures two different channel strengths. How is
17 that the same as measuring a composite signal that has two signal strengths?

18 MR. UHR: Well, Your Honor, I'm not sure what you mean by
19 composite signal. Could you clarify?

20 JUDGE BENOIT: So the claim requires -- let me just pull out the
21 exact language of the claim -- that receiving a wireless signal, having a
22 desired signal and an interferer signal.

23 MR. UHR: Okay, so that --

24 JUDGE BENOIT: So --

25 MR. UHR: I'm sorry.

1 JUDGE BENOIT: And then you measure the desired -- the signal
2 strength of the desired signal and the signal strength of the interferer signal
3 later in the claim.

4 MR. UHR: Right.

5 JUDGE BENOIT: So Rauhala measures the receiving channel. And
6 isn't the problem we're talking about now that the receiving channel has both
7 the desired signal and the interferer signal in it?

8 MR. UHR: I think I may see where we're getting hung up here. And
9 it is going back to that receiving, what you characterized as the composite
10 signal.

11 I would say that when you have an antenna, thinking about, for
12 example, the antenna on your car or at least older type cars, that antenna is
13 being hit by different radio stations that are at different frequencies.

14 Those radio stations are being transmitted over the air and those
15 different radio stations are hitting the antenna that's receiving by the
16 receiver. The parties haven't actually disputed what constitutes receiving
17 and what, you know, where the line is between receiving and not receiving.

18 And I think that issue may be getting tied up a little bit here with the
19 determining steps.

20 JUDGE BENOIT: Well, the determining issue is whether Rauhala
21 determines the signal strength of the interfering signal from the received
22 signal having the two parts, right?

23 I mean, that's where the importance of the receiving limitation comes
24 in because you're measuring not just a signal on a different channel, but
25 you're trying to measure the desired signal and the interferer signal that's
26 being received.

1 MR. UHR: Well, Your Honor, petitioners' position would be that that
2 receiving step doesn't require anything more than multiple signals hitting an
3 antenna as they would a car antenna that receives all of the FM radio stations
4 available to it.

5 Now whether it tunes to any of those particular radio stations, I think
6 is a separate matter.

7 JUDGE SMITH: You're having the receiving to an antenna? You're
8 saying the antenna is the receiver? Is that what you're saying?

9 MR. UHR: Your Honor, I don't believe that the claims recite a
10 receiver --

11 JUDGE SMITH: I'm asking you, what in the prior art is the receiver?
12 You're saying it's the antenna?

13 MR. UHR: The antenna would be the first point that receives the
14 wireless signal, yes.

15 JUDGE SMITH: And you're saying receiving signals from all these
16 different transmitters is the same as receiving a wireless signal?

17 MR. UHR: In the context of the challenge patents, the answer is yes.
18 There doesn't appear to be any distinction between the --

19 JUDGE SMITH: I mean, I haven't looked at the petition in detail on
20 this point, but it seems to me a person of ordinary skill would understand the
21 receiver to be whatever signal is received after it goes through the tuner and
22 not whatever hits the antenna. Am I wrong about that?

23 MR. UHR: Your Honor, I think whether a person of ordinary skill in
24 the art might know that or not -- the claims don't require anything so
25 specific.

1 JUDGE SMITH: And didn't your petition argue that an antenna that
2 receives ten different signals from ten different transmitters that maps to the
3 claim to receiving a wireless signal? Is that in your petition?

4 MR. UHR: Your Honor, we didn't state ten signals from ten different
5 --

6 JUDGE SMITH: Or two signals from two different transmitters is a
7 signal? Is that in the petition?

8 MR. UHR: Your Honor, I don't believe that that was specifically
9 spelled out in the petition, no.

10 JUDGE BENOIT: Yeah, I'm looking at your petition in 697, on Page
11 21. For the receiving a wireless signal having a desired signal and an
12 interferer signal, you point to that first sentence in Rauhala, Paragraph 6,
13 discloses a receiver monitors the signal strength on the received channel and
14 the neighboring channels.

15 MR. UHR: Yes, I see that.

16 JUDGE BENOIT: So, I don't see the discussion about how that
17 relates to a wireless signal having a desired signal and an interferer signal
18 when you're talking about the receiver that monitors two different channels.

19 But, you know, it's -- I'll give you a, you know, a quick -- a moment to
20 answer that, but you're at 12 minutes now.

21 JUDGE GIANNETTI: Yes, I have a quick question and I won't take
22 too much time. What is the bottom line? What is petitioners' bottom line on
23 retuning? Is that disclosed in Rauhala? Is it necessary to have retuning in
24 order to meet the claim? What's the bottom line on the retuning issue that I
25 was discussing with your colleague?

1 MR. UHR: Well, thank you both Your Honors for your questions. If
2 you don't mind, I'll answer Judge Benoit's question first. Your Honor, I
3 think that this portion of the petition on Page 21 may not explicitly say that
4 there's an antenna but a person of ordinary skill in the art dealing with
5 receivers would understand that a receiver has a front end where the wireless
6 signals are received.

7 Judge Giannetti, to address your question, the bottom line on the
8 retuning issue is that Rauhala simply does not discuss retuning. It does not
9 work that way, and it appears to be an interpretation of the Rauhala
10 reference that was manufactured by patent owner's expert.

11 JUDGE GIANNETTI: Okay, thank you.

12 MR. UHR: Your Honors, does that conclude my time? Are there any
13 further questions?

14 JUDGE BENOIT: No more questions and your time's up, so thank
15 you for your presentations and answering our questions.

16 MR. UHR: Thank you, Your Honors.

17 PATENT OWNER - SURREBUTTAL

18 MR. JOHANNINGMEIER: All right, so, again, Mr. Johanningmeier
19 here. I will attempt to be very brief.

20 Just to take issues in the reverse order, the question of retuning, I
21 mean, our bottom line on that is on our Slide 11 where we have the
22 disclosure of needing to detect, to basically tune to a channel in order to
23 detect its received signal strength.

24 So, I mean, I think it's very, very clear from that disclosure that there
25 is one detector. There is a tuner and that detector can only measure one RSS
26 at a time so that it has to be retuned in order to get the second one.

1 It says that -- it provides information about the signal strength on the
2 channel to which the receiver is tuned. So that's -- and, you know, the
3 consequence of that retuning is the whole discussion that we've had, that
4 essentially leads into everything else.

5 Now let me sort of just go to sum up, to go back again to the claim
6 language, like we must do -- we talked about the receiving a wireless signal.
7 I think the most important part of this claim language is the having a desired
8 signal and having -- or and an interferer signal.

9 These are components of the signal that have to be measured, right.
10 You know, you have to be able to measure what component, what portion of
11 that total signal strength, RSS -- what portion of RSS is desired, what
12 portion of RSS is an interferer. So measuring two RSS's don't tell you either
13 of those things, all right. It's just the bottom line.

14 You have to receive a signal strength. RSS means received signal
15 strength -- total and composite. Everything -- noise, interference, desired
16 signal. You receive that and you have to, according to the claims, figure out
17 how much of that is desired, how much of that is interferer.

18 You cannot figure that out from RSS total and RSS total on a
19 neighboring channel even if some portion of that neighboring channel
20 contributes to the portion of RSS that's an interferer. It's some unknown
21 portion that comes over.

22 To use my analogy on windows and in hearing conversations, you
23 know, if we have sound proof glass, it may not interfere at all, the
24 neighboring channel. I mean, if we have a good filter in our cell phone, it
25 may not interfere at all, that neighboring channel.

1 Or it may be the case that some portion of that bleeds through the
2 filter and interferes but we have to determine, according to the claims, what
3 portion of RSSn is actually an interfering signal on the system. And
4 Rauhala just does not disclose that.

5 All Rauhala gives you is a detector with a diode symbol in it that can
6 pick one or two received signal strengths based on having retuned. So
7 unless there are further questions, I'm happy to end early. And I hope you
8 all have a good day, and thank you very much for your time.

9 JUDGE BENOIT: The panel would like to thank both of you for your
10 arguments today. We appreciate your patience in answering our questions.
11 We found this to be helpful.

12 We'll issue our decisions in due course. The hearing is adjourned.
13 (Whereupon, the above-entitled matter went off the record at 3:08
14 p.m.)

IPR2023-00697 (Patent 10,129,825 B2)
IPR2023-00698 (Patent 10,524,202 B2)

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