

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED,
Petitioner

v.

COBBLESTONE WIRELESS, LLC,
Patent Owner.

IPR2024-01336
Patent 7,924,802 B2

Record of Oral Hearing
Held: December 16, 2025

Before KARL D. EASTHOM, NORMAN H. BEAMER, and
RUSSELL E. CASS, Administrative Patent Judges.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

ARCHIBALD CRUZ, ESQ.
of: Patterson & Sheridan LLP
24 Greenway Plaza
Suite 1600
Houston, Texas 77046
713-623-4844
acruz@pattersonsheridan.com

ON BEHALF OF THE PATENT OWNER:

SUSAN TULL, ESQ.
of: Russ, August & Kabat
12424 Wilshire Boulevard
12th Floor
Los Angeles, California 90025
310-826-7474
stull@raklaw.com

The above-entitled matter came on for hearing Tuesday,
December 16, 2025, commencing at 1:00 p.m. EST, via Video-conference.

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

1:00 p.m.

JUDGE CASS: -- This is the oral hearing in Qualcomm Incorporated versus Cobblestone Wireless, LLC. I am Judge Russell Cass, and with me on the panel today are Judges Easthom and Beamer. Can we have an identification from each side of who is present? Petitioner's counsel, please proceed.

MR. CRUZ: Yes, Your Honor. This is Petitioner's counsel, Archibald Cruz on behalf of Petitioner Qualcomm Incorporated.

JUDGE CASS: Thank you. And did you announce who you have with you today?

MR. CRUZ: I have with me Kyrie Cameron, who's also in the room with me. She's also counsel for Petitioner Qualcomm.

JUDGE CASS: All right. And for Patent Owner?

MS. TULL: Good morning, Your Honors. Susan Tull with Russ, August & Kabat on behalf of the Patent Owner Cobblestone Wireless.

JUDGE CASS: Do you have anyone appearing with you today?

MS. TULL: No, Your Honor. Just myself.

JUDGE CASS: Okay. With that, we will now begin. In our hearing order, it was stated that each party would have 60 minutes of time to present arguments. Since that time, we granted Petitioner's request that Mr. Archibald Cruz be permitted to argue pursuant to the Office's Legal Experience and Advancement Program, also known as LEAP. Under this program, Petitioner will be granted an additional 15 minutes of argument time for a total of 75 minutes.

1 As far as the order of presentation goes, Petitioner will proceed first,
2 followed by Patent Owner's response. Petitioner may then spend the
3 remaining time for rebuttal in response to Patent Owner's presentation. And
4 finally, Patent Owner may use any of its remaining time for surrebuttal,
5 responding to Petitioner's rebuttal arguments.

6 A few reminders before we begin. First, that there is a public line for
7 this case. We're not aware of any confidential information that may be
8 discussed, but if it's not the case, please speak up. When you are arguing,
9 please speak slowly and if you hear another voice, such as one of us judges,
10 if you hear one of us (audio interference) judges, any of us, remotely, please
11 stop so that we don't talk over each other because for many of us who are
12 appearing remotely, that can lead to issues, so just try to keep that in mind.

13 If either party believes that the other party is presenting an improper
14 argument, such as a new argument that was not made in the party's briefs,
15 please raise that issue during your presentation. Don't object at the time and
16 interrupt the other party's presentation. Now here at this hearing, because
17 Judge Easthom is in the hearing room and has a visible clock, as you can see
18 in the upper left-hand of the screen, he's graciously agreed to keep time for
19 us so that everybody can see what the current time is that's elapsed. I can
20 give you a warning if you'd like when you're going into your rebuttal time.

21 We've received the party's demonstrative exhibits and are able to view
22 them on our screens. To ensure that the transcript is clear and everyone can
23 follow along, please refer to your demonstratives by slide number. Are there
24 any questions from the parties?

25 MR. CRUZ: Nothing from Petitioner, Your Honor.

1 MS. TULL: None. Thank you, Your Honor.

2 JUDGE CASS: Great. Well, we'll start with Petitioner. Counsel for
3 Petitioner, would you like to reserve time for rebuttal?

4 MR. CRUZ: Yes, Your Honor.

5 JUDGE CASS: And how much do you need?

6 MR. CRUZ: Thirty minutes.

7 JUDGE CASS: All right. Sounds good. Well, with that, you can
8 begin when you're ready.

9 MR. CRUZ: Thank you, Your Honor. Good afternoon, and may it
10 please the Board. My name is Archibald Cruz, I'm along with my co-
11 counsel, Kyrie Cameron. We represent the Petitioner in this case,
12 Qualcomm Incorporated.

13 Your Honors, while we do have much prepared for today's
14 presentation, if Your Honors have any specific questions you'd like us to
15 address at the outset, we'd be more than happy to. If there are no questions -

16 -

17 JUDGE CASS: -- it appears, so why don't you go ahead and proceed?

18 MR. CRUZ: Yes, Your Honor. We'd just like to emphasize a few
19 points for today's hearing. First, that the Board should apply the plain and
20 ordinary meaning of the claim term information, which is data. And second,
21 that the Board should find that the references teach each and every element
22 of the claim limitations.

23 For the purposes of this presentation, if we go to Slide 2 of the
24 Petitioner's demonstratives, we see that the grounds are separated into three
25 main groups based on the primary reference. In this case, Ground 1 is Rick,

1 Ground 2 is Suzuki -- excuse me, Grounds 2 through 5, Suzuki, and Grounds
2 6 through 9, the combination of Fernandez and Montojo.

3 To give a brief overview of the patent at issue, the patent is the '802
4 Patent. It was filed in 2008 and is titled Wireless Communication Systems
5 and Methods. It's directed to multi-carrier transmission. In other words, a
6 single transmission is transmitted -- excuse me, signal is transmitted over
7 multiple frequency ranges. And so the purported improvement in the '802
8 Patent is transmitting information on multiple frequency ranges
9 simultaneously, whereas previously, it could only be done through one
10 frequency range, as alleged in the '802 Patent specification.

11 Now, turning to my first point, that information should be given its
12 plain and ordinary meaning. This relates to Claim 1, which is addressed in
13 Grounds 1, 2, and 6. If we turn to Slide 3 of the Petitioner's demonstrative,
14 we can see that the claim language at issue here, bolded, first information in
15 element 1A, the second information in element 1B. The Board should use
16 the plain and ordinary meaning of information to be data.

17 The Patent Owner is seeking a narrower definition, requiring that in
18 all instances, the first information and second information are related to one
19 another in part of a greater information package that was transmitted.

20 Patent Owner puts forth some arguments for why -- for its
21 construction, but they all fall. First, Patent Owner argues that the preamble
22 1C provides antecedent basis for first information and second information by
23 virtue of the method of transmitting information. But, as the Board
24 recognized in the Samsung IPR, for which this present case is a me too
25 petition, the preamble is not limiting. Indeed, in that case, even though the

1 Board was looking at a different part of the preamble, the Board's analysis
2 still applies here.

3 The Board relied on Federal Circuit case law that stated a preamble
4 is not limiting where a patentee defines a structurally complete invention in
5 the claim body and uses the preamble only to state a purpose or intended use
6 for the invention. Based on this case law, the Board then preliminarily
7 decided that Claim 1 does not -- the preamble of Claim 1 is not limiting,
8 because the body recites a structurally complete invention.

9 In this IPR, Patent Owner has put forth no additional evidence or
10 arguments for why the preamble should be limiting in this case. Thus, the
11 Board did get it right when it decided in the Samsung IPR -- preliminarily
12 decided that the preamble is not limiting. Rather, the preamble merely states
13 a purpose for intended use for the invention, that is, a method of transmitting
14 information via this communication channel.

15 JUDGE CASS: Counsel, this is Judge Cass. Why is that an
16 argument here given the arguments and issues raised by the parties?
17 Transmitting first information and transmitting second information is in the
18 bodies, so what else is in the preamble that's at issue?

19 MR. CRUZ: Yes, Your Honor. My understanding of Patent
20 Owner's argument is that they're asserting that the transmitting information
21 in the preamble provides antecedent basis for first information and second
22 information, such that the first information and second information must be
23 part of a unified or a full package. But, as the Board decided in the Samsung
24 IPR Institution decision -- preliminarily decided, that preamble is not

1 limiting. And so, because the Claim 1 body recites a structurally complete
2 invention.

3 JUDGE CASS: I guess maybe Petitioner -- I'm sorry, Patent
4 Owner's counsel can correct me when they argue, but I guess the way I
5 understood their argument is that they were relying on the transmitting first
6 information in limitation A, and transmitting second information, limitation
7 B, and not specifically on the preamble.

8 MR. CRUZ: Yes, Your Honor. The terms at issue are "first
9 information" and "second information" as shown in elements 1A and 1B.
10 But, for example, in the sur-reply in Page 2, Patent Owner argues that the
11 preamble provides antecedent basis. And that's why we are addressing it
12 here today.

13 Furthermore, the intrinsic evidence supports reading information as
14 merely data. For example, in the '802 Patent, it's column 5, lines 60 to 62, it
15 states information, i.e. data, to be transmitted may be received in a baseband
16 digital system 250, such as a wireless digital baseband processor. And then
17 in column 11, line 30 to 32, it says, in this example, signals 911 and 912
18 carry the same information, parentheses, data. Therefore, even in the '802
19 Patent, it's understood that information simply means data.

20 The narrower definition that Patent Owner is asserting where the
21 data has to be related and part of a unified package is not supported by the
22 intrinsic evidence. At least not limited to that embodiment. For example, in
23 the '802 Patent, column 6, line 7 to 9, it states that the data of the first digital
24 signal and the data of the second digital signal may be unrelated data streams
25 or may be data from the same data stream, for example.

1 So, to be clear, we're not saying that the first information and the
2 second information can never be related. They may be. What Patent Owner
3 is seeking to describe are unrelated when there's no clear and explicit
4 statement by the patentee in the intrinsic evidence. Therefore, the Board
5 should use the plain and ordinary meaning of information, which is data.

6 Now, even if the Board adopts Patent Owner's claim construction for
7 information, the references do teach a greater information package,
8 including a first information and related second information. We believe
9 that the analysis already in the briefing satisfied Patent Owner's narrower
10 construction. For example, the petition already addresses the situation
11 where the data streams must be related in Claims 7, 8, 22 using Jalali in
12 combination with the primary references.

13 And so, with respect to Claim 1, because Patent Owner doesn't
14 dispute any other limitation element of Claim 1, the primary references Rick,
15 Suzuki, and Fernandez-Montojo render obvious Claim 1.

16 Now, to Claims 10 and 17, starting with 10. On slide 4 of
17 Petitioner's demonstratives, the disputed terms at issue are shown on this
18 slide on Claim 10. Now, in the Samsung IPR Institution decision, the Board
19 directed the Petitioner to address how Suzuki teaches first data to be
20 transmitted in element 10A and second data to be transmitted in element
21 10B. Going to Slide 5 of Petitioner's demonstrative, Claim 17 which has
22 similar features in element 17A.

23 Now in the petition, we presented two explanations for how Suzuki
24 discloses these elements under Figure 6 of Suzuki or under Figure 8 of
25 Suzuki. And this is in the petition Pages 31 to 33. For the purposes of

1 Patent Owner's response, Patent Owner disputes only the analysis of these
2 two terms under Suzuki Figure 6.

3 Turning now to Slide 7 of Petitioner's demonstratives, which shows
4 Figure 6 of Suzuki annotated. Figure 6 shows that the output of lookup
5 tables 17.1 and 17.2 are digital signals, which contain distortion
6 compensation data D1 and D2. These data, D1 and D2, are then added to
7 the input signal ST in adders 13-1 and 13-2. The combination of these input
8 signals and the distortion compensation data eventually becomes the output
9 signal SD, which is transmitted.

10 So, going back to the Board's guiding us in the Samsung IPR
11 Institution decision, the Board asked Petitioner to address whether in Figure
12 6 of Suzuki, D1 and D2 contain data to be transmitted and are transmitted.
13 The answer is yes to both questions. D1 and D2 are data because Suzuki
14 refers to them as such. Specifically, Suzuki refers to them as distortion
15 compensation data in paragraph 63. These data are then added to their
16 respective frequency bands from signal SD in order to predistort the output
17 signal, which is then transmitted.

18 But Patent Owner argues that D1 and D2 are not transmitted because
19 they are cancelled by the distortion. But even if the effect is distortion
20 compensation, Suzuki is clear that the compensation data is added to the
21 input signal via adders 13-1 and 13-2. In fact, Suzuki explicitly refers to this
22 process as the addition of predistortion in paragraphs 47 and 63. As such,
23 the compensation data, which is combined with input data to produce the
24 output signal SD, are transmitted.

1 Therefore, Suzuki Figure 6 teaches that the first data and -- excuse
2 me, teaches the first and second data to be transmitted. But again, even if
3 the Board disagrees on this point, the Board should rely on Suzuki Figure 8
4 for these elements, which Patent Owner does not dispute. Going back to
5 Slide 4 --

6 JUDGE CASS: Well, Counsel, before -- this is Judge Cass. Go
7 back to the Figure 6 slide. In here, we have maybe a little different
8 interpretation issue than we had for Claim 1, or at least for the Rick element
9 argument with respect to Claim 1, because the real issue is, is this
10 predistortion compensation data -- I mean, first, is it information, period?
11 You know, Patent Owner says it doesn't really have information content, so
12 to speak. But then second is, is it information that's transmitted?

13 And is there -- I guess what you're saying is, if information is data,
14 anything that -- you know, essentially any non-random signal that's used for
15 some purpose is data, since it's added to the signal that gets transmitted, even
16 if what gets transmitted doesn't really have the information, doesn't transmit
17 the information content of the predistortion signals, because there's an
18 additive process, it's nonetheless transmitted. Is that your position?

19 MR. CRUZ: Yes, Your Honor. If I understand your question
20 correctly, it's our position that the data, the predistortion data, D1 and D2 are
21 transmitted, because it is added to the input signal to produce the output
22 signal SD, which is then transmitted.

23 I'm understanding your question to be with regards to Claim 1,
24 which deals with information, transmitting information, whereas Claim 10,
25 which we were just discussing, does recite transmitting information in the

1 preamble that is discussed in the Samsung IPR decision, preamble of Claims
2 1 and 10, which are identical, not limiting. Rather, in Claim 10, there's no
3 specific recitation of the information other than the preamble.

4 JUDGE CASS: I see. And I take it your position is that the first
5 data and the second data don't necessarily have to be, quote, "information,"
6 because information is in the preamble, and such.

7 MR. CRUZ: I believe that's correct, Your Honor.

8 JUDGE CASS: Right. Thank you.

9 MR. CRUZ: Now, moving on to figure -- excuse me, back to the
10 claim language of Claim 10 in Slide 4 of Petitioner's demonstratives. The
11 next term at issue is first upconverted analog signal, element 10E, and the
12 second upconverted analog signal, element 10F. And moving on to Slide 5
13 of Petitioner's demonstrative, which shows Claim 17. Claim 17 recites
14 similar features in element 17D and 17E.

15 Moving on to Slide 8 of Petitioner's demonstratives, these elements
16 are shown in Figure 8 of Suzuki. Figure 8 of Suzuki shows that the two
17 signals, SD1 and SD2, are converted to analog as DAC converters 24-1 and
18 24-2 respectively, and that the analog signals are then upconverted at
19 frequency converter 26.

20 Now, while Figure 8 shows that there might be one upconverted
21 signal, Suzuki discloses that there may be two. For example, Suzuki Figure
22 13A, which is a frequency spectrum of the signal, depicts two separate
23 frequency bands, FB1 and FB2. Therefore, Suzuki discloses the first and
24 second upconverted analog signals according to Claims 10 and 17.

1 Patent Owner argues that Figure 13A of Suzuki does not apply to
2 Figure 8. But just because Suzuki describes 13A in -- Figure 13A in the one
3 part of Suzuki's disclosure does not make it unrelated or mutually exclusive
4 with Figure 8. In fact, Suzuki suggests that the two can be related.

5 For example, in paragraph 94 of Suzuki, it states, it is possible to
6 arrange such that the power amplifier output signal -- output monitor signal,
7 SM, is divided by divider 20 to the frequency band, controller 8, as shown
8 by the broken line in Figure 8 and the frequency bands of signals -- and the
9 frequency bands FB1 and FB2 are detected from the monitor signal, SM.

10 In other words, following Figure 8, one can produce two separate
11 output signals in two separate frequency bands, FB1 and FB2, which are
12 elements of Figure 13A. So, as discussed earlier with respect to Figure 8
13 shown on the screen right now, Slide 8, these two output signals may be
14 analog signals that are upconverted. Therefore, Suzuki Figure 8 teaches the
15 first and second upconverted analog -- excuse me. Suzuki Figure 8 teaches
16 the first and second upconverted analog signals. But, if the Board disagrees
17 on this point, the Board can rely on Suzuki Figure 6 for these elements,
18 which Patent Owner does not dispute. And so --

19 JUDGE CASS: So, Counsel, before we go back to Figure 6, let me
20 ask you a couple of questions based on Figure 8. So, is your argument that
21 Figure 13A is describing the embodiment of Figure 8, or is your argument
22 that it would have been obvious to have the signal of Figure 13A come out
23 of Figure 8?

24 MR. CRUZ: I think it's the latter, Your Honor. It would be obvious
25 that the output of -- that the frequency spectrum depicted in Figure 13A,

1 which simply shows two frequency bands, FB1 and FB2, that it could apply
2 using the embodiment depicted in Figure 8 by virtue of the language from
3 paragraph 94 of Suzuki, which relates the two. In other words, it would be
4 obvious to a POSITA that the 13A (audio interference) figure output signal -
5 - and as we discussed with Figure 8, these analog output signals are
6 upconverted at frequency converter 26.

7 But once again, these elements of the first and second upconverted
8 analog signals are disclosed also in Figure 6 of Suzuki. And Patent Owner
9 does not dispute, for these elements, that Figure 6 applies to these elements.
10 And so --

11 JUDGE CASS: Counsel, let me go back, if I could, to Figure 8 to
12 follow up. So, we could look at Figure 8 in combination with Figure 13A.
13 So, you've got the first digital signal, SD1, going into DAC 24-1. So is that -
14 - or is it your position that -- that signal is one of the signals shown in Figure
15 13A, such as, for instance, I think FB1? Does that correspond to FB1? And
16 then the SD2, second digital signal, would correspond to what's shown as
17 FB2? Is that your understanding?

18 MR. CRUZ: Yes, Your Honor, I believe it can.

19 JUDGE CASS: And so then you've got this vector modulator. So,
20 what does that -- what exactly does that mean?

21 MR. CRUZ: I don't know the answer to that question at this
22 moment, but I will address it in rebuttal.

23 JUDGE CASS: Yeah. So, what I want to drill down on here is, it
24 seems to me that this is showing that you've got two signals coming in,
25 you've got one signal coming out, and maybe that perhaps that one signal

1 coming out looks like Figure 13A. But does that meet -- that one signal
2 meet the first analog signal and the second analog signal recited in Claim
3 10? And if so, how?

4 MR. CRUZ: Yes, Your Honor. We're not saying that the single
5 output signal, in figure 8 is (audio interference) the first and second
6 upconverted analog signals, but rather, by looking at the fact that it can
7 produce two frequency bands, two output signals. As in, for example, 13A,
8 it does teach the first and second upconverted analog signals as recited in
9 Claims 10 and 17.

10 JUDGE CASS: Okay. So if the first digital signal, SD1,
11 corresponds to the first -- I guess the first -- so where would the first analog
12 signal be?

13 MR. CRUZ: It would be the -- the first analog signal would be the
14 output of 24-1 in Figure 8, because it's a digital-to-analog converter, DAC.
15 And so --

16 JUDGE CASS: And that second analog signal presumably would be
17 the output of DAC 24-2. So I guess what I'm struggling with here is, after
18 those things appear to get combined in the vector modulator, and then it's
19 that combined signal that's getting upconverted in element 26. So how is
20 that upconverting the first analog signal and then upconverting the second
21 analog signal? Wouldn't that be upconverting some single combined signal
22 of both of those signals?

23 MR. CRUZ: That might be the case in Figure 8. That's why we show
24 that what -- Figure 8, when viewed in combination with Figure 13A, shows
25 that these two frequency bands, FB1 and FB2, that there might be two output

1 signals at different frequency bands. And so that's why we bring up Figure
2 13A and show how the output signals -- there are two output signals and
3 there are upconverted analog signals when you look at Figure 8 of Suzuki.

4 JUDGE CASS: So where would those two output signals be in Figure
5 8?

6 MR. CRUZ: My understanding is that we would need to have the
7 upconversion of the first analog signal and the upconversion of the second
8 analog signal. And while Figure 8 shows that it's just one signal that's
9 upconverted in 26, the point is that it may be two signals by virtue of
10 Suzuki's disclosure in paragraph 94 and Figure 13A. So, to answer your
11 question, Figure 8 alone may not show the two upconverted analog signals,
12 but the point is that Suzuki disclosed that there might be two output analog
13 signals when you look at Figure 8 with Figure 13A.

14 JUDGE CASS: So just looking at figure -- sorry, paragraph 94, I
15 guess the way I'm reading that is that -- couldn't that be read to say that it's
16 possible to have a single signal that includes two different frequency band
17 content areas like Figure 13A and that that would be in S_M and then that
18 could be split at some point into two different signals?

19 MR. CRUZ: No, Your Honor, I don't believe so. Because of the fact
20 that Suzuki, in paragraph 94, uses identical element identifiers FB1 and FB2,
21 which are used in Figure 13A and also in Figure 13E. But either way, it
22 shows that FB1 and FB2 are two separate signals with two separate
23 frequency bands, FB1 and FB2.

1 JUDGE CASS: Yeah, but I'm looking at this, and the last sentence of
2 paragraph 94 says that the bands FB1 and FB2 are detected from the
3 monitoring signal, singular, S_M . So isn't that saying S_M is one signal?

4 MR. CRUZ: Yes, but I'm also seeing in figure -- excuse me,
5 paragraph 94, that the output monitor signal SM is divided by divider 20.
6 And so it's dividing into two signals. That's why it results in two frequency
7 bands.

8 JUDGE CASS: Sorry, I'm just looking to try to find where 20 is on
9 this figure.

10 JUDGE BEAMER: Maybe this -- the way I read this paragraph 79,
11 it's talking about how in Figure 12, the oscillator sweeps across from F1 to
12 F2. So I guess what you're proposing here, or what has to happen is, you get
13 the two signals in Figure 13A, that local -- that oscillator 27 has to sweep
14 from F1 to have the lower carrier frequency and then sweep up to F2 to have
15 the higher carrier frequency. Is that how you -- because it says in paragraph
16 79, the transmitting signal is assumed to include signal in the dual frequency
17 bands, whose center frequencies are F1 and F2 as shown in Figure 13A.

18 And then somewhere in there, it says the local oscillator, the voltage,
19 for example, that generates the local oscillation signal is frequency swept by
20 a sweep signal, VS, and then it creates F1 and F2 lower is what that says. So
21 you would have to have that oscillator 27 act like a sweeping local oscillator,
22 similar to the one they're talking about in Figure 12 and Figure 13A, I guess.
23 Does that make sense to you, or?

24 MR. CRUZ: Just to be clear, Your Honor, you said paragraph 79 of
25 Fernandez?

1 JUDGE BEAMER: Yes, it's talking about figure --

2 MR. CRUZ: Oh, Suzuki. Sorry, Suzuki.

3 JUDGE BEAMER: Suzuki, right. I think it's trying to set up Figure
4 13A in that paragraph and tell you how that happens. And if you're applying
5 that teaching to Figure 8, basically saying you have to sweep that oscillator
6 27 so that it gets you a center frequency at F1 and another one at F2 so that
7 you'll have the signal that looks like the one in Figure 13A. Basically, you're
8 changing the carrier frequency of each one of those signals independently, I
9 guess.

10 MR. CRUZ: Your Honor, I'm not sure of the answer to that right
11 now, but I will look into it and will respond in rebuttal.

12 JUDGE BEAMER: Okay.

13 MR. CRUZ: But my point is that even if -- that the Board doesn't
14 need to decide this issue with respect to Figure 8, because it's undisputed
15 that Figure 6 already discloses these features, the first and second
16 upconverted analog signal. And in conjunction with what we were
17 discussing earlier with the other disputed term, first and second data to be
18 transmitted, Suzuki Figure 6 alone is sufficient to render Claims 10 and 17
19 obvious.

20 I'm turning to Slide 6 of Petitioner's demonstratives, which shows
21 Claim 24 of the '802 Patent. In the Samsung IPR, the Board asked the
22 parties to address what it means for the filter to receive the first and second
23 down-converted signals in element 24C, and whether AD conversion of the
24 down-converted signals before they are provided to the filter take Chen

1 Figure 6 outside of the claim. The answer to that is no, the AD conversion
2 does not take Chen Figure 6 outside of the claim.

3 There's no dispute that in Chen Figure 6, elements 306 and 310 are
4 downconverters, and that element 328C is the filter and that the outputs of
5 the downconverters are then converted from analog to digital at converter
6 322, and then provided to the filter at 328C.

7 Patent Owner's argument is that because of this intermediate analog to
8 digital conversion, Chen does not teach that the filter receives the first and
9 second down-converted signals as required in Claim 24C. We respectfully
10 disagree. The claim simply states that the filter receives the first and second
11 down-converted signals. And by requiring an additional limitation or
12 element that there's no analog to digital conversion in between, Patent
13 Owner is once again trying to import or add its own limitations into the
14 claim.

15 But what we do know, what's undisputed is that downconverters 306
16 and 310 produce down-converted signals. Changing them from digital --
17 from analog to digital does not change the fact that they are down-converted.
18 It just means that the signals' values are discrete rather than continuous. So
19 when the signals reach the filter in element 328C of Figure 6 of Chen,
20 they're still down-converted signals. Therefore, Chen's filter receives the
21 first and second down-converted signals as Claim 24 requires. Turning to
22 Slide 9 of Petitioner's demonstratives, this is the --

23 JUDGE CASS: Counsel, before you get there, this is Judge Cass. Let
24 me ask a question about Figure 6 of Chen. Could you kind of trace for me --
25 I see you've got -- well, you don't really have a slide on this, I don't think,

1 but I know in the Patent Owner response on Page 24, there's a -- this is on
2 Page 70 of the Petition too. Let's see here. Yes, it's on Page 70 of the
3 Petition where you've got an annotated figure showing the first
4 downconverter at 306, and local oscillator 308, and then the second
5 downconverter at elements 310 and 312.

6 And it appears that those are getting combined in element 318, and
7 then going to AGC and A to D, and then later to a filter 328C. And I noticed
8 there's also a couple of other here, I'm guessing are downconverters, and it's
9 324A, and this is 324B. Could you kind of explain for us a little bit what's
10 going on there, what's happening to the signal after what you've identified as
11 the first downconverter and the second downconverter?

12 MR. CRUZ: Yes, Your Honor. I'm referring to the Petition on Page
13 70, as you note, the downconverter 306 -- the first downconverter is element
14 306 and 308 together, but for simplification, we refer to it as element 306.
15 And the second downconverter is element 310 and 312, but for simplicity,
16 we're referring to the second downconverter as element 310. So the signal
17 that's provided by this system in Figure 6 goes to elements 306 and 310, the
18 first and second downconverters and produced down-converted signals.

19 These signals are then -- my understanding is that these signals are
20 then passed through a filter 314 and 316 are combined in 318. I don't recall
21 off the top of my head what element 320 is, but the dispute is whether the
22 intermediate analog to digital converter 322 takes the Chen Figure 6 out of
23 the claim requirements, claim limits -- limitations of Claim 24. After the
24 conversion at 322, however, these signals are then provided to element
25 328C, which is the filter.

1 JUDGE CASS: So perhaps I could simplify this by saying the first
2 down-converted signal and the second down-converted signal are summed
3 together and combined and then digitized and then sent to the filter. And so
4 I take it in your view that equates to the limitation element 24C that the filter
5 receives the first and second down-converted signals. Is that right?

6 MR. CRUZ: That's correct.

7 JUDGE CASS: Okay.

8 JUDGE EASTHOM: And Counsel, just to -- maybe we -- I take it,
9 Patent Owner's argument, and is this how you interpret it? They're saying
10 that because it's digital, they've lost some information maybe? It's not the
11 same as the analog signal?

12 MR. CRUZ: I don't believe that's their argument. In Patent Owner's
13 response, Page 24, it states -- Patent Owner states, as explained below,
14 however, Chen's filter 328C does not receive the analog down-converted
15 signals output from downconverters 306 and 310. Rather, it receives
16 different digital signals. But the requirement that they be -- that analog
17 signals or digital signals is not found in the claim language of Claim 24. It
18 simply requires that the filter receives the first and second down-converted
19 signals. And that's what Figure 6 of Chen shows.

20 JUDGE EASTHOM: Okay. Thank you.

21 MR. CRUZ: Now, turning back to Slide 9 of Petitioner's
22 demonstratives, which is on screen right now. Moving on to the Fernandez-
23 Montojo ground, we see on the screen, in Slide 9, Fernandez Figure 2A,
24 which shows a multi-carrier system where the signals are combined at
25 summing circuit 21 to generate a multi-carrier wireless signal. Now, we've

1 modified Figure 2A to include an amplifier and antenna such as that found in
2 Montojo. Patent Owner disagrees that there's a motivation to combine
3 Fernandez and Montojo. But there is motivation to combine.

4 Given that Fernandez already describes amplification in elements 10A
5 through 10E, which you don't see in this modified version because it's
6 modified, but it would appear after the word filtering in elements 10A
7 through 10E. So, essentially, what this modification shows is that instead of
8 amplifying before the summing, so at elements 10A through 10E, instead of
9 amplifying at that step, the amplification happens after the signals are
10 already are summed. And so, the combination is with Fernandez and adding
11 a single power amplifier antenna.

12 Because Fernandez already talks about amplification, it would be
13 obvious for a POSITA reading Fernandez to instead amplify the signal after
14 summing. So, in other words, a POSITA would have been motivated to
15 combine Fernandez Figure 2A with an amplifier and antenna because of the
16 benefits of the combination. It's well understood -- it was well understood at
17 the filing of the '802 Patent that the benefits of having one amplification as
18 opposed to multiple include lower complexity in the system, only a single
19 point of failure as opposed to multiple, and lower costs associated with only
20 using one amplifier.

21 Because amplifiers and antennae were already well understood at the
22 time of the '802 Patent, that's why we describe the technology of amplifiers
23 and antennae as straightforward off-the-shelf technology. And to further
24 emphasize that point, we set a reference, Montojo, which discloses using an
25 amplifier and an antenna in a multi-carrier system.

1 So, in other words, our point is that a POSITA and their understanding
2 of what amplifiers and antennae do is enough to show that a POSITA would
3 have added an amplifier and antenna to Fernandez Figure 2A. But
4 Montejo's contribution is that it makes that relationship explicit.

5 Now, in the Samsung IPR, the Board asked whether Montejo's system
6 of assigning priority of amplification to a particular carrier, how could it be
7 applied to Fernandez's system? But Your Honors, respectfully, our position
8 is that the Board need not decide that issue. Because Montejo's contribution,
9 as I say, is a single amplifier and an antenna, which is well understood at the
10 time of the '802 Patent. And all Montejo contributes is that it's showing how
11 the amplifier and antenna can be added to a multi-carrier system, such as
12 that in Fernandez.

13 So, because there are known problems in the art, for example, space
14 limitations and power consumption, that a single amplifier addresses those
15 problems. Adding an amplifier to Fernandez was not beyond the skill of a
16 POSITA. There is sufficient motivation to combine.

17 Turning back to Petitioner's demonstratives, Slide 5, which shows
18 Claim 17 of the '802 Patent. In the Samsung IPR, the Board asked the
19 Petitioner to clarify what in Fernandez teaches or suggests the baseband
20 digital system as recited in element 17A of Claim 17.

21 JUDGE CASS: Counsel, this is Judge Cass. Can I go back to the
22 comment on motivation to combine for a moment? So, I believe Patent
23 Owner argues that Montejo discloses a particular apportionment system,
24 wherein the power amplifier amplifies the highest priority carrier according
25 to its needs, and then amplifies the next priority carriers to the extent any

1 amplification power is left over. And they argue that it wouldn't have been
2 obvious to incorporate that kind of apportionment system into Fernandez.

3 But are you arguing here -- would it be obvious to incorporate that
4 apportionment system? Or are you saying -- or not relying on the
5 apportionment system and saying, well, Montojo just teaches one amplifier
6 and the general concept of replacing multiple amplifiers with one amplifier,
7 and that's what you're relying on for it?

8 MR. CRUZ: Yes, Your Honor, I believe it's the latter. The assigning
9 priorities discussed in Montojo, while it's relevant, for example, to show that
10 it's part of the -- it's addressing similar problems with respect to wireless
11 communication systems, the main contribution of Montojo is that it's using a
12 single amplifier and antenna in a multi-carrier system. And so, combining
13 the multi-carrier system in Fernandez with the single amplifier and antenna
14 such as that provided or described in Montojo would have been obvious, and
15 a POSITA would have been motivated to combine those features.

16 JUDGE CASS: So I think -- so Petitioner -- sorry, Patent Owner also
17 argues, and I'm looking at Page 39 of the Patent Owner response. They
18 argue that there are drawbacks to using a single amplifier, and Montojo
19 teaches those, including that there may be power constraints imposed by
20 spectral emission requirements, by battery capacity, et cetera. Do you have
21 a response to that? Also, I'm going to let you know, I think you're just going
22 into your rebuttal time.

23 MR. CRUZ: Yes, Your Honor. I do have a response to that, and I
24 believe we've addressed that issue from Patent Owner's argument, that
25 specific argument in our reply, in the reply of pages 13 through 18. And

1 specifically turning to Page 17 of the Petitioner's reply, we state that
2 Montojo explains that if one carrier has priority over another carrier, it has
3 these drawbacks as Patent Owner describes. For example, power
4 consumption, but these same issues with respect to priority carriers is not
5 implicated in Fernandez. And so those drawbacks described in Montojo
6 would not carry over to a combination of Fernandez and a single amplifier
7 and antenna description of Montojo.

8 Moreover, even if there are some potential drawbacks, that's not the
9 proper analysis. Rather, the Federal Circuit has made it clear that it has to be
10 a suitable option to combine the teachings of these references. And we've
11 shown that it is a suitable option, for example, with the -- one example is the
12 combination annotated version of Figure 2A, shown in Petitioner's Exhibit --
13 excuse me, Petitioner's demonstratives Slide 9.

14 Your Honor, I note that you mentioned we're running low on time. If
15 there any further questions at this time you'd like me to address at the outset
16 before turning it over, I'd be happy to do so.

17 JUDGE CASS: I don't have any, and I don't see any from my co-
18 panel members. So I think you can continue. I think you've got about 25
19 minutes left for your rebuttal, so you can certainly address anything you
20 need to in that time.

21 MR. CRUZ: Thank you, Your Honor. And at this time, I respectfully
22 request that the Board hold the challenged claims of the '802 Patent
23 patentable, and we'll address any questions and any further concern during
24 rebuttal. Thank you.

1 JUDGE CASS: Thank you. I will turn to Counsel for Patent Owner,
2 and you have 60 minutes of time. Would you like to reserve some time for
3 rebuttal?

4 MS. TULL: Yes, please. 15 minutes for rebuttal, please.

5 JUDGE CASS: All right, so that'll give you 45 for your opening.
6 And you may begin when ready.

7 MS. TULL: Thank you, Your Honor, and good afternoon, Your
8 Honors. Again, my name is Susan Tull on behalf of the Patent Owner
9 Cobblestone. If you'll just give me a moment, I will begin to share my
10 demonstratives. So hopefully everybody will be able to see those.

11 JUDGE CASS: Okay.

12 MS. TULL: And again, good morning, Your Honors, and thank you
13 for having us here. With Your Honors' permission, I'd like to address the
14 arguments in a slightly different order, beginning first with independent
15 Claims 10 and 17, then moving on to 24, and then Claim 1. We think
16 Claims 10 and 17 have the largest number of issues to address and also
17 impact the greatest number of claims. But of course, as Petitioner said, we
18 are happy to answer any questions at any time.

19 And I'd like to note, kind of as we begin this, that we heard a lot today
20 from the Petitioner about what, you know, the Board found in the Samsung
21 decision, and we heard certain arguments with respect to that, but we didn't
22 hear a lot about what was in the Petition as submitted to the Patent Office for
23 this proceeding. And again, that is what sort of forms the framework for this
24 argument, and I think we've heard today a number of arguments that have

1 gone outside of that Petition. So, I'd like to address those in turn as we
2 continue as well.

3 So, starting with Claims 10 and 17, I'm looking first at the Suzuki
4 grounds, which are Grounds 2 through 5, I'd like to note that the petition
5 presented two, quote-unquote, alternative theories for this claim. And that is
6 namely Figure 6 is one alternative, and Figure 8 is another alternative. At no
7 point in the petition did they say, we can pull aspects of Figure 6 and Figure
8 8 together for a single embodiment or disclosure of these claims. They've
9 relied on them in the alternative.

10 And we think that's important to remember, because we think that
11 there are deficiencies in Figure 6 as well as Figure 8. And those are
12 different deficiencies, but by showing that Figure 6 does not disclose all of
13 the elements of Claim 10 and 17, and that Figure 8 does not disclose all of
14 the elements of Claim 10 and 17, that defeats the petition's claim that Suzuki
15 renders these claims unpatentable. And so, with that, I'd like to address
16 these two embodiments in turn.

17 So, first, as was briefly discussed with the Patent Owner, and we'll
18 address in greater detail, Figure 6 does not disclose the first and second data
19 for signals that are transmitted as required by the claims, and then Figure 8
20 fails to disclose the two upconverted analog signals or the upconverted
21 signals with the distinct frequency ranges that are required by the claims.
22 And I'll address each of these in greater detail.

23 So, starting first with Figure 6 and the requirement that the signals be
24 transmitted, it's clear from the language of the claim, you see it in Claim 10,
25 receiving a first digital signal comprising first data to be transmitted, a

1 second digital signal comprising second data to be transmitted. We see this
2 same language repeated in Claim 17 as well, that the data is data to be
3 transmitted. Now, with respect to Figure 6, what the Petitioner identified is
4 the first digital signal and the second digital signal, which was the pre-
5 distortion data. And that is not, in fact, data to be transmitted.

6 And we've heard of it during Petitioner's argument now, where they
7 went back to Figure 6 and they discussed adders 13-1 and 13-2, and they
8 said that at 13-1 and 13-2, those adders are added to the signal of the pre-
9 compensation data, and therefore, there is an additional pass-on of the data.
10 One, we disagree, and I'll address why. But two, I would just like to flag
11 that that argument is not present in the Petition with respect to Figure 6.
12 They do discuss the adders 17-1 and 17-2 in the Petition, but only with
13 respect to their Figure 8 discussion. So that, frankly, is not present in the
14 petition.

15 And then, turning to why these signals are not data to be transmitted,
16 the signals that were identified in the transmission, those are pre-
17 compensation data. And Suzuki makes clear that these are not data that are
18 transmitted. That they are, in fact, cancelled out by the detected distortion
19 components. So, Suzuki itself says that what the Petitioner has identified
20 with respect to 13-1 and 13-2, that those signals are not data to be
21 transmitted, that those are cancelled.

22 JUDGE EASTHOM: Counsel, can I ask a question? I don't see how
23 this says that they're cancelling out those data. They're cancelling out the
24 distortion that would otherwise be there if they didn't put that data in there.

1 MS. TULL: But that is what the adders 13-1 -- I'm sorry. That is
2 what the data read out from the lookup tables 17.1 and 17.2 are for. They're
3 not, in fact, intended to be data that is transmitted, but they're for the
4 purposes of the distortion compensation.

5 JUDGE EASTHOM: Right. But they're transmitted because if they
6 weren't, there would be distortion.

7 MS. TULL: But the signal as it existed at the lookup table 17.1 and
8 17.2 is not transmitted.

9 JUDGE EASTHOM: Can we go back to the figures, please? Thanks.
10 So, you have the data signal. It gets upconverted after it gets converted to
11 analog, and then it gets summed in as D2, as your friend said. And so, that
12 creates a different signal at the output that would not be there if that first and
13 second digital signal were not in there. That's how it gets rid of the
14 distortion. If they didn't send that up there, you would have a distorted
15 signal due to the non-linearity in the amplifiers, the way I understand it. So,
16 it's getting rid of the distortion, but it's not getting rid of the signals that get
17 rid of the distortion, if you will.

18 MS. TULL: I appreciate that, Your Honor. But those signals that get
19 rid of the distortion are not the data that is transmitted across the entirety of
20 Claim 17. And so, that's our position is that when you read the requirement
21 of the first digital signal comprising data to be transmitted and the second
22 digital signal comprising data to be transmitted, perhaps what is ultimately
23 transmitted out, as Your Honor noted, that there is a signal that is transmitted
24 and it would not be there, perhaps, without the inputs from the lookup tables,

1 but the inputs of the lookup tables themselves are not data that is intended to
2 be transmitted.

3 JUDGE EASTHOM: Okay. So you're making a distinction between
4 the fact that it's not in digital form anymore? Is that your answer?

5 MS. TULL: It's not that it's not in digital form, but that it's no longer
6 the data just from the lookup table. But, in fact, what is --

7 JUDGE EASTHOM: Well, 17 -- I'm sorry, the way I read this circuit
8 diagram is that 17-2 is digital data. It gets converted to analog. So it's still
9 that signal, but it's in analog form. It's a little different. It's not the same
10 exact signal. And then it gets upconverted, in other words, multiplied by a
11 higher frequency, and it's in a higher frequency band, and then it gets added
12 and sent out. So that analog portion is still in the signal, and that analog
13 portion represents the digital part. That's how I read that, anyway. And, you
14 know, if you don't read it that way, that's one thing, but if you do read it that
15 way, how would that not meet the claim, I guess?

16 MS. TULL: I do think that we read it differently. Because I think
17 that Suzuki's teaching of the pre-compensation data, that it's -- part of it is, in
18 fact, canceled out. That's how we read it, so that that data is no longer sent
19 out as it is received from the lookup tables. And as our expert opined, with
20 the effect of the cancellation, then the pre-compensation data is not data that
21 is transmitted out in its -- with the original information or signal, it is not
22 transmitted by the system. So it's not so much the question of analog to
23 digital here. It's the question of what's happening to the data with the
24 predistortion compensation and the effect of the data cancellation.

25 JUDGE EASTHOM: Okay, thank you.

1 JUDGE BEAMER: Counsel, are you saying that D1 enters 13-1, is
2 canceled out, and therefore does not leave 13-1?

3 MS. TULL: Correct. Or that not the entirety, at the very least, is
4 transmitted out. So, as our expert opined, you know, in his understanding,
5 it's all canceled out. We took Petitioner's reply to be of the position that
6 some of that data was continued to be transmitted, but it's certainly not the
7 data as it left 17-1 and 17-2.

8 JUDGE EASTHOM: Can I ask a follow-up? Are you saying D1 and
9 D2 are canceled out? That's what my colleague's question was.

10 MS. TULL: No, I'm sorry. I thought he was -- I apologize. Perhaps I
11 misapprehended the question. Our position is that the information from 17-1
12 and 17-2 is canceled out.

13 JUDGE EASTHOM: Okay, I'll let Judge Beamer follow up. I don't
14 have any further questions. Thank you.

15 JUDGE CASS: So, this is Judge Cass. I have another question. So,
16 are you disputing that embodiment of Figure 6 receives a first digital signal
17 comprising first data? I took off the "to be transmitted." Do you agree that
18 that's disclosed by Figure 6?

19 MS. TULL: I would agree that Figure 6 does disclose a first signal
20 and that there is data within that signal.

21 JUDGE CASS: Okay. Same, I assume, for the second digital signal
22 to?

23 MS. TULL: Correct.

24 JUDGE CASS: Right. So, I guess the issue really comes down to
25 what is it? What additionally does it mean to say that data, quote, has to be

1 transmitted, and is that disclosed? Is there a claim construction issue here?
2 You know, is that something we need to decide?

3 MS. TULL: We haven't considered it to be claim construction, Your
4 Honor. And I would submit, although Petitioner can certainly address it,
5 that they don't either, since neither of us addressed it as a question of claim
6 construction. Our position is simply that a plain reading of the claims,
7 which includes the language to be transmitted, requires this. So, it's not -- I
8 don't think there's a question of what transmitted means. It's whether you,
9 you know, apply any impact or effect to those words or, as we submit
10 Petitioner is doing, essentially read those out of the claim.

11 JUDGE CASS: Yeah. I mean, it seems to me there's a couple of
12 possibilities. I mean, if data to be transferred means the data has to be
13 transferred -- sorry, data being transmitted means the data has to be
14 transmitted in its original format and content. You know, a signal -- data has
15 to look like it did initially. And, you know, I agree with you that that
16 doesn't appear to be happening. But, if that means the data can then be
17 combined into another signal, and that combined signal is then transmitted,
18 then that would appear to be happening. Isn't it?

19 MS. TULL: Our position is that the data that appears sort of at the
20 start of the transmission chain, you know, that that data must be sort of
21 passed along. And I think when you look at the language of the claims, that
22 also is supported by the remainder of the claims, because the language
23 regarding data to be transmitted, that data does not just appear here. And I
24 apologize, I had this up here for shorthand. But, if you continue on in the
25 claims, it explicitly says that when you're dealing with, for example, the first

1 digital-to-analog converter, it receives the first digital signal and converts
2 that first digital signal to analog, the first analog signal carrying the first data
3 across the first frequency range.

4 So, as you step through the various limitations, it is still that first data
5 that is transmitted across. And so, that, we think, also supports our position
6 that it is the data that is to be transmitted.

7 JUDGE CASS: Yeah. I mean, I think that kind of raises the same
8 issue, which is, you know, does the data have to be in its original form, or at
9 least something that looks like its original form, or can it just be combined
10 into a larger signal? And I take it your view is that the data has to be in
11 something like its original form as it is converted into the analog signal and
12 then transmitted.

13 MS. TULL: That is correct, Your Honor. And, again, if you look
14 back to the language of Claim 17, for example, the last limitation of Claim
15 17 is that the power amplifier is coupled to receive the first and second
16 upconverted analog signals. And those signals were the signals that carried
17 the first and second data. So, sort of as you go through, that data is present
18 throughout the transmission process.

19 JUDGE BEAMER: And that's kind of what I'm struggling with. If
20 we go back to Figure 6, the data is just converted into analog, and then it's
21 summed, and then out the door it goes. I don't see where it gets subtracted
22 anywhere in that circuit.

23 MS. TULL: Well, as our expert opined, with respect to the pre-
24 compensation data, that that data would, in fact, be canceled out during the
25 transmission.

1 JUDGE BEAMER: But that's contradicted by the disclosure that we
2 just read. It says that the -- it doesn't say that the data is canceled. It says
3 the distortion components are canceled. And those are different, in the way I
4 read it.

5 MS. TULL: Our reading is that these are canceled out, and that this is
6 the disclosure that they are canceled out.

7 JUDGE BEAMER: Okay. Do you have the cite for your -- ah, it's
8 right here, your Expert 2013-49 to 56?

9 MS. TULL: Correct.

10 JUDGE BEAMER: Thank you.

11 MS. TULL: And to be clear, we're looking at the portions of
12 demonstrative 8 that discuss Suzuki, and we have been discussing Patent
13 Owner's demonstratives 6, 7, and 8 as part of this discussion.

14 JUDGE BEAMER: Thank you. We appreciate that.

15 MS. TULL: And so, demonstrative 9, this is again the summary of
16 our argument that we have just sort of walked through with Your Honors.
17 And, again, it's our position that these are canceled in the amplifier prior to
18 transmission, as Dr. Cooklev explained, and further, that these are not
19 transmitted by the transmitter and do not contain the data to be transmitted.

20 And then, continuing on with the additional requirements of Claims
21 10 and 17, and this will be addressing the Figure 8 embodiment that
22 Petitioner relied upon. It includes a requirement, for example, in Claim 10
23 of upconverting the first analog signal, upconverting the second analog
24 signal, and then combining the first upconverted analog and second
25 upconverted analog signal to produce the combined upconverted signal.

1 And we see here, again, in Claim 17, the requirement of two distinct
2 upconverters, and that those upconverted signals are then passed along. And
3 so, here, the Petitioner relies on Suzuki Figure 8, or we take issue with
4 Petitioner's reliance on Suzuki Figure 8, particularly that there are not two
5 upconverted signals.

6 And so, looking at Figure 8 and the language surrounding Figure 8,
7 there's only a single upconverter, and it produces a single upconverted
8 signal. And, you know, the patent -- Suzuki, as shown on demonstrative 15,
9 Suzuki, at paragraph 58, explains that the vector-modulated signal is
10 frequency converted into a transmission signal. And so, signal there is
11 singular. So, again, it just emphasizes that there is a single signal that exits
12 the upconverter and that you don't have two separate upconverted signals as
13 required by both Claims 10 and 17.

14 And then with respect to Grounds 2 and 5, we note, in particular, that
15 the Figure 8 embodiment also fails to disclose the required frequency ranges
16 that are found in both Claims 10 and 17. And, in particular, there are
17 requirements that there is the second upconverted signal that comprises the
18 second upconverted frequency range from the first -- from the second RF
19 center frequency minus one-half, and it continues on with respect to the first
20 frequency as well.

21 And we see similar language that appears in Claim 17, where there's
22 another specific frequency range requirement. And here, it's the frequency
23 difference between the first RF frequency, and the second RF frequency is
24 greater than the sum of one-half the first frequency range and one-half the
25 second frequency range. And there, the Petitioner relies on Figure 13A. But

1 it's our position that Figure 13A does not, in fact, read on Figure 8. And,
2 you know, Suzuki refers to Figure 8 as the, quote-unquote, fifth
3 embodiment, and that Figure 13A is Suzuki's eighth embodiment. And it's
4 our position that those are two different embodiments and two different
5 disclosures.

6 And then, we heard in the Petitioner's argument just now a discussion
7 of Paragraph 94 of Suzuki about why they believe Figure 13A can be read
8 into Figure 8. We'll note again that paragraph 94 of Suzuki is not disclosed
9 in the Petition. And it's not part of the Petitioner's discussion of this
10 limitation and, in particular, the Figure 8 embodiment that they rely upon.

11 With respect to the language in paragraph 94 that the Petitioner relies
12 upon, there's the discussion of the divider that would divide the signals, I
13 think, for FB1 and FB2. But there's no discussion in the petition about how
14 that would fit into Figure 8 or where that divider would take the place of the
15 vector modulator or be utilized to produce the required frequencies. And
16 unless the Board has additional questions with respect to the Suzuki
17 grounds, I'd like to turn to Claims 10 and 17 with respect to the Fernandez-
18 Montojo grounds.

19 And here, we take particular issue, as noted in the Patent Owner
20 response, with respect to the discussion of amplifying the combined
21 upconverted signal and the power amplifier (audio interference) required by
22 both Claims 10 and 17. And here, the Petitioner relies on Fernandez-
23 Montojo, recognizing that Montojo does not, in fact, disclose -- I'm sorry,
24 that Fernandez does not disclose the power amplifier that receives both of
25 these signals. So, here we have, as required by the claims, a single amplifier

1 that receives both and what Fernandez discloses is an amplifier for each
2 signal.

3 And so, the Petitioner relies on Montojo for a single power amplifier.
4 And as we submitted in our response that a person of skill in the art would
5 not be motivated to take Montojo's power amplifier, which is the priority
6 apportionment amplifier, and apply it in place of the individual power
7 amplifiers that are present in Fernandez.

8 And in particular, as we look at demonstrative 24 and paragraph 107
9 of Montojo, it discusses this priority allocation system that's used where, you
10 know, one carrier may get all of the power amplification. Perhaps a second
11 carrier gets what's left over, but it's not clear that they would, in fact, all be
12 amplified. And when you look, for example, at Fernandez, it's teaching
13 equal amplification. And that's why it has an amplifier for each signal that it
14 receives.

15 JUDGE EASTHOM: Is this a teaching away argument, then? Are
16 you saying that Montojo teaches away from Fernandez?

17 MS. TULL: I think it would, in fact, be a teaching away from it. I
18 think there's certainly no motivation to combine, but I do think it would
19 teach away from using it, because it's explaining that all of the signals may
20 not, in fact, be amplified. Whereas when you have Fernandez, all of the
21 signals that are amplified, and they're amplified equally.

22 JUDGE EASTHOM: But, I mean, the beginning of the paragraph
23 said if there is some sort of weighting of these -- in the previous slide, it says
24 if there is some type of a prioritization or something, if the carrier has a

1 lower priority. But doesn't that mean that it doesn't always have that
2 priority? It sort of implies that they can have equal priority, it seems.

3 MS. TULL: That may be the case, but the focus and the teaching of
4 Montojo was this priority carrier system, so the priority amplification. So
5 that is what Montojo is teaching with respect to amplification, is that it's
6 done on this priority allocation method, which would be contrary to the
7 equal allocation that's already provided by Fernandez.

8 JUDGE CASS: Counsel, this is Judge Cass. As I understand it, at
9 least presented today, I understood Petitioner to say that they're not arguing
10 that the priority-based Montojo amplifier is bodily incorporated into
11 Fernandez. That's my language, not theirs. But rather that, in light of
12 Montojo, it would have been obvious to use a single amplifier instead of the
13 multiple amplifiers in Fernandez. So what's your response to that?

14 MS. TULL: The response is, first, that that is not what is taught by
15 the Petition, or not what is urged in Petition. And I apologize for a bit of
16 background noise there. The Petition, if you look at paragraphs 94 -- Pages
17 94 and 95, they're discussing relying on Montojo. In a particular paragraph
18 at page 95 for limitation 10H, they rely solely on Montojo.

19 It says, as discussed, Montojo teaches it would be advantageous to
20 utilize a single power amplifier for transmission of a plurality of carriers
21 transmitted by a multi-carrier terminal. Thus, a POSITA would have found
22 it obvious to modify Fernandez so amplification is performed after the RF
23 signals are combined at combiner 21. And the revised Figure 2A reflects the
24 combination, and that's the combination of Montojo and Fernandez.

1 And so when we look at what they actually argued in their Petition,
2 it's based on using Montojo's amplifier. They didn't say that a person of skill
3 in the art would know that single amplifiers exist, see Montojo. They said
4 that Montojo teaches to do this.

5 JUDGE CASS: I mean, it seems a little, you know, perhaps not
6 entirely clear to me whether they're saying -- you have to want to put the
7 exact amplifier, Montojo, or you just want to put one amplifier as Montojo
8 teaches it in a more general way. But in any event, I mean, if we look at the
9 reply -- well, I've got to read through some of this. I mean, was there a
10 reason why it wouldn't be obvious to replace the multiple amplifiers of
11 Fernandez with a single amplifier?

12 MS. TULL: As we addressed in our Patent Owner response and Dr.
13 Cook's declaration, you know, the combination or the substitution would not
14 be as simple as the Petitioner makes out. There are issues with the hardware
15 and, in particular, with respect to power constraints on the amplification
16 system would indicate that it would not, in fact, be desirable or that a person
17 of skill in the art would not be motivated to do so.

18 JUDGE CASS: So is the issue that, that what, that the system of
19 Fernandez wouldn't have enough power for a single amplifier? What
20 specifically is the problem?

21 MS. TULL: Or that the amplifier would be -- would have the power
22 to convert each signal. So, when you look at Fernandez, they have a
23 separate power -- they have a separate amplifier. And in the Petition, they
24 remove that amplifier. But in Figure 2A, after filtering, it says
25 amplification. So there is a different amplifier per signal. And so the

1 question is, when you take the power amplifier, is it capable -- does it have
2 the power to amplify all of the signals as opposed to just one signal?

3 And I would also like to note, as well, that the Petitioner doesn't
4 address the claims as a whole as they're written, again, in terms of this
5 obviousness combination, because Claim 10 requires combining the first
6 upconverted analog signal and the second upconverted signal and then
7 amplifying that signal. But when you look at Claim 17, it's a power
8 amplifier that is coupled to receive the first and second upconverted signals.

9 And so it appears, in their obviousness combination, that Petitioners
10 have only addressed Claim 10 as to why a person of skill in the art would be
11 motivated to make this modification. They don't address it with respect to
12 Claim 17, and again, we think that's another failing within the Petition.

13 And when you look at what the Petition presented on page 98, they
14 simply went back to Claim 10 for this. They did not address whether the
15 modification would be obvious, in particular, with respect to the requirement
16 of Claim 17, the power amplifier receives the first and second upconverted
17 signal as opposed to the combined signal.

18 JUDGE BEAMER: Can I ask another question related to that? Either
19 claims preclude treating the signals such that they have different power in
20 the amplifier. Is that right?

21 MS. TULL: Is your question that they don't preclude having separate
22 power amplifiers?

23 JUDGE BEAMER: No. I know they need a power amplifier. That's
24 another question. It seems like "a" sometimes can be more than one. But
25 the way it's written, it says combined into a power amplifier, at least for

1 Claim 10. But my question was more along the lines of, you know, we were
2 talking about how Montojo says, well, you know, you would treat one
3 differently and power it more than the other one. And so my question is,
4 aren't these claims broad enough so that you can treat and power each one of
5 these signals differently in the same amplifier?

6 MS. TULL: It does not say specifically about the power from the
7 amplifier as it is applied to both signals, but it does require amplifying either
8 the combined signal or amplifying each signal. And so our point with
9 respect to the power amplification in Montojo is that the reference itself
10 teaches that not -- that all of the signals may not receive that amplification.

11 JUDGE BEAMER: Okay. Thank you.

12 MS. TULL: And Petitioner's claims as to -- or arguments as to Claim
13 17 further fail with respect to the requirement of the baseband digital system.
14 And in particular, Claim 17 expressly requires the baseband digital system
15 for providing the first digital signal comprising first data to be transmitted
16 and a second digital signal comprising second data to be transmitted.

17 And when we look at Petitioner's evidence for this, they largely point
18 to Claim 10A, and then they say that Fernandez further discloses a baseband
19 digital signal, and they cite to paragraph 6 and paragraph 11. And that's the
20 entirety of their argument with respect to this limitation for 17A.

21 But when we look at these two disclosures in Fernandez, it's our
22 position that they're not teaching a baseband digital signal, teaching a first
23 and second baseband digital system sufficient to transmit a first and second
24 digital signal. That the first disclosure they point to is simply the
25 mathematical formula for a baseband signal and the second is really a

1 discussion of frequency interleaving, and this is demonstrative 31. And that
2 these are, in fact, not sufficient to show the limitation of baseband digital
3 system for providing the first digital signal and the second digital signal.

4 And again, Petitioner, in their reply, attempted to say, well, but we
5 also pointed to limitation or discussion of Claim 10A in the Petition for this.
6 But their discussion of 10A is really focused on Data 1 and Data 2. And in
7 their discussion of 10A, there's no discussion of where Data 1 and Data 2
8 come from, and certainly not a statement that it's part of a baseband digital
9 system. So, in the reply, when they pointed to the discussion of Claim 10A,
10 that does not cure the deficiency as to Claim 17.

11 JUDGE EASTHOM: I guess I'm having -- it seems that it discloses
12 baseband signals and you're saying it discloses baseband signals, but no
13 baseband system. Is that your argument?

14 MS. TULL: Correct. It's our position that there is, at best, a general
15 disclosure that baseband signals exist and that there is baseband, but that it's
16 not a disclosure of a baseband digital system that provides the first digital
17 signal and the second digital signal. We don't disagree that the concept of
18 baseband generally was known at the time, but whether this particular
19 reference teaches the baseband digital system for the first digital signal and
20 the second digital signal, we do disagree with. And we disagree with what
21 Petitioner identified.

22 JUDGE CASS: This is Judge Cass. I mean, don't the baseband
23 signals have to be generated by a baseband system?

24 MS. TULL: The Petitioner did not so plead and they provided no
25 evidence to that fact.

1 JUDGE CASS: You're not going to disagree with that, are you?

2 MS. TULL: Your Honor, I certainly may be of that position. It's our
3 point, though, simply, that what they identified in the Petition as disclosing
4 this limitation does not do so. And that, again, looking at demonstrative 30
5 and the petition at 98, that this is all they identified with respect to limitation
6 17A.

7 JUDGE CASS: And so, I mean, you would agree that a baseband
8 digital system is basically just a system for generating baseband digital
9 signals, right?

10 MS. TULL: I think, as a general premise, I would agree with that,
11 yes.

12 JUDGE CASS: All right, thank you.

13 MS. TULL: I'm turning now to Claim 24, and this is discussed in
14 Grounds 4 and 8. I'm moving into Slide 34 and on to Slide 35, a focus of
15 our argument is with respect to the first downconverter circuit, the second
16 downconverter circuit, and then that there is a filter that receives the first and
17 second down-converted signals.

18 And here, as we look at demonstrative 36, and this shows the figure
19 from the petition at 71, the Petitioner relies on Chen, and they say that Chen
20 discloses the output of mixer 306 and downconverter 310 are after down
21 conversion, already at baseband, and provided directly to filter 328C.

22 So this is the argument that they made in the Petition, and the
23 emphasis where they bolded and italicized provided directly comes from the
24 Petition. We did not add that. But, when you look at, actually, Figure 6, I'm
25 going to walk through this on my next slide, not all of the signals are down-

1 converted to baseband. Not all of the signals are passed directly to the filter
2 328C, and it's not the same signal received at filter 328C. And it's not -- I
3 think in the reply, they raised an argument about whether it's analog or
4 digital. That's not the issue. It's whether it's, in fact, the same signal.

5 And so, with that, I think it's useful to just take a moment and step
6 back and see what the patent's actually talking about. And I'm certainly not
7 urging the Board to read an embodiment from the patent into the claim, but
8 just using this by way of example. So, in Figure 9 of the '802 Patent, we
9 have the two downconverters. They have outputs. Those outputs are passed
10 directly to the signal or to the filter that's seen here, and then that's passed to
11 the analog-digital converter.

12 What we see in Chen Figure 6 is very different, and it's certainly
13 different from what the claim requires. And so, here, when we look at the
14 text of Chen, we see that we have signal 250A, 250B, and 250C. And that's
15 what the Petitioner initially identified in their green box annotation, I'll say.
16 And then you have signal 252A, and that's what Petitioner identified as
17 going into their yellow box. So, the signals 252A, B -- I'm sorry, 250A, B
18 and C, and then 252A are received at the antenna, provided to the duplexer,
19 to the LNA, and then it's provided to the mixer 306.

20 The mixer 306 downconverts the signal, but it states that it brings the
21 5 MHz band consisting of carriers 250A, 250B, and 250C down to the Y
22 baseband signal. It does not say that with respect to 252A. The down-
23 converted signal is low-pass filtered by the filter 314. So, it's moving on
24 through filter 314, and then it continues separately. The received signal is

1 also provided to downconverter 310, which brings the signal carried on
2 carrier 252A down to baseband.

3 The down-converted signal low-pass filtered by the filter 316. So,
4 here we have 252A taking a different path, so to speak, from 250A, 250B,
5 and 250C. And so, they're following different chains. And then the filtered
6 signal from filter 314 is summed with the filtered signal from filter 316 in
7 sum are 318. So those two signals are then added, and then it's amplified.
8 The amplified signal is provided to the analog digital converter 322, which
9 we have shown on demonstrative 39 in purple.

10 The digital signals are then provided to downconverters 324A, 324B,
11 and then filter 328C. And filter 328C is, if you recall, what the Petitioner
12 said the signals are, quote-unquote, provided directly to. The
13 downconverters 324A and B bring the signals carried on carriers 250B and
14 250C down to the baseband. The signal carried on carriers 250A and 252A
15 are already on baseband and is provided directly to filter 328C. So, 250A
16 and 252A are taking a different path from the other signals, 250B and 250C,
17 and they're not provided directly to the filter.

18 So, while the Petitioner says all of the signals remain the same and are
19 passed through and they go directly to the filter, that's not, in fact, what is
20 taught by Chen.

21 JUDGE EASTHOM: Counsel, can I ask you a question? Why isn't it
22 sufficient to make this claim that the signals 250A and 252A go to the low-
23 pass filter?

24 MS. TULL: Because 250A has been summed with 250B and C and
25 are filtered separately. So, it's our position that the signal 250A, as it moves

1 through that chain, is, one, no longer the same chain, but they're also not
2 provided to the filter as the Petitioner contended.

3 JUDGE EASTHOM: I don't understand. I'm just looking at your
4 figure here, and you have 250A and 252A, both at that low-pass filter on the
5 bottom, or that bandpass filter. I thought that's where the two signals of the
6 claim -- each one of those satisfy the two signals. I mean, I might be not
7 reading that incorrectly. In other words, I don't think you have to have all
8 the signals going through it, just as long as you have the two separate ones
9 that meet the claim.

10 MS. TULL: But it's further our position that the signal 250A is not
11 the same signal that's passed through and is then filtered and converted,
12 because 250A --

13 JUDGE EASTHOM: Why is it -- I don't understand it. It's labeled
14 250A. And then it's 250A at the end. What's different about it?

15 MS. TULL: Because it's been through the conversion process that's
16 described here. So, it's combined with 250A, B, and C. It's filtered --

17 JUDGE EASTHOM: But what does that have to do with the claim
18 limitation? How does the claim preclude that from happening?

19 MS. TULL: Going back to the claim language itself, it's our position
20 that the filter that they identified, 314, isn't receiving the output of the first
21 downconverter and the output of the second downconverter and receiving
22 the first and second down-converted signals. That would be 250A and 252A
23 that the Patent Owner identified.

24 JUDGE EASTHOM: Right. And then they show up at that filter that
25 he said meets the claim too.

1 MS. TULL: So it's our position that it's not the same signal that's
2 being received at 328C because of the process that Chen describes with
3 respect to the signals.

4 JUDGE EASTHOM: Okay. I think I understand your position.
5 Thank you.

6 MS. TULL: I see I'm at my point for rebuttal. I'm happy to address
7 questions with respect to Claim 1 and with respect to the information, the
8 transmitting information limitations, though, if the Board has questions
9 specifically with respect to this argument.

10 JUDGE CASS: I don't see any questions for the time being, so then
11 we could pass it over for rebuttal.

12 MS. TULL: All right, thank you. Let me just stop screen sharing.
13 And again, we appreciate the Board's time. For the reasons we described
14 here and those presented in our response and surreply, it is the Patent
15 Owner's position that the petition does not render the claims unpatentable.

16 JUDGE CASS: Thank you, Counsel. Counsel for Petitioner, you
17 have 25 minutes remaining. I guess I've been corrected, it's 24 minutes.

18 MR. CRUZ: Thank you, Your Honor. May it please the Board. I'd
19 like to start with the recurring argument from the Patent Owner, both in the
20 oral arguments we heard today and in the Patent Owner's surreply, that it
21 was thought that the Petitioner's reply improperly introduces new arguments
22 about the Petition. We respectfully disagree. We necessarily clarified the
23 arguments in the Petition and cited the portion of the Petition where
24 arguments are present. We stand by the arguments that we made in our
25 Petition.

1 Moreover, as we discussed in the Samsung IPR Institution Decision,
2 which was cross-referenced in the Institution Decision for this case, the
3 Board specifically provided good guidance on specific points that it wanted
4 the parties to address during trial and that's exactly what we've done in our
5 reply and with the supplemental declaration of Dr. Almeroth. So, consistent
6 with the Petition, we've shown how these elements are met by the
7 references. I'd like to address certain questions that came up during my
8 opening argument.

9 First, from Judge Cass regarding Suzuki Figure 8 and the vector
10 modulator 25. As we recall, one of the points of contention with respect to
11 Figure 8 of Suzuki was that the upconverted signal was one signal, at least in
12 Figure 8. And one of the elements that Figure 8 discloses that seems to
13 apparently combine the analog signals is vector modulator 25.

14 Now, in the Suzuki reference, it doesn't specifically address vector
15 modulator 25 with respect to Figure 8, but it does explain it with respect to
16 Figures 1 and 5 in paragraph 58 of Suzuki. In paragraph 58, it explains that
17 the vector modulator 25 produces vector modulated signals, plural, based on
18 the two analog signals and provides the vector modulated signals to a
19 frequency converter 26.

20 Now, what this shows is, one, that there could be multiple signals as
21 the output of vector modulator 25. And even if we look at what Figures 1
22 and 5 --

23 JUDGE CASS: Counsel, could you -- this is Judge Cass. Could you
24 just give me that cite again of Suzuki, the paragraph?

25 MR. CRUZ: Paragraph 58 of Suzuki.

1 JUDGE CASS: Thank you.

2 MR. CRUZ: Now, as I mentioned, figure -- excuse me, paragraph 58
3 explains the vector modulator 25 with respect to Figures 1 and 5, but not
4 with respect to Figure 8, even though the same element appears in Figure 8.
5 And what this goes to show is that Suzuki is referring to these identical
6 numeral elements to establish the connection between these different figures.
7 And so, for example, in Figure 8, which also shows the vector modulator 25
8 combining the elements -- the signals, excuse me, it produces vector
9 modulated signals, plural, based on the two analog signals.

10 This also supports that Figure 13A, which Patent Owner argues does
11 not apply to Figure 8, could apply, because Suzuki is using these identical
12 numerals to establish connections between these different embodiments in
13 the same disclosure.

14 Next, turning to paragraph 79 of Suzuki, Judge Easthom mentioned
15 that in paragraph 79, it shows that even in -- excuse me. In paragraph 79, as
16 Suzuki was discussing, discusses the embodiment with respect to Figure 12,
17 shows that even there, there are two analog signals, by describing Figure 12
18 in connection with Figure 13A.

19 But my point is that it's not -- the discussion in application of Figure
20 13A is not limiting to just Figure 12, but that it could also be applied, or at
21 least a POSITA would be motivated to modify Figure 8 in view of Figure
22 13A to show that there are --

23 JUDGE EASTHOM: Counsel, is that in your petition? Did you make
24 a statement that you would modify Figure 8 with Figure 13A? I think your
25 friends take issue with that.

1 MR. CRUZ: Well, I have two answers to that, Your Honor. First, as I
2 mentioned, the Samsung IPR Institution decision asked us to address certain
3 arguments and to develop them over the course of the trial. That's what
4 we've done. And in the Petition, we do reference Figure 13A with respect to
5 applying it with respect to Figure 8. For example, in -- excuse me. I
6 apologize, Your Honor, I can't find the exact page number, but I do know
7 that we do reference Figure 13A in the Petition, for example, on Page 23 of
8 the Petition.

9 JUDGE EASTHOM: I think it's on Page 40, 39 to 40, a little bit.
10 Well, we'll look through it.

11 MR. CRUZ: Yes, Your Honor. I apologize. But I do note that it is
12 referenced -- Figure 13A is referenced in connection with Figure 8 in the
13 Petition.

14 JUDGE EASTHOM: Thank you.

15 MR. CRUZ: Now, I'd like to address certain arguments that the
16 Patent Owner asserted in the oral arguments, specifically with respect to
17 Figure 6 and 8 and how they're applied with respect to Claims 10 and 17 of
18 the '802 Patent. Now, Patent Owner emphasizes the language in the Petition
19 where we say that we presented two alternative theories, one based on
20 Figure 6 and one based on Figure 8. But we're not saying that they're
21 mutually exclusive, necessarily. What we're saying is that we've provided in
22 our Petition two paths to obviousness and unpatentability of Claims 10 and
23 17, one based on Figure 6 and one based on Figure 8.

24 But as we've discussed, Suzuki doesn't necessarily treat these different
25 figures or different embodiments as mutually exclusive or that we have to

1 consider one embodiment but not the other. For example, in the Petition at
2 Page 38, we specifically state that, at least with respect to one element and
3 one claim, that a POSITA would have been motivated to modify Figure 8 in
4 view of Figure 6. And so, going back to the claim limitations at issue in
5 Claims 10 and 17, using either Figure 6 or Figure 8, or (audio interference)
6 claims are unpatentable and rendered obvious by Suzuki.

7 Next, I'd like to address the Fernandez-Montojo combination. As I
8 mentioned in my opening arguments, Montojo's specific priority-based
9 amplifier or features, I should say, are not necessary for the analysis. What's
10 a contribution that Montojo provides is that there's a single amplifier and
11 antenna that's being used with the multi-carrier system. In fact, in the
12 Petition on Page 75, we note that a single amplifier is obvious based on
13 Fernandez alone, but Montojo expressly discloses the amplifier and antenna.

14 And so, that's exactly what I -- that is -- the argument is that a single
15 amplifier and antenna would have been obvious to be added to the multi-
16 carrier system based on what a POSITA would have known at the time of
17 the '802 Patent. For example, as established through Dr. Almeroth's
18 declaration that this is standard off-the-shelf technology, that adding an
19 amplifier and antenna would have been -- it's using these routine and
20 conventional features of an amplifier and an antenna and adding it to a
21 multi-carrier system in Fernandez.

22 JUDGE CASS: Counsel, this is Judge Cass. As I understand Patent
23 Owner's arguments, I think they said that Montojo has a specific kind of
24 amplifier that uses a priority system to pick out one priority signal to
25 amplify, and does that because it identifies certain problems with just using a

1 standard single amplifier for multiple signals. So, I think what they're
2 saying is that, just looking at Montojo, that doesn't necessarily tell you that
3 you should use just one amplifier to amplify all the signals at the same time.
4 What's your response? Why does Montojo specifically teach just using one
5 amplifier for all the signals instead of the priority-based amplifier that it
6 seems to be focused on?

7 MR. CRUZ: Right, Your Honor. My understanding of Patent
8 Owner's argument on this point is that the specific drawbacks that you've
9 mentioned and that Patent Owner has argued with respect to Montojo's
10 specific single amplifier system with respect to power consumption is not
11 implicated in Fernandez. So, by virtue of just using a single amplifier with
12 the antenna, it doesn't implicate those same concerns. And so, it would have
13 been -- a POSITA would have been motivated to combine Montojo's
14 amplifier and antenna with Fernandez's.

15 And again, even if there are some drawbacks, the standard that the
16 Federal Circuit has explained is that it merely need be a suitable option.
17 And we've shown that how it's a suitable option, for example, using the
18 revised Figure 2A of Fernandez by adding the amplifier and antenna of
19 Montojo to the multi-carrier system of Fernandez.

20 JUDGE CASS: So are you arguing that, in the combination, you'd
21 add the specific amplifier of Montojo, or are you arguing that you just add
22 some sort of generic amplifier for all the signals? That's what I'm having a
23 little trouble understanding more specifically what your argument is.

24 MR. CRUZ: Yes, Your Honor. Our position is that, as we've
25 explained in the Petition, even using a generic amplifier, any amplifier -- an

1 amplifier and antenna, it would have been obvious to add the amplifier and
2 antenna to Fernandez. We say that in the petition at Page 75, that a single
3 amplifier is obvious based on Fernandez alone, but you provide an
4 additional reference, for example, Montojo, which uses a single amplifier
5 and antenna in a multi-carrier system, and that's further evidence that this is
6 obvious, that it would have been obvious to a person of ordinary skill in the
7 art at the time of the '802 Patent. So that's our position with respect to the
8 Fernandez-Montojo combination.

9 JUDGE CASS: All right. Thank you.

10 MR. CRUZ: Now, Mr. Cameron, could you pull up the Petitioner's
11 demonstratives, please? Patent Owner argues with respect to Claim 17 that
12 Fernandez does not teach the baseband digital system as disclosed -- as
13 recited in Claim 17. It's shown on the screen, Petitioner's demonstrative at
14 Slide 5. But our response is that Figure 2A of Fernandez does show the
15 baseband digital system.

16 Judge Cass, as you mentioned, our understanding, while we didn't feel
17 the need to pursue claim construction on this point, Patent Owner, we agree
18 that what this claim requires is a system for generating baseband digital
19 signals, and that's what's shown in Figure 2A of Fernandez.

20 So, moving on to Slide 9 of the Petitioner's demonstratives, we see
21 that -- excuse me, with Fernandez, paragraph 11, it states that Fernandez
22 discloses the method to, quote, increase the digitally synthesized signal
23 bandwidth by frequency interleaving multiple, i.e. at least two digitally
24 synthesized signal sources of narrower bandwidth. As we explained in Dr.

1 Almeroth at the time, these signal sources of narrow bandwidth can be
2 baseband signals.

3 Now, the reason we reference paragraph 6, which describes baseband
4 signals, is because it makes the connection that Figure 2A is a baseband
5 digital system. For example, in paragraph 6 of Fernandez, it says that X sub
6 C of T is the baseband signal, and this baseband signal is used in Fernandez,
7 Figure 1, as output 17 of the signal generating system 10.

8 Referring back to Figure 2A of Fernandez, those same exact numerals
9 are used, elements 10A through B, and the respective outputs, 17A through
10 B. Therefore, because these output, this system described in Figure 2A
11 generates baseband digital signals, Fernandez does disclose the baseband
12 digital system as required in Claim 17 of the '802 Patent.

13 Finally, with respect to Chen, although Patent Owner in her argument
14 argued that -- stated that she wasn't trying to import embodiments into the
15 claims by the virtue of arguing that it has to follow a specific path, that the
16 signals have to follow a specific path, in essence, that it is importing specific
17 embodiments from the '802 Patent specification into the claims. But when
18 we look at what Claim 24 of the '802 Patent actually requires, it merely
19 states that the filter receives the first and second down-converted signals,
20 which is what Figure 6 of Chen discloses.

21 Now, Patent Owner argues or points to language in the Petition where
22 we say that in Chen, column 14, line 13 to 15, that the output mixer 306 and
23 downconverter 310, which we explained are the first and second
24 downconverters, are already at basebands and provided directly to filter
25 320C.

1 So, in Chen, Chen specifically says that these down-converted signals,
2 down-converted analog signals are provided to the filter. In other words,
3 Chen is -- Chen already satisfies the narrower requirement that Patent Owner
4 seems to imply that the filter receive the signals directly. But the claim
5 requires that it merely receives the first and second down-converted signals,
6 and that's what the quoted language from Chen provides.

7 In other words, to the extent there's any tension between what Chen is
8 explicitly describing in that column 14, line 13 to 15, about directly
9 providing the signals versus what's actually shown in Figure 6 of Chen.
10 Either way, it satisfies the claim limitation that the filter receives the first
11 and second down-converted analog signals that are required in Claim 24.

12 Your Honors, if there are no further questions, then for these reasons,
13 Petitioner respectfully requests the Board hold Claims 1-4, 6-10, 13, 14, 17,
14 21 to 25 of the '802 Patent unpatentable.

15 JUDGE CASS: Thank you, Counsel. I don't think any of us has any
16 questions, so thank you very much for your presentation. And we'll start
17 again with Patent Owner's counsel when ready. I was told you have 14
18 minutes remaining.

19 MS. TULL: Thank you. And I'd like to revisit briefly the discussion
20 of Chen that we had previously, and there were some questions about isn't
21 simply filter 250A, the fact that filter 328C receives 250A and 252A, isn't
22 that sufficient for the claim? I explained that because it's not the same
23 signal, it's not meeting the claim language. If I may, in particular, I'd like to
24 direct the Board's attention when they're reviewing this to the Patent Owner
25 Response at Pages 26, 27, and 28, and there we explain that as it walks

1 through the Chen converter process, some of these signals that the Petitioner
2 relies upon are converted to digital and others remain analog.

3 And so, what we explain is that the signals that are converted aren't,
4 in fact, the same signal that were transmitted because there are distinct
5 differences between analog to digital signals, and we explain and provide
6 textbook examples of what a person of skill in the art would understand with
7 respect to the distinct and recognized differences between analog and digital
8 signals and what happens during that conversion process, why then it's no
9 longer the same first down-converted signal and second down-converted
10 signal that are received at the filter 328C.

11 So, I think our response does a far better job of explaining that than I
12 did a moment ago. And again, it walks through the evidence about why a
13 person of skill in the art would have understood those signals to no longer be
14 the same signal based on that conversion.

15 And so, with that, then, I'd like to return to some of the arguments that
16 we just heard from the Petitioner. And with respect to, I believe, the Board
17 was pointed to paragraph 75, and this is for Grounds 6 through -- for Page
18 75 of the Petition, and this is for Grounds 6-9 with respect to the Fernandez-
19 Montojo combination and whether it could be any power amplifier or was, in
20 fact, the Petition relying on a Montojo amplifier.

21 And again, the Board can certainly read the language of the Petition,
22 but I will note that with respect to Claim 10, Claim 10 requires that the
23 signals are combined and then amplified, and in particular, the Petition, I
24 would submit, relies on Montojo for the summed signals then being
25 amplified. So, I would urge that, in light of what they present in the Petition

1 and what the claims require, that it is, in fact, Montojo's power amplifier
2 that's being relied upon and not just any singular power amplifier in the art
3 of which Montojo is a single example.

4 And then, with respect to the discussion of a baseband digital signal,
5 with respect to Fernandez and Claim 17, we heard further discussion from
6 the Petitioner about why Figure 2A meets this limitation and that Figure 2A
7 -- but there's also a discussion of Figure 1 and the element 17 that appears in
8 Figure 1, which they submit is the same element as appears in Figure 2A.
9 Again, those references, those citations do not appear in the Petition, and
10 they simply pointed to, I believe it was paragraph 6 and 11, and those were
11 the only references they relied upon because they used the chart to
12 shorthand.

13 And, you know, many a times we do in the field rely on a chart to
14 shorthand things, but you still must provide the evidence and argument that
15 supports the claim. The evidence that they identify does not include the
16 evidence they're pointing to now, and the Petition on its face does not
17 include the disclosure of the baseband signal. And without any additional
18 questions on that, I would like to return briefly and in particular to discuss
19 Claim 25, which I did not address in my opening argument, just to briefly
20 touch on what was presented in the Petition there.

21 I'd like to just sort of ground the discussion of what was relied upon in
22 the Petition and with respect to the evidence for Claim 25 on both grounds,
23 we just see simply a reference back to Claim 2. For Claim 25, see Ground 2,
24 Claim 2, that's in Ground 4 and Ground 8. For Claim 25, see Ground 6,

1 Claim 2. Just a reference back to Claim 2, no discussion of Claim 25 in and
2 of itself.

3 And there are two significant issues with this, which we identified
4 both in our Petition and in the Sur-reply. The first of which is that the
5 language of Claim 25 and Claim 2, the additional limitation that's added by
6 these dependent limitations, it's not identical. Claim 25 requires -- it's
7 focused on the question the first RF frequency and the second RF frequency
8 and Claim 2, it's the first center frequency and the second center frequency.
9 And the Petition does not address the difference or, if it's their position that
10 it's the same, the similarity between the first frequency and the first center
11 frequency and whether a disclosure of one is a disclosure of the other.

12 But more critically, when you look at the length of Claim 25 itself,
13 and I apologize, I realize this is a bit of a wall of text, Claim 25 is read in
14 context of Claim 24. And Claim 24 is dealing with the downconverter
15 circuits that are then passed through the filter. Claim 1 is a very different
16 claim, and that's the transition of the simultaneous transmission of first and
17 second information.

18 And I think the fact that these are different claims is just emphasized
19 by the fact that the Petitioner asserted Rick against Claim 1 and against no
20 other claim. They did not assert Rick against Claim 24. And so I think
21 there's an acknowledgement that the requirements of Claim 1 and Claim 24
22 are certainly very different. And Claim 25 which includes all of the
23 elements of Claim 24 is thus very different from Claim 2, which includes the
24 requirements of Claim 1.

1 And yet, when we see what the Patent Owner addressed in their
2 Petition, they didn't address any of the limitations of the claim as a whole,
3 but rather just incorporated by reference the discretion of Claim 2. And so
4 that we would submit on its face as insufficient for the unpatentability of
5 Claim 25.

6 So, absent any further questions from the Board, I'd like to thank the
7 Board for its time. And again, reiterate that it's our position that the
8 Petitioner has failed with respect to their burden of unpatentability as to any
9 of the challenged claims. And again, we thank the Board for its time.

10 JUDGE CASS: Thank you very much, Counsel. I don't have any
11 further questions. I don't see any from my co-panel members. So, with that,
12 we will go ahead and adjourn this hearing. I want to thank both of you for
13 the time that you put into these presentations. It's been very helpful in
14 helping us understand issues of the party's positions, and you put a lot of
15 time into it. I really appreciate it. You'll get a decision from us in due
16 course.

17 If you wouldn't mind, if you could stay on for a couple of minutes to
18 see if the court reporter has any spellings or other terms that he'd like your
19 help with, that would be great. But otherwise, the hearing is adjourned.
20 Thank you again, and have a good rest of your day.

21 (Whereupon, the above-entitled matter went off the record at 3:15
22 p.m.)

PETITIONER:

Kyrie Cameron
Randol Read
Archibald Cruz
PATTERSON & SHERIDAN LLP
kcameron@pattersonsheridan.com
rread@pattersonsheridan.com
acruz@pattersonsheridan.com

PATENT OWNER:

Reza Mirzaie
Amy Hayden
Neil Rubin
Qi Tong
RUSS, AUGUST & KABAT
rmirzaie@raklaw.com
ahayden@raklaw.com
nrubin@raklaw.com
ptong@raklaw.com