

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

T-MOBILE USA, INC.,¹
Petitioner,

v.

DALI WIRELESS, INC.,
Patent Owner

IPR2022-01293
Patent 10,334,499 B2

Held: December 8, 2023

BEFORE: KARL D. EASTHOM, BARBARA A. BENOIT, and
SHARON FENICK, Administrative Patent Judges.

¹ The Board joined T-Mobile USA, Inc. as a party (Petitioner) to this proceeding. Original Petitioner CommScope Technologies LLC and Corning Optical Communications LLC have been terminated in this proceeding.

IPR2022-01293
Patent 10,334,499 B2

APPEARANCES:

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The above-entitled matter came on for hearing on December 8, 2023,
commencing at 1:00 p.m., via video teleconference.

P R O C E E D I N G S

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JUDGE FENICK: Good day, everyone. We are convened here for oral arguments in IPR2022-1293, which challenges claims of U.S. Patent 10,334,499 B2. Petitioner is T-Mobile USA, and Patent Owner is Dali Wireless, Incorporated. I'm Judge Fenick, and also appearing remotely are Judges Easthom and Benoit. I want to start by saying that our primary reason for being here and our primary concern is your right to be heard and to participate fully in the hearing. If there's any technical difficulties that you encounter at any time, please let us know as soon as possible. Also, please try to disconnect and reconnect to the WebEx if that helps or call the technical contact you have. They can contact us also. Secondly, for the benefit of the Judges, for opposing counsel, and for our court reporter, if you could please identify yourself when you begin speaking and speak as clearly as you can. Also, as you make your argument, please identify any specific slide numbers if you're referring to your demonstratives. Third, it's much easier for everyone if you mute yourself when you're not speaking. We have not received any notice from either party that there's any intention to discuss anything confidential, and we have a public line here today. So we assume that you will not be discussing anything confidential. If anything comes up, please let us know. We can act appropriately.

The hearing order, which is paper 33 in this proceeding, says that each party will have 60 minutes total time to argue their cases. Because Petitioner has the ultimate burden of proving unpatentability, Petitioner opens the hearing by presenting its case as presented in the Petition

1 regarding the alleged unpatentability of the claims challenged. Petitioner
2 can reserve rebuttal time, no more than half of its total argument time. After
3 the Petitioner, Patent Owner will respond to the Petitioner's arguments and
4 may reserve surrebuttal time. Again, no more than half of the total argument
5 time to respond to the Petitioner's rebuttal. And after those presentations,
6 we'll have a brief pause after we adjourn the hearing. Everyone will stay on
7 the line to help the court reporter with any spellings or information that the
8 court reporter needs. We remind you that there's no objections to be heard
9 during the other party's presentation. If you have any objections, please
10 make it when it's your turn to speak. I will maintain the clock and I'll try and
11 tell you without interrupting too much when you have about five minutes
12 left in the block of time that you're using. I think that's all the preparatory
13 stuff. And maybe we'll start now with appearances. Can I hear the
14 appearance for Petitioner, please?

15 MR. BULLARD: Yes, good afternoon. It is William Bullard
16 again from the Wednesday hearing, and with me is Phil Caspers, both on
17 behalf of T-Mobile. And I will be presenting.

18 JUDGE FENICK: Thank you, Mr. Bullard. And for Patent
19 Owner, please.

20 MR. XIE: Good afternoon, Your Honors. This is Moses Xie, of
21 Folio Law Group for the Patent Owner, Dali Wireless. And I have with me
22 my colleague, David Schumann.

23 JUDGE FENICK: And Mr. Xie, will you be presenting?

24 MR. XIE: I will be presenting.

25 JUDGE FENICK: Okay. Thank you. If there are no questions or

1 preliminary issues, then I think we'll get started with the Petitioner. Again,
2 we have the demonstratives and we have the papers and exhibits in the
3 hearing, so please let us know if you're referring to one of those. And Mr.
4 Bullard, you can begin when you're -- oh, Mr. Bullard, would you like to
5 reserve time?

6 MR. BULLARD: Yes. Fifteen 15 minutes, please.

7 JUDGE FENICK: Okay. Please begin when you're ready, sir.

8 MR. BULLARD: Thank you. Well, good afternoon again, and I
9 appreciate the opportunity for this oral hearing. And I do know that this is
10 the third time in three days that there's been a hearing about the Wu prior art
11 reference, and I want to be helpful, not repetitive, and I certainly don't want
12 to be boring. So, please stop me at any point, and I will try to focus on what
13 is different here, and how I can add to the record that's already been
14 established in the last two oral hearings, the hearing on Wednesday for the
15 '343, which is the child of the present patent, and the hearing this morning as
16 well.

17 JUDGE FENICK: Let me just interrupt you for a second. I mean,
18 each of these proceedings stands on their own and the records in each is
19 separate. So if there's anything you need to say, I mean, obviously, the
20 papers are what they are, but just letting you know.

21 MR. BULLARD: Yes, absolutely, absolutely, I appreciate that.
22 And I do want to note, though, as far as what's different, what's the same,
23 Patent Owner's arguments are certainly the same. So if we compare their
24 arguments against T-Mobile's Petition to their arguments against AT&T's
25 Petition that was heard this morning, Patent Owner certainly doesn't present

1 any new, unique argument against our Petition today that they didn't present
2 against AT&T's Petition. Now, as far as what is different, our Petition is, I
3 would say, more robust in the fact that there are more grounds in our Petition
4 compared to the hearing this morning. And those grounds, though, are just
5 additional backup grounds. It's not necessary for the panel to reach those
6 grounds. The primary ground, the Wu prior art reference, that is a similarity.
7 And so I will focus primarily on the Wu reference again. And one other
8 difference, and to your point, Judge Fenick, this is a difference in the record.
9 I believe that in this proceeding, we have a lot more admissions from their
10 expert. And we did cite these in the papers. I talked about some of them on
11 Wednesday. And I will note, it was a combined deposition that covered in
12 one deposition, the '343 Patent and the '499 Patent, the Patent today. That
13 was by agreement of the parties. So that is a shared point between the
14 record. And we certainly put the citations in in our papers in this proceeding
15 as well. I won't necessarily reread all of those admissions. I will note a
16 couple admissions that are more relevant today. And I know that, you know,
17 litigants will sometimes say there is an admission and then if you go to the
18 pin site and read the quote, the quote can be a little underwhelming. This is
19 not that case. These quotes and these admissions are clear. And while
20 they're not necessary because of the substantive strength of the Wu reference
21 and its express teachings, they do make the record here even easier. And the
22 other big difference is, between our proceedings, is there are dependent
23 claims here that were not addressed on Wednesday's hearing. They also
24 weren't addressed in this morning's hearing. So, I will put some substantial
25 time into addressing those dependent claims.

1 So, with that in mind, let me go to the first issue, digital
2 representation of a set of radio resources. And I know this was extensively
3 discussed at this morning's hearing. And this is the main issue. I heard
4 counsel this morning say, quote, on the other side, Mr. Xie, that this is,
5 quote, where this case hinges. And we have a number of admissions that are
6 cited in the brief that, where their expert repeatedly agreed that Wu's
7 structure, an analog to digital converter, what it creates is an output that is
8 number one, digital, and number two, representative. So that is another
9 point that makes this an easier case. What I want to start with, instead of
10 rereading those, is I want to answer a couple questions that came up this
11 morning. There were some questions about the prior proceedings that relate
12 to this term. And I was counsel for CommScope in those prior proceedings,
13 so I just want to be very clear on what the record is here. So Judge Easthom,
14 I believe you had a question about the prior proceeding on Patent Owner's
15 '473 Patent that was affirmed by the Federal Circuit and you raised the issue
16 of, well, hasn't the Federal Circuit looked at and decided this issue? And
17 there was a question of what exactly was the limitation looked at? So, the
18 exact limitation looked at in that proceeding was a limitation that said,
19 quote, wherein the host unit is capable of sending a digital representation of
20 any downlink signal it receives to any of the plurality of remote units. So,
21 the language about digital representation was identical there in the Federal
22 Circuit opinion where the Federal Circuit said, yes, Wu teaches that to the
23 present proceeding. The difference was that in the '473, it was a digital
24 representation of a downlink signal and here it is a digital representation of a
25 radio resource. Now that is a distinction without a difference because it is

1 undisputed that WU does teach radio resources. So that one distinction,
2 downlink signal versus radio resource, that can't be a distinction, that's a
3 difference because it's undisputed Wu does teach radio resources. That's the
4 first clarification. Then there was a lot of discussion about the present
5 Patent, the '499 Patent, compared to its parent patent, the '178 Patent. That's
6 the patent that CommScope had filed in earlier IPR and Patent Owner after
7 institution canceled its claims and there was an adverse judgment against it.
8 And the discussion was about are there two different inventions between the
9 parent '178 and the child '499 Patent at issue today. And as some of the
10 panel pointed out, well, of course, it is the same specification because these
11 are directly related patents.

12 But what I want to be clear about is the two claims in these patents,
13 the '178 and the '499. It's undisputed that they overlap almost entirely.
14 What they -- where their difference is, is the '178 says digital representation
15 of a downlink channel signal, and the present patent says digital
16 representation of a radio resource. So digital representation again is
17 common. It's this difference between downlink channel signal and radio
18 resource. But again, that is a distinction without a difference because this is
19 what their expert told us in deposition and we cite this in a reply brief. I
20 asked him, question, a downlink channel signal, the '178 language, is an
21 example of a radio resource, correct? Answer, yes, that is correct. So again,
22 that's a distinction without a difference. And that's an example when I say
23 when we say there's an admission, we're not overstating the record. That
24 was an unequivocal yes. And we went even farther and there was some
25 discussion about this point of the claim scope between the '178 and the

1 present Patent this morning. And I asked him a follow-up question. I said,
2 and your distinction is that the phrase, quote, radio resource has a broader
3 scope than downlink channel signal, correct? His answer was, in my
4 opinion, well, yes. So, again, that can't be a distinction that's a difference
5 because he's saying the present Patent, the '499, is actually broader. It's not,
6 my colleagues on the other side's theme that there are these two, you know,
7 fundamentally binary different inventions.

8 JUDGE EASTHOM: Mr. Bullard, can you -- do you have a cite
9 for those? I saw one of those on your slide, I thought, but I just want to
10 make the record clear here.

11 MR. BULLARD: Yes. This would be cited on our reply brief at
12 page 6, and the pin site is Exhibit 1061, page 10, line 1 through 10.

13 JUDGE EASTHOM: Okay. Thank you.

14 MR. BULLARD: And the third question I want to follow up from
15 this morning, I think, Your Honor, this was a question you had about
16 baseband. And I just want to be clear about what are we talking about with
17 baseband. So in the challenged patent in the preferred embodiment, it
18 explains that you get the radio resources, you digitize them, you then down
19 convert them to baseband and they're sent to the remote units and they're
20 sent according to the CPRI protocol. And I'm going to call that the CPRI
21 protocol. And by definition when you use the CPRI protocol, it is a
22 baseband signal. And in the Wu reference, Wu also --

23 JUDGE EASTHOM: Mr. Bullard, I re-read the patent and
24 somewhere, I apologize, I don't have it, but I think, and that's also in Wu
25 actually, they actually upload those CPRI baseband signals onto an optical

1 carrier is the way I understand it. They're converted into optical. So, you
2 have an electrical to go along the fiber optic cable. That's how I understand
3 it.

4 MR. BULLARD: Yes, that is correct. And what I want to be clear
5 on is it is correct that you can transmit a digitized baseband signal over an
6 optical link because when it's going over the optical link, you know, we're
7 still just transporting ones and zeros because it's digitized.

8 JUDGE EASTHOM: Right. But it's the idea is it's got another
9 carrier. It's in the optic range, right? It's got an optic signal that's carrying
10 those digital --

11 MR. BULLARD: Correct.

12 JUDGE EASTHOM: -- images if you will. Okay.

13 MR. BULLARD: Correct. And the reason, though, I wanted to go
14 back to that question of baseband is just make clear two points. Number
15 one, baseband is a similarity, not a difference between the '499 Patent and
16 Wu. They're both baseband. And two, our expert did put in a technical
17 opinion explaining baseband. This was in Exhibit 1003 at paragraph 104.
18 Dr. Acampora explained that, quote, both OBSAI and CPRI communicate
19 signals in digital baseband. And then this is the key point, he says, the
20 baseband signals quote, represent and preserve the amplitude and phase
21 modulation characteristics of the RF signals. And I asked their expert now,
22 Patent Owner's expert, about this technical observation. And we cite this on
23 our reply at page 30. And this is what their expert said in response. He said,
24 quote, no, I did not submit an opinion in my declarations disagreeing with
25 Dr. Acampora's technical analysis in paragraph 104. So, again, that's cited

1 in our reply at page 30. So, that's their expert admitting -- I didn't disagree
2 with was a statement that. And remember, what he's saying he didn't
3 disagree with was a statement that a baseband signal, quote, represents and
4 preserves that RF signal. So that's getting into the concept of digital
5 representation.

6 Now moving to the argument, what I thought would be helpful
7 here is I tried to put myself into their position to understand, okay, if I'm
8 Patent Owner, how do I get to the result that I want for this term digital
9 representation of a set of radio resources? And I want to run through sort of
10 the internal logic you have to go through, because the logic just breaks down
11 time after time. So, again, if you're Patent Owner, you can't start with the
12 plain language of the claim because they have no argument that they can
13 distinguish Wu as the plain language of the claim controls. They rely 100
14 percent on their construction. And certainly, my colleague this morning at
15 the hearing was quick to say, we're saying it's not plain and ordinary
16 meaning. So, it can't be the plain and ordinary meaning according to them.
17 So if it's something other than the plain and ordinary meaning, according to
18 them, that controls, you would expect that they're relying on a special
19 definition. But they can't be relying on that either. They never argue for
20 lexicography. And their expert agreed, again, that it was the plain and
21 ordinary meaning.

22 And, you know, if my colleague wants to disagree, I'll certainly
23 read where their expert said, it's the plain and ordinary meaning in my
24 rebuttal. And more fundamentally, the specification never uses that phrase,
25 quote, digital representation. So, it's difficult to understand how there even

1 could be a special definition. So, but let's just set aside that first problem.
2 So, even if we get to Patent Owner's construction, so here's the continuing
3 logic. Their construction is, well, it means anything that defines or describes
4 the set of radio resources. So the question would become, do Wu's digitized
5 channels, quote, define or describe Wu's radio resources? And we put in
6 un rebutted evidence that the answer is yes. On page 8 of our reply brief, for
7 example, we explained with expert testimony that, quote, this well-known
8 process of digitization using analog to digital converters produces a set of
9 digital samples that accurately describes, so there's their term, an input
10 signal. And then we continued, the digital samples describe and preserve the
11 shape of the carriers. And their expert didn't disagree with that. And I
12 welcome my colleague to, you know, point out if he thinks I misunderstood
13 something there. So now we have another problem. But again, let's just
14 keep setting aside these problems and continuing with the logic. So how do
15 you get over that problem? Well, their only response is, Wu doesn't teach,
16 quote, configuration information. But again, their construction doesn't
17 require configuration information. It's not actually a limitation in the
18 language of their own construction. So, set aside that problem. So,
19 continuing on the logic.

20 So, even if the Board were to consider whether to limit the claim to
21 configuration information, I think at that point, just undeniably, we would
22 have to have lexicography. To adopt a position that the phrase digital
23 representation is not governed by the plain and ordinary meaning and instead
24 is limited to configuration information to try to distinguish Wu, that would
25 be lexicography. But again, right back to the problem, there is no

1 lexicography, and they haven't identified any lexicography. And if -- so
2 where we bottom out on their argument is they have to get to configuration
3 information, but there's just no way to get that into the claim. If they wanted
4 to get that into the claim, their option was to amend their claims. They
5 chose not to do that.

6 Now, briefly, on the next disputed term, which is an antenna and
7 the antenna, I want to clarify what is in dispute and what is not in dispute.
8 So, I don't think it is in dispute anymore that Wu teaches to use an antenna.
9 We cite admissions in our briefing. They're in our demonstratives. There
10 was a discussion in the hearing on the '343 Patent. I'll certainly let my
11 colleague on the other side clarify, but I don't believe it is disputed anymore
12 that Wu does teach an antenna. Now, originally --

13 JUDGE FENICK: Mr. Bullard, sorry, before you moved on, I just
14 wondered, just returning for a second to the digital representation, you said
15 that the difference between a digital representation of a downlink signal, and
16 a digital representation of a radio resource, you called it a distinction without
17 a difference.

18 MR. BULLARD: Correct.

19 JUDGE FENICK: But, I mean, I think we have to at least think
20 about what a draftperson meant by using different language in the same
21 context. So what do you think that the -- why do you -- what meaning
22 should we put into the fact that it's different in the two different recitations?

23 MR. BULLARD: I think we should put the meaning that their
24 own experts said, which is that it's broader. Radio resources, according to
25 them, is broader. And that's because radio resources could be RF signals,

1 TDMA time slots, or CDMA codes. And it may be the case that some of
2 those things are not downlinked channel signals. I don't think any expert has
3 commented on that, but I think basically, Patent Owner has it sort of
4 confused and backwards. If Patent Owner is trying to suggest that somehow
5 there is a special narrowing definition in the present case, the '499 case that
6 distinguishes it, that's backwards and not what their expert said. Their
7 expert didn't say it's narrower. He said it's broader. Does that answer the
8 question?

9 JUDGE FENICK: Yes, thank you.

10 MR. BULLARD: So again, just sort of laying the table, what is
11 disputed, what is not disputed? I don't think it's disputed Wu has an antenna.
12 And originally, there was a dispute about a claim construction where Patent
13 Owner said, well, it doesn't have necessarily the same single antenna. And I
14 don't believe it is in dispute anymore that the claim is not limited to a single
15 antenna. We cited the Baldwin case, which is a pretty clear statement from
16 the Federal Circuit that when you have a claim that says, and, and then the,
17 so an antenna, and then the antenna, neither one of those phrases is limited
18 to one. And means one or more, and the just refers back to one or more.
19 And the reason I say I don't think that point is in dispute is because at the
20 hearing on the '343, the child patent, the other side repositioned their
21 argument and said, well, I actually want to focus not on single anymore, not
22 on the issue of a single antenna, but instead the issue of a same antenna.
23 And I'll let my colleague clarify if they're still maintaining it. We've never
24 heard any response to that controlling Federal Circuit case, the Baldwin.
25 So, and then moving to this issue of, okay, is what is in dispute the

1 issue of same antenna? Well, that dispute that they raised in the papers was
2 based on the idea that Wu, in a figure, shows two different boosters. But we
3 pointed out in our reply that Wu expressly teaches there could be one
4 booster. There's just no question Wu teaches that. And that would dispose
5 of their argument. And the Patent Owner didn't put any responsive paper in.
6 They had the option to file a sur-reply to clarify or respond to that. They
7 didn't do that. And at the hearing on Wednesday on the child patent, they
8 acknowledged that in the instance where there's one booster, that means
9 there's one antenna. So, in my view, when you run down that logic there,
10 this issue is resolved, and there isn't really anything left in dispute. If there
11 is, I'll most certainly respond to whatever my colleague wants to explain
12 there.

13 Now, moving to the dependent claims, which is really the main
14 difference as far as what has already been discussed. I want to start with
15 their dependent claims about packetized and destination information. And
16 these two sets of claims, although they use different terms, packetized and
17 destination information, the analysis ultimately is the same. Patent Owner
18 didn't present any unique argument to say, you know, there's some second
19 argument I have for one group of claims versus the other. And that's
20 because Patent Owner's position is when you take that term packetized, the
21 construction requires destination information. So you basically end up at the
22 same result. And what we put in our Petition is we pointed out that Wu
23 discloses its system communicates its digital representation in either of two
24 ways, either using that CPRI, CPRI protocol, or the OBSAI protocol, which
25 we'll call the OBSAI protocol. And the Petition explained, quote, either one

1 of these is sufficient. And I'm going to set aside the CPRI protocol for a
2 moment because that's something the Board has previously looked at and the
3 Federal Circuit has looked at, but I'm happy to answer any questions on that.
4 I want to focus instead on the OBSAI because that is something that is
5 additional. So, I'm not taking anything away. This is just an additional
6 reason that Wu invalidates these claims. And again, I want to start with
7 what is in dispute and what is not in dispute. And here, there's kind of an
8 interesting point. So, Patent Owner did put in a paper disputing whether or
9 not these claims about packetizing destination information are invalid. But
10 Patent Owner focused the majority of that paper on just the CPRI standard.
11 And again, we said CPRI or OBSAI. And when it came to OBSAI, Patent
12 Owner only had one paragraph and they made a mistake in their paragraph.
13 They say that this was their reason they're criticizing the Petition's argument.
14 They say, quote, in its state-of-the-art section, Petitioner also points to the
15 OBSAI standard in a similar manner that it points to the CPRI standard,
16 although it fails to cite to any page of the OBSAI standard to satisfy Claims
17 2, 3, 9, and 10. And then it cites the Petition at 28, 41 through 42.

18 Well, what we pointed out in our reply brief is, you know, you
19 must have misunderstood because we clearly did cite to pages of the OBSAI
20 standard. So, they were raising kind of a procedural objection. And what I
21 realized in preparing for this oral argument is that argument that Patent
22 Owner made, that was a copy and paste from their response to the AT&T
23 Petition this panel heard this morning. It's not responsive to our Petition.
24 We don't even have a state-of-the-art section, and when you look at those pin
25 sites, they don't correspond to our argument here. So what I'm getting at is,

1 Patent Owner chose in this proceeding to focus on distinguishing Wu's use
2 of CPRI when we also said, well, what about Wu's teaching to use OBSAI.
3 And there, they seem to have just made an erroneous argument. But let's
4 just set aside the error for a moment and talk about what are the teachings
5 for OBSAI. So, if we could go to slide 21 of our demonstratives, please.
6 And again, the question at hand is, does OBSAI, which Wu says to use, does
7 it teach packetizing, and does it teach destination information? And for
8 destination information, what Patent Owner focuses on is that destination
9 information means routing information such as a destination address. So
10 please keep in mind that concept of routing information, an address, and a
11 packet.

12 So if we look at slide 21 now, and these are, you know, just direct
13 express teachings from the OBSAI standard that we cite to in our papers.
14 And in the top box that I've labeled number one, you see that OBSAI
15 explains it's based on a packet concept. So right away you get packet. And
16 OBSAI explains in the second highlight that what it sends are these fixed
17 length messages. And then right below that in the second box is a picture of
18 what that fixed length message is. And you can see highlighted in yellow
19 that the fixed length message has an address. It has destination information.
20 And if we continue and we go to slide 22, please, and look at what I've
21 labeled box number 3, OBSAI explains that this message format that had
22 that address in it is used for, quote, all data. So there's no question, you
23 know, do you have to do a further analysis to understand the relevance of
24 that message? It's used for all data. And then if you look at box number 4,
25 which is now further detail explaining the address field of the message that's

1 used for all data, it says that it quote, controls the routing. And then in the
2 second highlight, it's the address that identifies the target note. So this just
3 exactly fits Patent Owner's own position. And if you go to slide 23, here is
4 my colloquy with their expert about OBSAI. And again, we don't need these
5 admissions because we have expressed teachings, but we do have these
6 admissions that just help sort of tie up the argument. So, in the top question,
7 labeled number 1, ask him about, well, OBSAI is teaching to include an
8 address, correct? And he agrees, there is an address field. So that's
9 undisputed. And then I'm asking him, so is this address field destination
10 information, the concept Patent Owner wants? And, you know, ultimately,
11 he agrees, quote, yeah. So he agrees. And then I ask him basically, well,
12 you know, because we have these express teachings, did you actually
13 disagree with this? Did you put in an opinion disagreeing with this? And he
14 says, quote, my declarations do not touch on that particular address field as I
15 read them specifically. So they don't really have a response to this.

16 Now, I'd like to move to the next group of dependent claims. And
17 before I do that, let me ask, are there any questions about the packetizing
18 destination information issue? All right, I'll continue then. So, the next
19 group of claims are the dependent claims that talk about having a first signal
20 source, and a second signal source, and making sure that your set of radio
21 resources that's ultimately sent to the remote unit includes some radio
22 resources from the first signal source, and some from the second radio
23 resource. So it's kind of some from both, colloquially. I'm going to start
24 with what's disputed, what's undisputed. It is undisputed that Wu teaches a
25 first and second signal source. The Petition pointed out that Wu's multiband

1 transceiver is an example of a signal source. That was not disputed. And it's
2 undisputed that Wu expressly teaches that there can be, quote, more than one
3 multiband transceiver. So, the more than one gives you a first and second.
4 The dispute is whether a person of ordinary skill would understand Wu's
5 disclosure covers where the set of radio resources would have some from the
6 first multiband transceiver and some from the second multiband transceiver.
7 That's what I'm going to focus on showing. And the important point here is
8 that Wu has a very broad disclosure. So if I may direct your attention,
9 please to slide 26. And let me orient you to what is on slide 26. So on slide
10 26 on the left, we have Wu's figure, Figure 2, that shows an example. And
11 what's in yellow is the multiband transceiver, the signal source. And this is
12 the example in Wu where you have one signal source. And this particular
13 signal source has three bands. So this is an example of one signal source
14 with three bands in it. On the right side, though, is Wu's express teachings
15 that go much farther than that. And I'm just going to highlight a point going
16 down the 1, 2, 3, 4 on the right side of the page. So first, Wu expressly says
17 that you can have more than one of these multiband transceivers. And then
18 in the second quote, Wu teaches that any of these multiband transceivers,
19 they can receive, quote, one or more frequency bands. So it doesn't have to
20 be three frequency bands as shown. Could just be one frequency band. And
21 Wu says, when it gets to the routing part, well, you can do this individually,
22 collectively, or in arbitrary groups. That's about as broad of a teaching as
23 you can have. And then Wu continues and says, and by the way, individual
24 channels from different bands, so you could have different bands in different
25 multiband transceivers, they can be split apart and then combined back

1 together. That gets to this concept of some from one, some from another.
2 And what I want to do is just illustrate applying some of Wu's express
3 teachings to Wu's figures so we can all visualize what these teachings mean.
4 So again, looking at slide 26, you see we have one multiband transceiver
5 with three bands. I'm now going to apply the teaching that you could have
6 more than one multiband transceiver and each of those could have one band.

7 So now if you would please look at slide 27. So slide 27 shows the
8 same system with those teachings applied. So you have the same channels,
9 they're just now in three multiband transceivers with one band or multiband
10 transceiver. That's within the express scope of Wu. And if we continue to
11 slide 28 now, please, what I'm showing here is applying Wu's further express
12 teaching about splitting channels from different bands and combining them
13 together. And Wu gives an example that I've highlighted on the right side.
14 Wu says that channel 3 from that first band, 263A on the top, could be
15 combined with channel 12, which is from a different band on the bottom. So
16 right there, that's an example, an express example, where if you just apply
17 Wu's teachings, you would have some radio resources from a first signal
18 source and from a second signal source.

19 And then there's a second example I'd like to illustrate. And this
20 time, I want to illustrate the idea of routing the channels collectively. That
21 was another thing Wu expressly taught. Wu said it can be individually, it
22 can be collectively, or it can be in arbitrary groups. So now if we look at
23 slide number 29, please, this shows that same configuration and we're
24 routing the channels collectively. So I've highlighted all of the channels.
25 Well, when you look at all the channels highlighted together, that would

1 certainly be an example of some from a first signal source and some from
2 the second signal source. Just as a matter of pure logic, if you're doing all of
3 them, you have to be doing some from each of the signal sources. And I
4 would note, you know, we're not reaching here. That is expressly
5 contemplated by the preferred embodiment in the challenged patent. In
6 Figure 1 of the challenged patent, and this is shown, for example, on slide
7 number 2. So, if you look at slide number 2 in our demonstratives, there are
8 four different DRUs here. And if we look at what is the first DRU top left,
9 numbered 125A, you see above that DRU all the channels. So you have got
10 channels A, B, C, D, and you have got E, F, G, H. So that is an example the
11 patent is covering of allocating all the channels collectively. So we are not
12 stretching when I give that same example in Wu.

13 And the final important point on these dependent claims is that,
14 you know, I mentioned we have more grounds in this Petition. We also had
15 a backup ground on obviousness where we said, you know, even if there was
16 some, you know, really narrow-minded way that it was not believed that
17 these express teachings apply, well, it would be obvious to put these express
18 teachings together and we gave a motivation, that was Ground Number 2.
19 And I would highlight that Patent Owner, you know, did not have a
20 meaningful response to that Ground Number 2. They just dispute in Ground
21 Number 1 Wu's teachings, but then when you get to Ground Number 2, they
22 didn't have any distinct additional argument. So the final group of
23 dependent claims to talk about.

24 JUDGE FENICK: I'm sorry.

25 MR. BULLARD: Yes.

1 JUDGE FENICK: Before you move on, with respect to Claim 4,
2 Claim 4 talks about the first set of radio resources being a subset of the
3 plurality of radio resources, including some from the first signal source and
4 some from the second signal source. And that gets sent at an antenna. And
5 I'm worried that we're missing a step in your logic because you explain why
6 you think there could be -- why there could be multiple signal sources, but I
7 don't think we know why you think that the same antenna would definitely
8 be broadcasting those signal sources. So if you had a combination, if you
9 had antennas in Wu that were dedicated to certain bands, even if you're
10 sending a set that includes resources from two different bands, how do you
11 know that they're not being broadcast from two different antennas in Wu?

12 MR. BULLARD: Sure. I appreciate that question. So if we could
13 look back at slide 29 to talk about this issue. So slide 29 shows that we have
14 three different bands, and this represents some from a first and some from a
15 second. And I understand your question to be sort of, okay, that shows me
16 on the sort of the baseband unit side of it, but what about at the remote unit
17 side of it? How do you know that that meets the an antenna, the antenna?
18 Well, Wu also has a really broad teaching there as well. So now if we go
19 back to slide 15, please. So slide 15, now we've moved from what goes into
20 the system to what goes out of the system, this figure being shown on slide
21 15. That's the remote unit. And now we get back to the boosters. And the
22 boosters are going to be the answer here. So this shows, again, those same
23 exact three bands. You know, I started with three bands, channels 1 through
24 12. Now we see those same three bands, 1 through 12. And in this
25 particular illustration, you see they go to two boosters. Now, the two

1 boosters isn't a distinction either because an antenna would cover any one or
2 more antennas. So even if you looked at two boosters and said, that's two
3 antennas, that's not a distinction. But we can make it easier than that. And
4 that's because Wu says that the channels can be allocated to just one booster.
5 So all these 12 channels, which did meet, remember, they came from two
6 different signal sources, some from each. All 12 could go to one booster and
7 that would satisfy the an antenna and the antenna. And again, Patent
8 Owner's own counsel admitted at the hearing on Wednesday, if you have
9 one booster, you have one antenna. So that's the sort of the simplest case.
10 And if we go to slide 16 now, here were some of the admissions about that
11 one booster where their expert agreed yes, Wu describes one booster. So,
12 there is no dispute Wu teaches that. And in the second box there, he agreed
13 that he did not actually put in an opinion distinguishing that one booster
14 case. And here, you know, Patent Owner had the opportunity to put in a sur-
15 reply if it believed any of this analysis was incorrect and Patent Owner didn't
16 even put in a sur-reply, didn't dispute any of these points. And I do want to
17 be clear that there is even more than this in Wu. So slide 17, and we did
18 discuss this a little bit at the prior hearing, but I know there was a lot and I'm
19 sometimes told I speak fast, so let me slow down on this point. Wu also
20 expressly teaches that you can allocate those channels 370, so that's, you
21 know, would cover what we started with when we were back at the matrix
22 switch and the multiband transceivers, you can allocate them as desired. So
23 very broad teaching. And he says one band per booster, two bands per
24 booster, et cetera. And it is agreed, it is undisputed that et cetera covers
25 three bands per booster. So again, all three of those bands, band one,

1 channels 1 through 4, band two, channels 5 through 8, and then band three,
2 channels 9 through 12, all of them could be allocated to one booster. And
3 when we go to slide 18, this is what I mean when I say their expert agrees
4 with this. It was one of the clearest statements you can get from an expert.
5 On the first question on the top of the page, I orient him exactly to that et
6 cetera teaching. I say, do you see that? And then I ask him about it and he
7 says in his answer, quote, I agree that a person of skill would interpret et
8 cetera as encompassing three bands per booster. Does that answer the
9 question, Your Honor?

10 JUDGE FENICK: Well, I mean, if you have one signal source
11 that's serving three bands and you have three bands per booster, that still
12 doesn't show that -- I agree that that all meets up with the admissions that
13 you say you've gotten from the expert, but that still doesn't show how one
14 antenna, or an antenna, is broadcast -- is transmitting rather a set of radio
15 resources including some from a first signal source and some from a second
16 signal source. So, I mean, I understand what you're saying that you feel like
17 you've gotten, you know, kind of building blocks. But I'm not sure when I
18 put the building blocks together, that you've gotten -- you've covered the
19 situation that Claim 4 is addressing. And I understand that you're saying that
20 there's, there was no sur-reply here, but, you know, that the burden is on
21 Petitioner and remains on Petitioner.

22 MR. BULLARD: And that I certainly take it as a fair point. The
23 burden is on us. But I do want to be clear as far as the burden that we did
24 put in two distinct grounds. So, if what I hear you saying is kind of, I have a
25 question in my mind about Ground 1, when you put these express teachings

1 together, please do remember we have Ground 2, which is obviousness. So,
2 I do not think to me this would be very in line with Federal Circuit authority
3 about when you have express teachings, it is certainly obvious to put them
4 together. And I do think it is fair to flip it around and say, has any reason
5 been articulated by Patent Owner why that would not be obvious? And the
6 answer is no. They haven't made any such argument, and it would be an
7 entirely new argument what, Judge, you're laying out. That's just not an
8 argument they chose to make. And this isn't their time to make that
9 argument.

10 So briefly on composite signal.

11 JUDGE EASTHOM: Counsel, can I ask you a question?

12 MR. BULLARD: Yes.

13 JUDGE EASTHOM: Are you essentially asserting that an antenna
14 can handle multiple bands?

15 MR. BULLARD: Yes, yes.

16 JUDGE EASTHOM: Okay. Thank you.

17 MR. BULLARD: Yeah. And there's no -- no one has made a
18 contrary argument that one antenna can't handle multiple bands. But I think
19 the panel understands, I just do want to be very clear that an antenna does
20 not require -- it doesn't require one antenna. And when we go back to the
21 independent claim and we're talking about antenna, there when we're talking
22 about radio resources, you don't even have to look to multiple bands. And
23 we point this out in our briefing because you could just look at any one
24 band. Remember, the claim term at issue is a set of radio resources. You
25 just have to have any first set and any second set where the number is

1 different. And we gave that example of just take one band, give the easiest
2 case that's expressly taught by Wu, one band, and Wu expressly teaches for
3 that one band, you could route a channel individually. So that'd be in band
4 one, channel one. And then at a later point in time, same band, you could
5 route the channels collectively, one, two, three, four together. And so that
6 would be not only would that be one booster, one antenna, it would be one
7 band.

8 So briefly on the final group of dependent claims about a
9 composite signal. So there are some dependent claims that say you need to
10 have a composite signal. I want to just highlight that Wu's teaching lines
11 right up with the preferred embodiment. So the preferred embodiment if we
12 look back at slide number 2, please. Slide number 2 shows a composite
13 signal, and that's numeral 130, or numeral 135 with four different RF
14 channels in it. So it's, you know, channels A, B, C, D on the top, or channels
15 E, F, G, H. Those are both examples of a composite signal. And so, the
16 teaching here is multiple channels. Well, that's exactly what Wu teaches.
17 So, if we look, for example, at slide 26. Slide 26, when you look at the box
18 annotated in yellow, that's again showing you have that same concept of
19 multiple channels. It's just numbers instead of letters. So I think this is right
20 on point. And Patent Owner certainly didn't give any clear or cogent reason
21 why Wu doesn't meet this. They just basically had a boilerplate response to
22 these dependent claims.

23 JUDGE FENICK: Mr. Bullard, I apologize. I didn't give you the
24 five-minute warning and I think this is almost the end of your 45 minutes.

25 MR. BULLARD: Okay, thank you. It's my responsibility, so

1 that's on me. And just very briefly, Hettstedt. So I mentioned at the
2 beginning, there are more grounds here and that the panel doesn't have to
3 reach them. But I would note, you know, even if in all this discussion,
4 Patent Owner could somehow thread its way through Wu and thread its way
5 through Wu obviousness, it would still have to overcome the hurdle and
6 thread its way through the Hettstedt reference. And Patent Owner's
7 arguments against Hettstedt are very similar on the independent claims.
8 They again rely on this concept of configuration information about for
9 digital representation. And that argument, as I outlined earlier, is ultimately
10 not persuasive. And when we get to the dependent claims, I do want to
11 highlight that Patent Owner doesn't even dispute all the same dependent
12 claims it disputed for Wu. So, that's a way that the analysis on Hettstedt is
13 easier. For example, Patent Owner doesn't even dispute the claims about
14 packetizing and destination information, and Hettstedt has its own robust
15 teaching to Judge Fenick's question about multiple signal sources and some
16 from each. So Hettstedt has its own robust teachings there that Patent
17 Owner would have to overcome, and we have a ground for obviousness,
18 where we said, if Hettstedt isn't good enough on those claims, we also have
19 obviousness. So ultimately, on some of these dependent claims, there are
20 really four different independent hurdles Patent Owner has to overcome.
21 Wu, Wu obviousness, Hettstedt, and Hettstedt obviousness. I would
22 respectfully say they can't overcome any one of those hurdles, and they can't
23 overcome all four of those hurdles. Does the panel have any questions
24 before I stop? Thank you very much for your time.

25 JUDGE FENICK: I'm sorry, I was muted. Thank you very much,

1 Mr. Bullard. It looks like you have about 13 minutes left for your rebuttal.

2 Mr. Xie, would you like to save time for a sur-rebuttal?

3 MR. XIE: Yeah, I'll do 15 minutes, please.

4 JUDGE FENICK: All right. Again, I will try to tell you when you
5 have five minutes left, but as we've just discovered, I'm not totally reliable
6 on it, but I'll make an effort. You can start when you're ready, sir.

7 MR. XIE: Okay, great. Hello again, Your Honors. This is Moses
8 Xie, of Folio Law Group for Patent Owner, Dali Wireless. I want to
9 reiterate my thanks to you for preparing for this hearing and for helping the
10 parties resolve our dispute. And let me just apologize in advance for any
11 repetition that I may do but I'll try to switch it up as needed. This case is
12 about a claim term that needs construction because digital representation of
13 radio resources is not a term of art and does not have an ordinary or
14 customary meaning. I didn't hear Mr. Bullard talk about the ordinary or
15 customary meaning of digital representation of radio resources. In the
16 Petition, there's one sentence about claim construction. It says, Petitioner
17 presently believes the plain and ordinary meaning is enough to resolve this
18 Petition. That's at page 21. No citations, no dictionary definitions, or other
19 evidence about the customary meaning of this term. Petitioner's expert,
20 likewise, does not help. Now, Petitioner makes this case out to be like, of
21 course, we're talking about plain and ordinary meaning. We should pause
22 for a second and ask why. Plain and ordinary meaning is great when there's
23 a customary meaning in a field. They haven't made a prima facie showing
24 of why plain and ordinary meaning is proper.

25 Now, I want to make two points about claim construction. The

1 first is that plain and ordinary meaning is problematic. And the second is
2 that whatever construction the Board adopts, that construction should not
3 encompass both digitized RF and information defining or describing the way
4 data is transmitted at an antenna. And I'll start with the former with some
5 first principles. Now, claim terms are generally given their ordinary and
6 customary meaning. This is straight from Phillips, but that's when there is a
7 customary or ordinary meaning in a particular field. Where a claim term has
8 no ordinary or customary meaning, a court must resort to the remaining
9 intrinsic evidence, the written description, the prosecution history to obtain
10 the meaning of that term.

11 Second, if the base term, radio resources, needs construction, why
12 doesn't digital representation of radio resources need construction? In
13 Delaware, radio resources was expressly construed. RF carriers, CDMA
14 codes, TDMA time slots, and other information used by the remote radio
15 units to apportion RF signals in order to transmit underlying data to and
16 from an antenna of a remote unit. Eastern District of Texas, the court
17 expressly construed this term. Capacity and broadband throughput, such as
18 RF carriers, CDMA codes, TDMA time slots, dot, dot, dot, Western District
19 of Texas. Judge Albright is a plain and ordinary meaning kind of guy, but
20 he still had to construe the plain and ordinary meaning of this term and said
21 that the plain ordinary meaning is RF carriers, CDMA codes, TDMA time
22 slots, et cetera. Because the underlying term, radio resources, requires
23 construction, the modified term, digital representation of radio resources,
24 also requires construction. I heard Petitioner talk about lexicography.
25 Lexicography and disavow our exceptions to plain and ordinary meaning,

1 but we never get to plain ordinary meaning. So there's -- we don't need
2 lexicography or disavowal to ascertain the meaning of this term. We just
3 need to look at, we don't need an express definition. What we need is to
4 look at the intrinsic evidence and how a POSA would read this term in light
5 of the specification. So plain and ordinary meaning is probably not
6 appropriate.

7 The second point I want to make here is that whatever construction
8 Your Honors go with, plain and ordinary or otherwise, it shouldn't
9 encompass both Petitioner's concept of digitized RF, and Patent Owner's
10 concept of information defining or describing the way data is transmitted.

11 JUDGE EASTHOM: What evidence or what do you have to show
12 us that there's no plain and ordinary meaning for digital representation?

13 MR. XIE: I don't have any evidence that there's no plain and
14 ordinary meaning for digital representation, but the term we're talking about
15 for construction that we offered for construction and that I believe the Board
16 has a duty to construe, is digital representation of radio resources. And with
17 that term, it's an absence of evidence. I found no evidence that this term is
18 plain ordinary meaning. And that's my evidence that there is no plain and
19 ordinary meaning.

20 JUDGE EASTHOM: Okay, thank you.

21 JUDGE BENOIT: Well, counselor, why isn't it enough that we
22 construe radio resources and then use plain and ordinary meaning of digital
23 representation of our construed radio resources?

24 MR. XIE: That's a great question, and it caused me to think a little
25 bit. I think in this case, it is because when you construe the base term, radio

1 resources, there are times when you can just use the plain ordinary meaning
2 of the modifier to get the meaning of the full term. There are other times
3 when that doesn't work. So if you'll indulge me on an analogy. So sweet
4 bread, if we construe bread as X, we can say, let's get the plain ordinary
5 meaning of sweetbread by just modifying bread with sweet. That doesn't
6 get you to sweetbread meaning thymus. So what the term here means --

7 JUDGE EASTHOM: But that's a good example. Sweetbread is
8 sort of a lexicographic, its own definition, right?

9 MR. XIE: Actually no, it isn't. Because sweetbread doesn't have
10 a -- that term doesn't have a plain and ordinary meaning.

11 JUDGE EASTHOM: That's what I mean. It has its own weird
12 meaning that doesn't mean -- a bread that's sweetened. Is that what you're
13 saying? I thought you said -- I don't know what sweet -- what is sweet bread
14 anyway?

15 MR. XIE: I think it's -- I've never had it, but it's thymus or
16 pancreas of a lamb.

17 JUDGE EASTHOM: Okay. So it seems like it's a lexicographic
18 term that doesn't mean, that's what your point is, it doesn't have the meaning
19 of the same, of its two words put together.

20 MR. XIE: Correct.

21 JUDGE EASTHOM: But you don't have any evidence that this is
22 a lexicographic term, and that's what your friend's argument was.

23 MR. XIE: Right. Our point to that is we don't need evidence of
24 lexicography because there is no plain and ordinary meaning. And because
25 there's no plain and ordinary meaning, we don't ask the question of

1 lexicography. We just go to the specification. And I'll be happy to provide
2 citations.

3 JUDGE EASTHOM: Well, that's a -- I mean, what if we find there
4 is a plain and ordinary meaning? Then I guess it doesn't, you're saying
5 there's no lexicography anyway, so that's game over?

6 MR. XIE: I would -- I don't think we're saying there's
7 lexicography because lexicography requires a clear intention to define a
8 term. And we don't define this term.

9 JUDGE EASTHOM: So it requires a clear intention to deviate
10 from the normal meaning.

11 MR. XIE: Right.

12 JUDGE EASTHOM: And we're, you know, as it stands now, it
13 looks like it's a pretty fairly normal meaning. We know what radio
14 resources means. We know what digital representation means.

15 MR. XIE: Right, but by knowing the constituent words, that
16 doesn't always mean that you know the words when they're --

17 JUDGE EASTHOM: Yeah, it doesn't always unless there's some
18 intent to deviate from that. And that's the question. Where is the intent to
19 deviate from this does it always phrase that you use?

20 MR. XIE: Well that's only if there's -- so the intent to deviate
21 assumes a plain and ordinary meaning.

22 JUDGE EASTHOM: Right.

23 MR. XIE: So if we combine words and there is a plain and
24 ordinary meaning for those words, then I would agree with you. But there's
25 no plain and ordinary meaning for the combined word digital representation

1 of radio resources.

2 JUDGE EASTHOM: Right, but there's a plain and ordinary
3 meaning for each one of those words or each group, or the, right? And so
4 we know the meaning of each one of those words. So it seems to me you're
5 in the land of exceptions now. We know what the -- where each of those
6 words means. We know what the whole phrase means by its plain and
7 ordinary meaning. So then it's sort of, okay, but what does the spec tell us?
8 Is there something different here that the spec tells us that we shouldn't do
9 that? And your answer is no, the spec doesn't tell us that. You're just saying
10 the whole group means something different than the individual words
11 means.

12 MR. XIE: Let me try to reframe. So if your point is that
13 individual -- the plain and ordinary meaning of a composite word is the plain
14 and ordinary meaning of its constituent words put together. I would disagree
15 with that. That's not the plain ordinary meaning standard. It's what is the
16 customary ordinary meaning of the term, not what is the customary, ordinary
17 meaning of the constituent words within the term put together. And that's
18 straight from *Phillips*, Your Honor.

19 JUDGE EASTHOM: No, I don't think it is. I'm sorry. I disagree
20 with that.

21 MR. XIE: What's from *Phillips*?

22 JUDGE EASTHOM: I mean, how do we figure out what the
23 phrase means by looking at the words in the phrase, right? You agree with
24 that.

25 MR. XIE: Yes. But I don't agree with your conclusion that the

1 plain and ordinary meaning of a composite word is the plain and ordinary
2 meaning of its constituent words put together.

3 JUDGE EASTHOM: Okay. Okay. I mean, I think it typically is.
4 That's how we read the English language and, you know, patent documents.
5 And but maybe I'm wrong.

6 JUDGE BENOIT: So I'm still struggling with why we can't use
7 the plain and ordinary meaning of digital represent our claim construction of
8 radio resources. I understand that we need to construe radio resources.
9 We've seen that not only in other IPRs and RDI here, but in District Court
10 litigation. So agree that radio resources needs to be construed. I'm
11 struggling with understanding why we have to construe the whole phrase
12 together, and not just say radio resources as we construe it, digitally
13 represent that, and that's what a digital representation of a first set of radio
14 resources means.

15 MR. XIE: I totally understand the concern. The reason is because
16 the term digital representation of radio resources, I don't think it was
17 intended to have digital representation just modify radio resources in the
18 way that the Board has construed it. In the -- before the Board construed
19 radio resources in the institution decision, the concept of information
20 defining or describing the way data is transmitted was in, is in the claim and
21 we thought that that was captured by radio resources. The Board said no and
22 so we went with digital representation of radio resources. So the reason why
23 we can't just apply plain and ordinary meaning to digital representation
24 while taking the base term radio resources construction is because there are
25 times when doing that does not work. As I mentioned with the sweetbread

1 example. We can always --

2 JUDGE BENOIT: So, let's get back into the spec. When doesn't it
3 work for the spec? Is there an example in the spec when that won't work?

4 MR. XIE: When what won't work?

5 JUDGE BENOIT: When you're applying the plain and ordinary
6 meaning of digital representation to radio resources, when that doesn't work
7 in the specification. What kind of radio resources that meets our claim
8 construction of radio resources doesn't make sense if you say they're
9 digitally represented using the plain and ordinary meaning of digital
10 represent?

11 MR. XIE: Gotcha. I don't think the spec excludes or uses
12 absolutist language like that about this won't work for the invention, because
13 that's not how I think patentees normally describe. But what the affirmative
14 evidence does show in the various inventive embodiments is that there's a
15 different meaning that should be attributed to digital representation of radio
16 resources. And that's information defining or describing the way data is
17 transmitted.

18 JUDGE BENOIT: Well could you point me to where that is in the
19 spec?

20 MR. XIE: Absolutely, Your Honor. So we can start on column 7,
21 line 44, which is talking about the DAU detects which carriers and
22 corresponding time slots are active. So getting an incoming communication,
23 figuring out which carriers and time slots are associated with that incoming
24 communication, and then relaying this information to individual DRUs via
25 the management control and monitoring protocol software. What this says

1 to me is when you're sending information using management control and
2 monitoring protocol software, it's not just sending digitized RF. It's sending
3 information defining or describing the way data is transmitted.

4 JUDGE EASTHOM: But this isn't precluded -- that example is not
5 precluded by the claim construction, right? Because we've said that radio
6 resources includes information about the radio resources. And so, a digital
7 representation of that is still within our definition. We're not excluding that
8 from that construction. Well, we haven't come up with a construction yet,
9 but even the one in the DI that you, DNI, the denial that you mentioned, I
10 think doesn't exclude that. It encompasses that.

11 MR. XIE: Agree that it does encompass this. And what I would
12 add to that is if it encompasses this, it can't include digitized RF as
13 Petitioners want it to include. And I can talk about why I don't think this
14 construction should include both?

15 JUDGE EASTHOM: Well, let me just tell you why we're all
16 struggling, or that I'm struggling, I should say. I'm sorry. I don't know how
17 the other Judges are thinking about it yet. But radio resources include
18 TDMA, carriers, or CDMA, or other information. That's what we've said a
19 few times, right? You agree with that?

20 MR. XIE: Yes.

21 JUDGE EASTHOM : So then we come along, and you come
22 along and say, okay, we want digital representations of that. So I don't see
23 how, and we know the spec does allow for digitizing the radio resource, the
24 channel, the TDMA, and information as you point out. So how is it -- I don't
25 understand why it's that complicated or why it's not that simple that it

1 includes a digital representation of all four of those things, CDMA, TDMA,
2 carriers, and information.

3 MR. XIE: Yeah, absolutely. That's a great point. And I do want
4 to bring up the '178 Patent, which talks about digital representation of
5 downlinked channel signals, versus the '499 Patent, which talks about digital
6 representation of radio resources. Petitioner is correct that there are
7 common words here. Digital representation is shared between the two, but
8 Patent Owner decided to use radio resources instead of digital downlink
9 channel signals. Patent Owner knew how to use the word downlink channel
10 signals. Why would the Patent Owner use the word radio resources to try to
11 represent all four things?

12 JUDGE EASTHOM: Well, I mean, in your preliminary response
13 in that '178 case, you did argue that those downlink channel signals include,
14 I mean, you pointed out that they were radio resources, sort of because that
15 is what you argued is the gist of your invention.

16 MR. XIE: They were -- it was argued that they were radio
17 resources but not information defining or describing radio resources. So that
18 meta level which is --

19 JUDGE EASTHOM: Well that was embedded in the digital
20 representation. Okay, I think we're talking -- I'm sorry, I'll --

21 MR. XIE: That's okay.

22 JUDGE EASTHOM: I don't have a particular language in front of
23 me, but I think I understand what you're saying.

24 MR. XIE: But I think we're at a good place to talk about what the
25 patentee intended. Did the patentee have a big brain moment and think

1 radio resources is the best term to capture carriers, codes, and slots, and
2 downlink channel signals? Is it more likely that the patentee just wanted to
3 cover carriers, codes, and slots? And not only that, but digital representation
4 used within these terms are different. Digital representation of carriers,
5 codes, and slots means information defining or describing carriers, codes,
6 and slots, whereas digital representation of downlink channel signals means
7 digitized. I don't think Patentee meant to cover all four of these using this
8 term, and to capture two different processes, one in the control plane and one
9 in the data plane with this one term.

10 JUDGE EASTHOM: So if we, I mean if you could help us out, if
11 we write up our claim construction, we could quote you and say, we don't
12 think, you don't think the patentee intended to cover those, but how do we --
13 how does that help us?

14 MR. XIE: Understood. The first thing I would say is claim
15 differentiation. Claim differentiation operates between different patents
16 where the words are, where the patentee chose different words. Here the
17 patentee chose different words. They chose radio resources and not
18 downlink channel signals. Also, a POSA --

19 JUDGE EASTHOM: But again, see, the point is that you, in your
20 preliminary response in the '178 case, you sort of equated those two.

21 MR. XIE: No, I don't think we did.

22 JUDGE EASTHOM: Okay.

23 MR. XIE: What we -- yeah, what we said there was radio
24 resources associated with payload data, but not information defining or
25 describing, which is a layer of abstraction above the communication.

1 JUDGE EASTHOM: Okay.

2 MR. XIE: Another -- so and to answer your -- to help you out,
3 Judge Easthom, about a claim term that admits multiple meanings. The case
4 law says that in cases where there can be multiple meanings, the tribunal
5 looks to the intrinsic evidence. Since the term -- so this is quote, since the
6 term substantially is capable of multiple interpretations, we turn to the
7 intrinsic evidence to determine which interpretation should be adopted. This
8 is saying that -- is saying that we do need to look at the intrinsic evidence to
9 see which of these meanings are adopted. There's -- I don't think there's an
10 embodiment which says let's simultaneously send the carrier channel signals
11 and information defining or describing simultaneously. I don't think that's --
12 that's not in the specification. Okay. I will now talk about -- so all of that is
13 to say that plain and ordinary meaning is not appropriate or supported.
14 Whatever construction that the Board does adopt, it cannot encompass both
15 digitized RF and information defining or describing the way data is
16 transmitted. And if you go with plain and ordinary meaning, the parties are
17 disputing what the plain and ordinary meaning is. And so that would not
18 resolve the parties' dispute.

19 So with that, I will talk about which meaning the Board should
20 adopt. And that's on Patent Owner's slide 11. So Petitioner's plain and
21 ordinary meaning, reads out inventive embodiments throughout the
22 specification time and time again the patentee disclosed that the DAU
23 configures the parameter settings of the DRU via a control protocol. And
24 the law says that the definition of a claim term can be affected through
25 repeated and definitive remarks. That's what we have in this specification in

1 that first passage I already talked about. No, I didn't talk about this. This is
2 saying that the software settings within the DRU are configured either
3 manually or automatically such that carriers A, C, D, and F are present. So
4 it's talking about software settings, which takes as input information defining
5 or describing the way data is transmitted. That second passage --

6 JUDGE BENOIT: But your claim doesn't claim software
7 parameters or configuration information, right? I mean, our problem is what
8 does a digital representation of radio resources means?

9 MR. XIE: I agree that the claim doesn't talk about software
10 parameters, but the claim is read in light of the specification. And if there
11 were -- if there was that kind of express definition in the claim, we wouldn't
12 need to be doing claim construction. But there's not that in the claim. So it
13 doesn't mean that we lose claim construction. It means that we ought to do
14 claim construction. And the way to do claim construction is to look at the
15 intrinsic evidence. And the best evidence that we have are all these
16 inventive embodiments, 1, 2, 3, 4, 5, 6, that talk about changing software
17 settings, using configuration information, setting parameters of digital up
18 converters and down converters. And there's no embodiment that says you
19 can do this outside of software without configuration information. So the
20 overwhelming evidence in the specification is that the inventive
21 embodiments are directed to information defining or describing the way data
22 is transmitted through software. And the one passage that Petitioners cite to
23 support their interpretation is really just background information. It's not
24 inventive at all. And so, and I can go into that, but if not, I'll just say that the
25 Board has a choice to adopt a construction that is consistent with the

1 overwhelming number of inventive embodiments, or to adopt a meeting that
2 flows from a lone, non-inventive background disclosure.

3 JUDGE FENICK: Can I ask why you call that a background
4 disclosure?

5 MR. XIE: This passage talks about very run of the mill stuff. So
6 IQ mapping framed and translated to optical signals using pluggable SFP
7 modules. In the --

8 JUDGE FENICK: It follows a section which you cite, right? This
9 is starting at column 4, starting at line 63. But the section before that is not
10 that background information. In other words, you're citing, I'm just looking
11 at, I'm looking at your slide 14. And I see that this disclosure at the bottom
12 of column 4 of the patent, which is in the detailed description of the
13 invention, you're calling it, you're saying it's kind of background disclosure,
14 but in the part where you say, well, you know, we're relying on, you know,
15 12 lines before that or 50 to column 4, line 50 to column 4, line 62.

16 MR. XIE: So, I think your question is, is this disclosure that
17 Petitioners rely on, background disclosure, if it's not in the background of
18 the invention section?

19 JUDGE FENICK: Well, that's not quite it. I mean, I'm just not
20 sure why you're saying that, you know, starting at line 50, it says, in
21 addition, those skilled in the art will recognize that a DAU is monitored and
22 controlled by a remote network operation set. I mean, that seems to be
23 background in the same way if you're going to say that the section that
24 comes after that is background. I guess I'm just trying to figure out why
25 you're characterizing that as specifically as being more background than part

1 of the invention.

2 MR. XIE: Well, I believe this paragraph is setting up the
3 foundation of the different components in the invention, but the inventive
4 process isn't about SFP modules or IQ mapping or framing. Does that
5 answer your question, Your Honor?

6 JUDGE FENICK: Yes, thank you.

7 MR. XIE: Okay. So I do want to talk about the 1430 decision on
8 institution where the Board said that digital representation of radio resources
9 encompasses information about radio carriers, bands, codes, or other
10 information for use in transmission at an antenna of a remote radio unit.
11 This understanding is consistent with Patent Owner's construction as
12 information about radio carriers, bands, codes, because that aligns with
13 information defining or describing the way data is transmitted. This
14 understanding is not consistent with Petitioner's interpretation because
15 digitized RF doesn't have information about radio carriers for use in
16 transmission or other information defining or describing the way data is
17 transmitted. On slide 7, I want to go back to the institution decision, which
18 at page 23 talks about radio resources encompasses RF carriers, CDMA
19 codes, and TDMA time slots. Turning to slide 8. So digital representation
20 of radio resources modifies radio resources. So digital representation of
21 radio resources should modify the set RF carriers, CDMA codes and TDMA
22 time slots. Patent Owner's construction modifies these elements in a way
23 that makes sense. Patent Owner's construction modifies RF carriers as
24 information defining or describing RF carriers, the name and number of the
25 RF carriers. Similarly, Patent Owner's construction modifies CDMA codes

1 and TDMA time slots as information defining or describing CDMA codes or
2 TDMA time slots. Going to Petitioner's interpretation on the next slide.
3 Petitioner's interpretation modifies the set RF carriers, CDMA codes, and
4 TDMA time slots in a way that doesn't make sense. Petitioner's
5 interpretation, which is digitized version of analog signals, modifies CDMA
6 codes and TDMA time slots to mean digitized version of analog CDMA
7 codes and TDMA time slots. Petitioner does not explain what digitized
8 version of analog CDMA codes or TDMA time slots is supposed to mean.
9 More generally, when we look at the term digital representation of radio
10 resources, we can agree that digital representation modifies radio resources.
11 Because digital representation of radio resources modifies radio resources,
12 radio resources is the focus. Whatever digital representation of radio
13 resources means; radio resources should be the focus. In Patent Owner's
14 construction radio resources is the focus because information defining or
15 describing the way data is transmitted is information about radio resources.
16 Petitioner's interpretation changes this focus to analog RF, which happens to
17 be associated with radio resources before being demodulated. But in this
18 case, analog RF or RF input is made to fit into this term, digital
19 representation of radio resources, not because it's analog RF, but in spite of
20 it being analog RF, because there is some association with radio resources.

21 JUDGE EASTHOM: But how -- why isn't it -- let me ask you this.
22 I don't understand why it's not information about the radio resource because
23 it seems that, you know, Wu's system knows when you send it that digital
24 version of the RF, it knows to reuse that channel, whatever they send it to it.
25 Because Wu's system says, you know, it reallocates these channels. So, the

1 RTUs don't, you know, go to that channel. And it's able to, for example, a
2 storm comes, reallocate channels. So, how does Wu do it if it's not stripping
3 information about that digitized RF? Where is it getting the information to
4 figure out which channels to switch to for the order process?

5 MR. XIE: Wu doesn't talk about how it's doing that. Wu talks
6 about in one section that it's allocating more channels, but doesn't say here's
7 how we're going to do it. Here's how we're going to tell the RTU to use
8 these carriers. There's no disclosure about sending information, defining, or
9 describing.

10 JUDGE EASTHOM: It does talk about, you know, managing
11 channel information, right? Managing the channels in paragraph 55 and 56.

12 MR. XIE: I'll pull that up right now. Fifty-five you said, Your
13 Honor?

14 JUDGE EASTHOM: I think it's 55, 56. Yeah, it's one of the
15 FPGAs can manage channel resources. And then the 56, and I've got to find
16 Wu, sorry. There it is.

17 MR. XIE: So, what I'm seeing here, Your Honor, is that the FPGA
18 of the RTU is able to frame, combine, divide, synchronize. So, it's dealing
19 with the baseband.

20 JUDGE EASTHOM: Right. And then it says, or otherwise
21 manage the carrier channels. Last clause there in 55, and then in 56 it says
22 the FPGA of the host of the -- the FPGA of the RTU mirror is what the host
23 doesn't have similar functionality. So somehow, you know, it's getting this
24 information and the only way I could see it is it's getting it because it's
25 digitizing these channels up above, and 54 says it sends these digitized

1 channels. So Wu knows what channels, Wu's host controls which channels
2 the RTUs use and it does it by sending digitized channels. And if it doesn't
3 do it by that, then it sends some other information. So, that would meet your
4 definition. How else is it, I'm just, that's why I'm asking you, how does Wu's
5 system, the RTUs, know how to switch to the channels that the host sends it
6 to use?

7 MR. XIE: There's a -- so two things. First is that there's not an
8 inherency argument. So I think it's from an express standpoint there is no
9 express disclosure. When it talks about managing carrier channels, they're
10 talking about serializing and deserializing, not --

11 JUDGE EASTHOM: Well, that's an addition to that. It says,
12 frame combined, device synchronized, and otherwise managed. And you're
13 saying otherwise managed just means serialized?

14 MR. XIE: I don't think otherwise managed means or doesn't
15 express the concept of getting information defining or describing the way
16 data is going to get launched off the antenna.

17 JUDGE EASTHOM: Okay. So then in your view how does Wu --
18 how does Wu's RTU know which channel to switch to after the host tells it
19 to switch to another channel?

20 MR. XIE: So I can only guess because Wu doesn't expressly teach
21 how to do it.

22 JUDGE EASTHOM: Right.

23 MR. XIE: There's a possibility that they're launching all channels,
24 that they're just taking anything that's being given to them and they know
25 which -- they don't know which channels to actually launch on, so they

1 launch all channels.

2 JUDGE EASTHOM: Okay, and then but then if a telephone drives
3 by that RTU and it's not, it's only supposed to launch on three, then it'll
4 receive noise from the mobile carrier, right? On those other channels that
5 aren't turned on. Or you'll just -- or they're always turned on in your view,
6 so they're always going to be receiving, right?

7 MR. XIE: So I'm trying to answer your question about how Wu is
8 doing it, and I am guessing, because Wu doesn't expressly teach how its
9 managing what carriers are active or inactive.

10 JUDGE EASTHOM: Okay, and that's a fair answer. I'm not
11 trying to, you know, I don't think it's necessary to resolve here, but I think
12 that's a fair answer. I just wanted to know if you had any more input, a
13 better view than I have.

14 MR. XIE: So since we're talking about --

15 JUDGE FENICK: Sorry, just to interrupt for one second. I think
16 you have five minutes left in your initial 45 minutes.

17 MR. XIE: Okay, great. The other point about Wu, since we're
18 talking about it, is that Wu does not teach sending differing numbers of radio
19 resources to their RTUs in the sense that the claim requires at a first point in
20 time, sending digital representation of radio resources to the first remote
21 radio unit. And at a second time, sending a different digital representation
22 with a different number of radio resources. Wu does not say how it is
23 telling its RTUs how to increase the number of channels. And it says
24 broadly we can sort of react to events and, you know, emergencies by adding
25 more capacity to a certain RTU. But it's not saying how. And the way the

1 '499 Patent does it, and how it's being claimed expressly and required, is that
2 when the DAU sends visual representations of radio resources, the
3 information in other words, it's going to send one message that has a certain
4 number of radio resources and a second message that has a second number
5 of radio resources.

6 JUDGE EASTHOM: Does it have to specify which RTU to do
7 that? Does it have to -- does it have to have a packet header in there or some
8 kind of address to tell what's RTU to do it?

9 MR. XIE: In the '499 Patent that is?

10 JUDGE EASTHOM: Yeah, this Patent, yeah, that works. Yes.

11 MR. XIE: Yeah. It does have to address the individual.

12 JUDGE EASTHOM: But that's in a dependent claim, right?

13 MR. XIE: That's not in the independent claim you said?

14 JUDGE EASTHOM: I'm sorry, I'm speaking too fast and I know
15 that. I'm saying that that, right, it's not in an independent. I said it's in a
16 dependent claim. So it's not required by the independent claim.

17 MR. XIE: Yeah. The specific implementation detail of how it's
18 getting addressed is not in the independent claim.

19 JUDGE EASTHOM: Do you understand where the thrust of my
20 question is going? You're saying that we need to put this control
21 information in your claim, Claim 1, the digitized part, right? But, and you
22 told me that you need to know which RTU to send it to. But your own
23 dependent claims tell us that you don't need that specific information in the
24 independent claim. So now you're mixing and matching which things are
25 necessary based on, you know, what your spec, what you say your spec says

1 is very important, which is to decide how to control these RTUs. So on the
2 one hand, you send gain parameters to turn off different carriers, but you
3 don't send any information about which RTU to do that. And that's
4 necessary.

5 MR. XIE: So if it is necessary in the claim, it doesn't have to be
6 spelled out or in there as a requirement because it's necessary. And so as
7 part of claim strategy, we want to keep the Claim 1 very broad, and not all
8 necessary things are going to be in there. But when we get to dependent
9 claims, that's when you can start talking about the implementation details.
10 Does that help answer your question?

11 JUDGE EASTHOM: And I agree with that statement. That's why
12 I think your broad claim may not be claiming the necessary part that you say
13 is necessary. In other words, this control, this gain information, because
14 you just agreed with me that the, you know, that the address information is
15 necessary also.

16 MR. XIE: To this claim or to the patent?

17 JUDGE EASTHOM: No, to your -- to the thrust of your invention
18 that you say how this thing works. And then you're using the thrust of your
19 invention to tell us what it has to incorporate, i.e., this control gain settings.
20 And that's one set of things that are necessary. But you're not telling us that
21 you need the address information. So it's picking and choosing what's
22 necessary.

23 MR. XIE: Yeah, I think in other patents we talk about addressing
24 and specifically reconfiguring. In this Patent, we're focusing on this control
25 plane process of information defining or describing. And you mentioned

1 that this addressing is the thrust of the invention. I wouldn't say that's true.
2 If I, you know, said that, I misspoke. It's -- it might be in the specification,
3 but the invention and the claimed invention here is the claim. And because
4 the claim doesn't require it, it's not the thrust of Claim 1.

5 JUDGE EASTHOM: Okay. Thank you.

6 MR. XIE: Are there any other questions I can help answer?

7 JUDGE EASTHOM: Well, can you just answer one more
8 question about the '178 and the preliminary response? You do urge a plain
9 and ordinary meaning for all the terms. It's on -- I'm on paper -- I think it's
10 on page 22.

11 MR. XIE: That's for '178?

12 JUDGE EASTHOM: Right. That's the '178 Patent. It was the
13 IPR2020-01473.

14 MR. XIE: Sure. Yeah, that patent '178 didn't have this term
15 digital representation of radio resources that have a different term, digital
16 representation of downlink channel signals. We think that that has a plain
17 and ordinary meaning, but we chose a different term for this.

18 JUDGE EASTHOM: Oh, okay. Okay. I got you. Thank you.

19 MR. XIE: Most welcome. Any other questions I can help answer?
20 And I will reserve the rest of my time, please.

21 JUDGE FENICK: Thank you. I think you have 13 minutes left in
22 your -- for your sur-rebuttal. I'm not sure if anyone needs time for anything.
23 If not, we can continue on. But I'm giving anyone a chance. It's been a little
24 bit of a -- it's been a couple hours. Sir, Mr. Xie, do you need break?

25 MR. XIE: Could I run to the bathroom? I just --

1 JUDGE FENICK: Yes. Let's take a five-minute pause in what
2 we're doing. We'll be back at 2:45.

3 (Whereupon the above-entitled matter went off the record at 2:40
4 pm. and resumed at 2:45 p.m.)

5 JUDGE FENICK: Okay, thank you. Looks like we're
6 reassembled after our five-minute pause. Thank you. Mr. Bullard, you
7 have 13 minutes if you'd like to begin whenever you're ready.

8 MR. BULLARD: Thank you. And just to confirm, can everyone
9 hear me okay still? All right. I'll start with digital representation since that
10 was the bulk, in fact, the entirety of the argument by my colleague on the
11 other side. And starting with Federal Circuit law, it just goes without saying
12 that the first step in claim construction is you start with the claim language,
13 and you start from the assumption the plain and ordinary meaning controls.
14 And I think it is at that immediate first step that my colleague on the other
15 side takes a wrong turn. He seems to think that you need to somehow justify
16 that the plain and ordinary meaning applies. No. That is the starting
17 assumption that is echoed in Federal Circuit case after Federal Circuit case,
18 and it is his burden to show why we should go somewhere other than the
19 plain and ordinary meaning.

20 And the second thing is I want to make sure all of the evidence is
21 on the table for the panel because we have just a sort of a cacophony of
22 conflicting statements that have come out of Patent Owner over time. And
23 so, first of all, Patent Owner today said that the plain and ordinary meaning,
24 quote, is not appropriate. Well, just to be clear, and we cite this in a reply
25 brief on page number 2, and it comes from their expert's deposition at page

1 146. I asked him, quote, so you are relying on the plain and ordinary
2 meaning, correct? His answer, I believe that, yes. I believe that is the plain
3 and ordinary meaning. And the only thing he goes on to say he's
4 additionally relying on is the PTAB's decision. He doesn't identify
5 lexicography or any of these arguments. So that's one piece of evidence and
6 one way that there's just a disconnect on Patent Owner's own side of the
7 table. The second thing is, I don't think it's necessary, but it's not true that
8 there's no evidence about the plain and ordinary meaning. Our expert
9 actually did opine on that. So that's Exhibit 1071 at paragraphs 6 and 9.
10 That's in the record as well. And I would also note Exhibit 1064. Exhibit
11 1064 is the claim construction order from the District of Delaware. This is
12 Judge Andrews, and it was on the same patent that issued here, the '499
13 Patent, and Judge Andrews essentially did what one of the Judges on this
14 panel suggested. He adopted a construction of radio resources similar to this
15 panel's construction. And then for this longer phrase, a baseband unit is
16 configured to send a digital representation of a first or second set of radio
17 resource. He could have said no construction necessary because digital and
18 representation are everyday English and he understood as the panel was
19 getting at, yes, you might need a construction for radio resource, that's not
20 true for digital representation.

21 And two final points on this term. My colleague suggests that
22 plain and ordinary meaning would not resolve the dispute. What we said
23 was if the panel needs to construe this, then the panel should say plain and
24 ordinary meaning, and there's no requirement for additional configuration
25 information. And that would certainly resolve the dispute because that is the

1 only thing my colleague can come up with is configuration information.
2 And finally, my colleague tried to position this as though we are, as
3 Petitioners, reading things out of the claim. We didn't propose reading
4 anything out of the claim. We're just saying you don't have to have
5 configuration requirement. The claim is not limited to that. So I think that's
6 a kind of false positioning of the parties' positions. The second thing is just
7 globally on all the other issues. So, the dependent claims, an antenna, the
8 antenna, there was zero criticism of anything I said in response to that. And
9 I think it is because, as my colleague said, from their perspective, the main
10 issue and really the issue for them is digital representation. We put in a
11 compelling showing on all the other issues, which is why he had no
12 criticism. And on the issue of antenna, again, there is just nothing they can
13 point to that, and let me back up for a minute --

14 JUDGE EASTHOM: Mr. Bullard, just to be clear, I think to be
15 fair, we asked your friend a lot of questions about digital representation, so
16 he might not have had an inkling to go other places, but we can hear from
17 them, hopefully, on sur-reply.

18 MR. BULLARD: Yeah, fair enough. And that's a good
19 opportunity for me to back up for a second and say, you know, I think
20 sometimes we start talking about a topic and you kind of develop this tunnel
21 vision, and it's helpful to back up. And I want to back up on this issue of an
22 antenna and the antenna. You know, there's just no suggestion anywhere
23 that Patent Owner has put forward that Wu ever teaches to change to a
24 different antenna, to add an antenna, to take away an antenna. So there's
25 nothing that even starts you down the path to think that that would be an

1 issue. It's just not there. And I would note if the institution decision found
2 are showing sufficient on all of these dependent claims, and so far at least
3 there hasn't been any error identified in the institution decision. And again,
4 just to try to be helpful with citations, I do want to just identify page 17 of
5 our reply brief, which is where we illustrate that example of the simplest
6 case of just one band and one booster. and you can see Wu would teach, you
7 could have different sets of channels going to that one booster, which is
8 going to go to one antenna. And there has been no response so far to that.
9 And, you know, I'm a little bit hamstrung here because of that lack of
10 response. You know, Patent Owner advocated for this same single antenna
11 position. And as I mentioned at the '343 hearing, under the Federal Circuit
12 case law, this is for example, the *Axionics vs. Medtronics* case, 2022-1532,
13 Petitioner has to be able to respond when a Patent Owner holds back such a
14 position and it is articulated for the first time in their response. So we were
15 entitled to respond. We responded in depth. And then they said nothing.
16 There is just nothing in the record. There's no reason to conclude that our
17 showing for Wu for any of these issues is insufficient there.

18 And finally, Patent Owner at the very end went to this argument
19 that the number of radio resources would not be different. And I would ask
20 my colleague in his sur-reply to identify where was this argument ever
21 presented in the papers? I think the answer is it was not. And the reason it
22 was not was because Wu is crystal clear here. As we point out in the
23 Petition, Wu expressly teaches you can allocate quote, more channels. And
24 just there's no other way to read more channels than at a first point in time
25 you have a number of channels, and a second point in time you have more

1 channels where the number is different. But I don't think the Board needs to
2 even look at that because it wasn't in the papers. I have nothing further. Is
3 there anything I can be helpful with with any questions?

4 JUDGE FENICK: Not for me, and it looks like not for my other
5 panel members. Thank you very much.

6 MR. BULLARD: Thank you.

7 JUDGE FENICK: Mr. Xie, you have 13 minutes for a sur-rebuttal.

8 MR. XIE: Okay. I will start with the issue again, plain, and
9 ordinary meaning, and Petitioners statement that we should start -- idea that
10 we should start with plain and ordinary meaning. We don't have
11 lexicography and that our expert relied on a plain and ordinary meaning.
12 Well, Phillips says that we normally take the plain and ordinary meaning
13 when there is a customary meaning. The customary meaning being the
14 meaning that a POSA would have had at the time of the patent. There is no
15 customary meaning of digital representation of radio resources. That term
16 was not out there and certainly the construction of radio resources was not
17 out there. So a POSA would not have the benefit of later constructions of
18 radio resources to apply the plain ordinary meaning of digital representation
19 to the constructions of radio resources. So I say all that to say that Phillips
20 in subsequent cases does not say that we can just go with plain and ordinary
21 meaning when there is no customary and ordinary meaning. Second point --

22 JUDGE BENOIT: Counselor, I'm at the deposition transcript of
23 your expert, and he does indicate that there is a plain and ordinary meaning.

24 MR. XIE: I can go to that real quick unless you wanted to read
25 that into the record.

1 JUDGE BENOIT: No, it's on page 146 of the Exhibit 1061 as
2 Petitioner referenced. It's on reply 2.

3 MR. XIE: Okay. Can you repeat the page, please? Sorry.

4 JUDGE BENOIT: Sure. It's on page 146.

5 MR. XIE: Thank you, Judge Benoit.

6 JUDGE BENOIT: And it's referenced on reply page 2. Page 146,
7 lines 3 through 22 of Exhibit 1061 is referenced on Petitioner's reply page 2.

8 MR. XIE: Interesting. So, what I see here is a question about
9 digital representation by itself, and then the longer phrase, digital
10 representation of a first set and second set of radio resources. What I see in
11 the answer is that my opinion is that the term digital representation by itself
12 is both plain and ordinary and formed in light of the PTAB. I don't see an
13 opinion about digital representation of radio resources as a composite.

14 JUDGE BENOIT: But -- all right so if we go with assuming that's
15 your position, he still is saying that there is a plain and ordinary meaning of
16 digital representation. And then we get back to the question of why we can't
17 apply the plain and ordinary meaning of digital representation to a
18 construction of radio resources.

19 MR. XIE: I was thinking about this during the break. It's
20 unfortunately not.

21 JUDGE EASTHOM: Well, maybe we can short circuit that,
22 because if you go to the previous page, your expert says first, a digital
23 representation of any signal has a plain and ordinary meaning. That's on
24 145, lines 11 to 12. So, he's not limiting it to just a digital representation.

25 MR. XIE: I don't think he's saying here that the term used in the

1 claim, digital representation of radio resources, has a plain and ordinary
2 meaning.

3 JUDGE EASTHOM: You don't think a radio resource is any
4 signal? Is that what you're saying?

5 MR. XIE: I don't think he was commenting on digital
6 representation of radio resources. To make such a statement, digital
7 representation of any signal, has plain and ordinary meaning, that would
8 encompass, you know, any signal. I don't think he was saying that the claim
9 term, digital representation of radio resources, has a plain and ordinary
10 meaning. He doesn't say that.

11 JUDGE EASTHOM: Well, I think he does say that. And then the
12 last thing he says is, I state that it's plain and ordinary meaning and it was
13 supported by the PTAB. And then at the very top, he says my interpretation
14 of a digital representation of radio resources is described in 44 and 45. And
15 then he concludes with I state it's plain and ordinary meaning on the bottom
16 146 link 1 to 2. But I would -- I would just -- I don't think I agree with your
17 reading of his testimony there.

18 MR. XIE: If he is saying that, I mean, in lines, this is 145, 13
19 through 15, he reiterates that its digital information defining or describing a
20 signal such that the signal can be reconstructed from the digital information.
21 He's -- I don't see any comment on the exact term from the --

22 JUDGE EASTHOM: But the exact term is on line 7 to 9, right?
23 On the same page you're looking at.

24 MR. XIE: Well, he's talking about where his opinion about this
25 term, this exact term is. And if he's saying that there's a plain and ordinary

1 meaning, what he's saying about that plain and ordinary meaning is that its
2 information defining or describing. So we can have plain and ordinary
3 meaning, but we need to know what plain and ordinary meaning is, and
4 that's information defining or describing, and that's consistent with Mr. -- Dr.
5 Crissan's declaration testimony.

6 JUDGE EASTHOM: I'm sorry, I think I interrupted. You said it's
7 (INDISCERNIBLE).

8 MR. XIE: Yeah, and I do want to address Your Honor's question
9 about why can't we take the plain ordinary meaning, digital representation,
10 and then the construction of radio resources. So if we're sitting in the shoes
11 of the drafter, the drafter was going after an invention about information
12 defining or describing in all of the inventive embodiments. The drafter
13 didn't know that radio resources was going to be construed in the way that it
14 was construed. I think they could have done a better job of selecting terms,
15 but they went with radio resources without knowing that it was going to talk
16 about payload data and communications data. And so, we can't use plain
17 and ordinary meaning of radio resources because plain ordinary meaning of
18 digital representation because that wasn't the intent of the drafter. The
19 drafter was -- didn't know that radio resources.

20 JUDGE EASTHOM: But this drafter, this Patent issued in 2019, I
21 thought this happened after several of these radio resources constructions
22 came out.

23 MR. XIE: No, I don't think that's right. I think radio resources
24 came out in 2021 and 22.

25 JUDGE EASTHOM: Okay. Thank you.

1 JUDGE FENICK: I guess I find it a little circular because you're, I
2 apologize, Judge Benoit.

3 JUDGE BENOIT: Yes, sorry, I think we started at the same time.
4 But I'll just ask that it's hard for me to understand how you can say that it's a
5 surprise that we construed radio resources the way we did because I thought
6 at column 12 in the Patent, there's a quote that talks about determining
7 and/or setting the appropriate amount of radio resources such as RF carriers,
8 CDMA codes, or TDMA time slots assigned to a particular DRU or group of
9 DRUs. So, it seems to me that it shouldn't have been a surprise to the drafter
10 that radio resources encompass RF carriers, CDMA codes, or TDMA time
11 slots.

12 MR. XIE: What was a surprise was that it would encompass data
13 when modulated or when associated with these radio resources. So if the
14 Board just said radio resources is RF carrier CDMA codes, TDMA time
15 slots, and not, you know, digitized RF, then everything would be golden.
16 And we would be able to say that digital representation of radio resources is
17 just information about RF carrier CDMA codes, TDMA time slots. But
18 because the Board included digitized RF, now that's not -- because the Board
19 included digitized RF, that was a surprise that we needed to move away
20 from radio resource and go to digitize -- digital representation of radio
21 resources.

22 JUDGE EASTHOM: So, okay. I think I --

23 JUDGE FENICK: Sorry, just to, if you don't want to spend time
24 on this, that's fine. I know you have a limited amount of time left. You say
25 that the drafter, the specification is very similar to other specifications. The

1 drafter was intending to write something that talked about the digital
2 representation of information about the carriers. But it feels very circular.
3 Like how are you finding the intent of the drafter other than in the claims,
4 what the claims were intended to be directed to?

5 MR. XIE: So, if we look at the claims and we ask, is this a perfect
6 claim? Does this expressly require information defining or describing? I
7 would say no, it's not a perfect claim. But we're not looking for perfection.
8 We need to select the best answer, and the best answer with all of the
9 inventive embodiments in the specification with the prior patents, in the '178
10 that talks about downlink channel signals with coverage over that. What is a
11 more likely possibility, scenario, is that the drafter was trying to do a big
12 brain moment of, let's get downlink channel signal, but let's subsume that
13 within this term, radio resource, that we've already defined as RF carriers,
14 CDMA codes, TDMA time slots, but let's just subsume down the channel
15 signals into this term, and let's hope that the public and everyone knows that
16 we're talking about all four things. I just don't see that occurring. That's
17 very unlikely in my opinion.

18 JUDGE FENICK: Okay. Thank you.

19 MR. XIE: There was a concern about -- I do want to address this.
20 So what happens if the Board doesn't expressly construe digital
21 representation or radio resources? Well, I think there are three scenarios.
22 You could say, we're not going to construe this term, but we're going to say
23 digital representation or radio resources encompasses digitized RF, but not
24 information defining or describing. This would read out an overwhelming
25 inventive embodiment and you would also have to distinguish from the 1430

1 institution decision. If the Board instead says, we're going to include both, I
2 don't think this interpretation would be proper because again, we're looking
3 at the intent of the drafter, how a POSA would read this claim term and this
4 claim. They wouldn't see two separate inventions, one in the control plane
5 and one in the data plane trying to be shoehorned into this single term. And
6 so that's a point against that. In addition to claim differentiation, and, you
7 know, generally speaking, there's one invention per claim, not, you know,
8 you can think of, you know, sometimes there are claims with a genus and
9 there are multiple species within that. That's not this. This isn't a claim
10 term with a term that's directed to a genus, but that has multiple species.
11 These aren't the -- these aren't species of the same genus. The digitized RF
12 and information defining or describing. They're ones in the control plane,
13 ones in the data plane, there's no, they're not related. If the Board chooses
14 the third option, which is that digital representation encompasses
15 information defining or describing data, how data is transmitted, that's not,
16 but not digitized RF, that harmonizes with previous guidance and captures
17 the numerous inventive embodiments.

18 Before my time is up, I do want to address why Wu's channels,
19 when they're being routed to specific RRUs, are not information defining or
20 describing. Wu's channels, when they're digitized, that is the information,
21 the data itself. It's not -- Wu's channels are not information defining the way
22 data is being transmitted at an antenna in the sense that Wu's RTUs, they
23 never get anything from these channels that define or describe the way it's
24 supposed to broadcast. It doesn't take from this channel, I need these
25 carriers, I need these time slots, I need these codes.

1 JUDGE EASTHOM: Why is that enough though? I mean, Wu's
2 RTUs knows that the carrier, it's got to put the data out on that carrier, that
3 specific carrier that it receives.

4 MR. XIE: Wu does not teach that its channels, well the channels
5 are a baseband, so it's not going to have that information.

6 JUDGE EASTHOM: No, no, no. The channels get sent over their
7 optical link and then they get up, lift up, and then they get sent and the RTU
8 processes them and then the RTU converts it to RF, right?

9 MR. XIE: Right.

10 JUDGE EASTHOM: To send out to the phones. Well, the RF is
11 on a specific carrier. Which carrier is it on? It's on the one that it got
12 through the baseband thing, which, by the way, I think it's on an optical
13 signal. So it's baseband riding on another signal. It's another kind of
14 modulation, I think. But anyway, so the RTU knows which channel to send,
15 i.e., it sends the one that Wu's host sends to it. And we know this because
16 Wu says it sends different channels to different RTUs depending on
17 circumstances. Exactly how it does it, I don't know, but at least the RTU
18 does have information about what, you know, what the carrier is, what
19 carrier to put the packets on or the information. Right? Doesn't Wu have
20 that? Do you agree?

21 MR. XIE: I don't know if I can agree to that because Wu doesn't
22 teach it. So I would really just --

23 JUDGE EASTHOM: Well let me ask you this. Wu teaches to
24 transmit a specific RF carrier, let's say 1700 megahertz. Wu's host sends the
25 carrier 1700 megahertz, and then a little while later it sends a carrier of 900

1 and 1700, let's say. And now Wu's RTU will send stuff out on 700 and
2 1700, whatever the two I said. Do you agree with that?

3 MR. XIE: Wu doesn't --I don't know how Wu knows. Wu's --

4 JUDGE EASTHOM: But do you agree with my premise? Do you
5 agree that's what Wu does? I don't know how it works either, but do you
6 agree that Wu sends, for -- I'll say it again because I'm sorry, I might be
7 throwing too much, but Wu has these 12 channels, right? Let's call it
8 channel 12 and 11. Wu sends channel 12 and 11 to a specific RTU, and that
9 RTU will transmit channels 11 and 12. Do we agree so far?

10 MR. XIE: I think so.

11 JUDGE EASTHOM: Okay. And then the next time it'll send 11,
12 12 and 10, right? So, then Wu's RTU knows to send 10, 11 and 12 on the
13 uplink or down to the phones, uplink -- downlink, sorry.

14 MR. XIE: Petitioner is not mapping that extra communication. If
15 there is one to the claim term, Petitioner is mapping Wu's channels and
16 there's no evidence that Wu's channels has this information in it. This is at
17 baseband. The radio resources have been stripped off when it got at the
18 matrix switch. Like there's no -- there's no radio resources associated with
19 this baseband. And so you --

20 JUDGE EASTHOM: You don't have that argument in your -- I
21 thought you agreed that Wu's sends digitized versions of the channel.

22 MR. XIE: Right, but it doesn't send information defining or
23 describing which is how digital representation of radio resources. So even if
24 it does send digitized versions of channels, those channels and there's no
25 disclosure in Wu that says that these channels have information about how

1 the RTU --

2 JUDGE EASTHOM: I understand that they -- I agree with you on
3 that. But I'm saying that Wu's RTU if you send it channels 9, 10, and 11, it
4 will -- RTU will then retransmit channels 9, 10, and 11 in RF, right?

5 MR. XIE: Is that how things are supposed to work? Sure, that's
6 how things are supposed to work.

7 JUDGE EASTHOM: No, that's how Wu's system works, right?

8 MR. XIE: That's how -- Wu doesn't say let's send channels 12, 13,
9 14, and then at a later time send different channels and know how to
10 broadcast those channels.

11 JUDGE EASTHOM: Okay. I appreciate your response. Thank
12 you.

13 MR. XIE: You're welcome. I might be out of time.

14 JUDGE FENICK: Mr. Xie, yes, I think you're out of time. Thank
15 you so much for your presentation, and Mr. Bullard, thank you also for your
16 presentation. In a minute, I will conclude the hearing and please stay on
17 the line to help the court reporter with any questions that they might have.
18 Thank you. We're adjourned.

19 (Whereupon, the above-entitled matter went off the record at 3:16
20 p.m.)

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