

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 -----

5 CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

6 Petitioner,

7 v.

8 GENERAL ACCESS SOLUTIONS, LTD.

9 Patent Owner,
10 -----

11 IPR No. 2023-00978

12 U.S. Patent No. 7,230,931
13 -----

14
15 REMOTE DEPOSITION OF

16 DR. KEVIN ALMEROTH

17 April 5, 2024
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21 Reported by: Susan S. Klinger, RMR-CRR, CSR

22 Job No. 531237

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April 5, 2024

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9:58 a.m.

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Remote Deposition of DR. KEVIN ALMEROTH, held
before Susan S. Klinger, a Registered Merit
Reporter and Certified Realtime Reporter of the
States of Texas and California.

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

2 DR. KEVIN ALMEROOTH,

3 having been first duly sworn testified as follows:

4 EXAMINATION

5 BY MS. SPIRES:

6 Q Good morning, Dr. Almeroth.

7 A Good morning.

8 Q I believe we have met before, but don't
9 know if we have.

10 A Yes.

11 Q So I know you have been deposed before,
12 you know the routine. So I will just briefly go
13 through the ground rules. They should be the same
14 as what you have always heard.

15 So if you can just try to give verbal
16 answers since head nods and head shakes are
17 difficult for the court reporter to transcribe,
18 that would help us out today.

19 A Understood.

20 Q Also, it will be best for the court
21 reporter if we try not to talk over each other.
22 With the video lag and sometimes it happens, but

1 again, it is hard for them to transcribe two
2 people at the same time. So I will try my best to
3 let you finish your answers, you try your best to
4 let me finish my questions. That should help
5 things out.

6 A Understood.

7 Q If you don't understand a question I ask
8 today, I ask that you please ask for
9 clarification. Otherwise, I will assume you
10 understood the question; is that fair?

11 A Yes.

12 Q If you need to take a break at any time,
13 please ask. I'm sometimes not amazing at looking
14 at the clock, so don't hesitate to ask. For
15 anyone on the line, if you do need a break I just
16 ask that if you need one, wait until you have
17 answered a question, don't ask for a break if a
18 question is pending unless it is an emergency.

19 A Understood.

20 Q Is there any reason today that you cannot
21 testify truthfully?

22 A No reason.

1 Q Do you have any notes in front of you
2 today?

3 A I do not have any notes. I have hard
4 copies of some of the exhibits and also some soft
5 copies available if I needed to.

6 Q Do the hard copies of exhibits that you
7 have in front of you have any sort of notes or
8 annotations on them?

9 A They do not.

10 Q What did you do to prepare for today's
11 deposition?

12 A Reviewed my declaration, some of the
13 materials cited in the declaration. Probably most
14 specifically the '931 patent and the references at
15 issue and the grounds that have been instituted
16 and I also met with counsel virtually.

17 Q Did you meet with anyone other than
18 counsel in preparing for your deposition?

19 A I did not.

20 Q And same for your declaration. You
21 submitted -- strike that.

22 You are aware that we're today because you

1 have submitted a declaration in an IPR, correct?

2 A Yes.

3 Q And today's proceeding is for IPR
4 2023-00978 that relates to U.S. Patent Number
5 7,230,931; is that right?

6 A Yes.

7 Q Okay. Are you comfortable if I call that
8 the '931 patent today?

9 A Yes.

10 Q Okay. And in preparing that declaration
11 that you submitted, did you speak with anyone
12 other than counsel?

13 A I don't believe so.

14 Q How did you go about preparing the
15 declaration you submitted in this proceeding?

16 A In large part I think I started by looking
17 at the '931 patent. Somewhere along the way I was
18 provided materials related to the prior IPR so
19 that I could understand what the PTAB and the
20 federal circuit had done in the context of claims
21 1 and 19.

22 And then at some point I also started

1 looking at some of the prior art that are exhibits
2 to the petition and developing opinions with
3 respect to whether or not I thought those
4 references disclosed the additional requirements
5 of claims 28 and 29. And ultimately, based on
6 having done the analysis in forming those
7 opinions, put them into the declaration.

8 Q Did you work on the prior IPR that you
9 just mentioned?

10 A I was not an expert in that -- sorry, in
11 that proceeding, so I don't think I had any role
12 in -- in that IPR.

13 Q So all of your work in that prior IPR that
14 you mentioned is from working on it with respect
15 to the IPR that we're here for today?

16 A That is correct. And if I said working on
17 it, what I meant was reviewing what the PTAB said,
18 what the federal circuit said, what was cited to
19 in those materials with respect to coming to an
20 understanding as to the basis for why the claims
21 that were invalidated were not invalidated.

22 Q Sure. Are you aware that there is also

1 ongoing district court litigation between the
2 petitioner and the patent owner involving the '931
3 patent?

4 A Yes.

5 Q Have you been retained by any party to
6 assist in this ongoing district court litigation?

7 A I do not recall if I have or not. I don't
8 know if my agreement talks about just the IPR or
9 the litigation more generally, I don't remember.

10 Q Since you don't remember I assume it is
11 fair to say that you are not currently working on
12 the ongoing district court litigation?

13 A As I sit here now, I don't believe I have
14 any tasks that are specific to the underlying
15 litigation.

16 Q Have you reviewed any documents from the
17 underlying district court litigation?

18 A I don't specifically recall. To the
19 extent that I have any recollection I may have
20 done a review of the invalidity contentions at
21 some point in time.

22 Q Are you aware that in the district court

1 litigation the district court issued a claim
2 construction ruling in January of this year?

3 A Yes, I am aware of that.

4 Q Have you reviewed that claim construction
5 ruling?

6 A I don't believe I have seen it. I might
7 have seen it after it came out and just don't
8 remember sitting here right now.

9 Q I would like to pull up that document and
10 see if you reviewed it.

11 MS. SPIRE: If we could pull up what I
12 would like to mark as Exhibit 2027. It is the
13 claim construction order.

14 (Exhibit 2027 discussed.)

15 REMOTE TECHNICIAN: Yes, please stand by.
16 Okay. Exhibit 2027 is on the screen.

17 MS. SPIRES: Thank you.

18 REMOTE TECHNICIAN: Counsel, would you
19 like the doctor to have remote access or --

20 MS. SPIRES: Yes, definitely.

21 REMOTE TECHNICIAN: Give me one minute.

22 Okay, doctor, you should be able to click on the

1 screen and then scroll through.

2 THE WITNESS: How do I navigate through?

3 REMOTE TECHNICIAN: You can just scroll
4 down with -- there is a little -- yeah, on the
5 side.

6 THE WITNESS: That is not me, that is me.
7 It is sort of cumbersome. Is there any way to be
8 able to download a version of this exhibit?

9 MS. SPIRES: I'm fine with that if the
10 Planet Depos are able to make that happen.

11 REMOTE TECHNICIAN: Yes, I can put that in
12 the chat for everyone.

13 THE WITNESS: Okay, that would be great.

14 MS. SPIRES: That is fine for any exhibit
15 today.

16 REMOTE TECHNICIAN: Okay, one moment,
17 please. So everyone should have access to the
18 exhibit in the chat.

19 THE WITNESS: Okay, I've got it open.

20 Q So what I have marked as Exhibit 2027 is a
21 document entitled Claim Construction Order in Case
22 Number 2:22-CV-00394-JRG in the Eastern District

1 of Texas dated January 12th, 2024.

2 A I see that.

3 Q This is a 25 or so page document. Feel
4 free to review any portion of it that you would
5 like. I will tell you that I'm going to be asking
6 about the section that is in pages 13 to 18.

7 A Okay. I have done a quick scan through
8 it.

9 Q Do you recall having reviewed this
10 document before?

11 A Not specifically as I sit here right now.
12 (Exhibit 1002 discussed.)

13 Q Okay. In your declaration you referred to
14 patent owner's proposed construction of the term
15 "sector," correct?

16 A I believe I did.

17 Q So if you look on page 13 of this document
18 20 -- exhibit 2027 that I just pulled up?

19 A Yes.

20 Q There we see this is where the Court start
21 its analysis of the term "sector" for the '931
22 patent. Do you see that?

1 A I see that.

2 Q And so he starts by putting both parties'
3 proposed construction to the top. Do you see
4 that?

5 A I do.

6 Q To your recollection, are these the
7 constructions that you applied in forming the
8 opinions set forth in your declaration?

9 A Let me look. I believe they are, but just
10 let me confirm.

11 Q For the record, what are you looking at?

12 A Sure. I'm looking at my declaration, I
13 believe it is Exhibit 1002 around paragraph 69. It
14 is the claim construction section. And I see the
15 description is there and I think that they are
16 very similar to what is in Exhibit 2027.

17 Q Are the descriptions you set forth in
18 paragraph 69 of your declaration the claim
19 construction of sector that you applied in forming
20 your opinions?

21 A I think that is generally correct. I
22 think when you get into the specific references it

1 might provide some additional detail as to what
2 the words are or the meaning of those words. So
3 but I think I've generally applied those two
4 different constructions in the declaration for
5 different references.

6 Q Now, feel free to read as much of this
7 analysis as you would like. I would like to
8 direct you to page 18 of this section, which is
9 the last paragraph of the Court's analysis of
10 sector?

11 A Okay, I'm there.

12 Q In the last sentence of this section the
13 Court gave what -- strike that.

14 In the last sentence of this section, the
15 Court construed sector as areas defined by an arc
16 around the cell site each covered by its own
17 antenna. Do you see that?

18 A I do.

19 Q Is this a construction you used when
20 forming the opinions you set forth in your
21 declaration?

22 A Ultimately, I think it is very similar to

1 that second construction that I used in paragraph
2 69. The words are slightly different, but I think
3 it essentially means the same thing especially
4 from the perspective of what the references in the
5 IPR disclosed.

6 Q When you talk about a, let's see, a second
7 construction in paragraph 69. What is that that
8 you are referring to?

9 A It says, a narrower understanding of
10 sector might refer to a section of the cell site
11 defined by the transmission area of a
12 corresponding antenna.

13 Q Do you agree with the Court's
14 construction?

15 MR. OLIVER: Objection.

16 A I haven't really looked at the Court's
17 analysis to see if I agree or disagree with it or
18 not.

19 Q If you are to accept the district court's
20 construction of sector, does that change any of
21 the opinions you set forth in your declaration?

22 A No, with the caveat that there are certain

1 places where I specifically considered the first
2 construction a portion of a cell site. To the
3 extent that those would become irrelevant if I
4 were to only apply the Court's construction, I
5 think they are still valid in the sense that if
6 that were the construction, then I would have
7 those opinions applying that construction.

8 If I only considered the Court's
9 construction, then only consideration of the
10 second construction would really become relevant.

11 Q Okay. So let me see if I understand what
12 you are saying.

13 Are you saying that in your declaration in
14 certain parts of the declaration you applied the
15 first construction you set forth in paragraph 69
16 and in certain portions of your declaration you
17 applied the second construction you set forth in
18 paragraph 69?

19 A Yes. There are parts of the report that
20 consider the first construction and parts that
21 consider the second construction. Kind of as
22 alternatives and whether or not for one or both of

1 the alternatives that the prior art in the
2 instituted grounds would meet that limitation
3 using either of the constructions or both.

4 Q So if you were to accept the district
5 court's construction, you believe that the
6 portions of your declaration applying the second
7 construction of sector you set forth in paragraph
8 69 of your declaration are still relevant; is that
9 right?

10 A I think that is right. I think the second
11 construction overlaps with the Court's
12 construction. It is similar enough that my
13 opinions don't change. In the declaration what
14 I've specifically considered the second
15 construction from the declaration. And to be
16 specific that is where sector refers to a section
17 of the cell site defined by the transmission area
18 of a corresponding antenna.

19 Q And then if you were to accept the
20 district court's construction, you believe that
21 the portions of your declaration applying the
22 first construction of sector you set forth in

1 paragraph 69 would not be relevant to your
2 analysis; is that correct?

3 A It is -- it is really hard to say.
4 Relevant is fairly broad. I think to truly answer
5 that question I would have to look at the
6 differences between the proposed constructions and
7 see if they overlap in any way what the references
8 say. That analysis could still apply based on
9 what the reference says. I mean ultimately,
10 instead of characterizing it as not being
11 relevant, I would say that the more relevant
12 sections would be the ones where I have applied
13 the second construction.

14 Q Sitting here today, can you tell me
15 whether or not the opinions you set forth applying
16 the first construction of sector from paragraph 69
17 of your declaration change in any way if you
18 accept the district court's construction of
19 sector?

20 MR. OLIVER: Objection, form.

21 A I would have to give that some thought. I
22 think it would go to a fairly complex question of

1 whether -- what the reference specifically said
2 and what that would have for implication.

3 Q Do you believe that the district court's
4 definition of sector requires that each sector
5 have an antenna array assigned to it as described
6 in the '931 patent?

7 MR. OLIVER: Objection, scope.

8 A I think that really goes to attempting to
9 interpret the Court's construction. Ultimately I
10 think what I have identified in the references in
11 the context of what those references say is
12 sufficient to meet the requirements of the
13 construction I applied, which I think by extension
14 would include the Court's construction. But
15 whether or not something -- some other
16 hypothetical system, if it had a certain
17 characteristic, would meet the limitation is not
18 an analysis I've done.

19 Q That wasn't really my question. I will
20 repeat it.

21 Do you believe that under the district
22 court's definition of sector, each sector is

1 required to have an antenna array assigned to it?

2 MR. OLIVER: Objection, scope.

3 A I thought my answer was responsive. The
4 short version of it is I don't believe I have done
5 the analysis of the Court's construction to
6 determine whether a hypothetical like that would
7 be within scope of that construction. The other
8 piece was the analysis I have done is with respect
9 to what the prior art references actually disclose
10 and whether or not that is sufficient.

11 Q Okay. Then let's use the second
12 definition of sector you set forth in paragraph 69
13 of your declaration.

14 Do you believe that that definition of
15 sector requires that each sector have an antenna
16 array assigned to it?

17 A So again, that is -- in the application of
18 a particular claim construction, that is the
19 reverse of what I've done which is really to look
20 at whether or not what is disclosed in the
21 references is sufficient. So the reverse of what
22 I have done and whether or not there are specific

1 requirements that fall out of that construction is
2 not something I believe I have included anywhere
3 in the declaration. So to the extent you asked me
4 for that kind of characterization, I would have to
5 give it some thought.

6 Q So sitting here today you don't have an
7 opinion one way or the other as to whether each
8 sector is required to an antenna array assigned to
9 it either under the district court's construction
10 of sector or under the construction of sector you
11 set forth in the second part of paragraph 69 of
12 your declaration; is that fair?

13 MR. OLIVER: Objection, form.

14 A Sitting here today, what the analysis --
15 all I can talk about is the analysis I did do,
16 which is the inverse of that. Whether or not
17 references disclosed or had disclosures sufficient
18 to meet the construction but not as you -- as
19 you've phrased it whether or not it is a
20 requirement of the claim. I think I would have to
21 give some thought as to whether or not that was an
22 interpretation of the construction.

1 Q Okay. But I'm here to find out what your
2 opinions are, whether or not you have conducted
3 the analysis.

4 And so my question is: Sitting here
5 today, do you have an opinion as to whether each
6 sector of an antenna array -- strike that.

7 So sitting here today, you do not have an
8 opinion as to whether each sector is required to
9 have an antenna array assigned to it under the
10 second definition of sector that you set forth in
11 paragraph 69 of your declaration, correct?

12 A I think I've answered that the best I can.
13 I've looked at the references to determine whether
14 or not it meets that construction, not
15 interpreting the construction to identify what
16 particular requirements are independent of any
17 reference.

18 Q I understand what you have done in your
19 analysis and that you haven't set an opinion --
20 set forth this opinion in your declaration. But
21 my question is not about what you have done in
22 your prior analysis, but whether sitting here

1 today you can answer this question.

2 A Okay. So if you are asking me a question
3 beyond the scope of what I did in the declaration,
4 I would have to give it some thought.

5 Q Okay. So my question again is: Sitting
6 here today, you have not formed an opinion as to
7 whether each sector is required to have an antenna
8 array assigned to it under the second definition
9 of sector you set forth in paragraph 69 of your
10 declaration, correct?

11 A I think I've answered that question the
12 best I can. I have expressed what I have done in
13 the declaration, so to the extent what I have done
14 in the declaration is not sufficient to answer
15 your question, then I would have to give some
16 additional thought to the question.

17 Q Is that additional thought you could put
18 into that right now to answer my question as to
19 whether or not you have an opinion on this topic?

20 A Not at this point. I would need some time
21 outside the context of a deposition to look
22 through the materials and potentially the patent

1 and the Court's claim construction. I suspect it
2 would take more time than what I could answer in
3 the next couple minutes.

4 Q And you said to the extent that what you
5 have done in a declaration is not sufficient to
6 answer my question. Do you think that what you
7 have done in your declaration is sufficient to
8 answer my question about whether each sector is
9 required to have an antenna array assigned to it
10 under the second definition of sector you set
11 forth in paragraph 69 of your declaration?

12 A It is hard to say exactly. I don't have
13 the declaration memorized and it is not clear what
14 the scope of your characterization would include.
15 So maybe there is some portion of the declaration
16 where I have looked at a particular reference.

17 I suspect the declaration is limited to
18 saying that what is in the reference is sufficient
19 to meet the term in the construction. I don't
20 believe it says anywhere what is necessary to meet
21 the construction, but to the extent I don't have
22 the full set of opinions for the declaration

1 memorized I defer to what it says.

2 Q So sitting here today, are you able to
3 offer an opinion as to whether any definition of
4 sector that you have analyzed requires that each
5 sector have an antenna array assigned to it?

6 MR. OLIVER: Objection, form.

7 A To the extent I have and it is in the
8 declaration I would defer to the declaration. I
9 don't have it memorized. As I said I've
10 characterized my opinions as identifying what is
11 sufficient to meet the construction. It seems
12 your question is asking what is necessary to meet
13 the construction. I don't believe I have offered
14 an opinion on what is necessary in the
15 declaration, but again, I would defer to what is
16 there.

17 Q You have your declaration in front of you;
18 right?

19 A I do.

20 Q Can you turn to page 60, paragraph 118?

21 A I'm there.

22 Q Okay. And in this paragraph you talk

1 about whether Goldberg's region satisfies the
2 claimed sector of the challenged claims, right?

3 A I do, using patent owner's construction.

4 Q Is patent owner's construction one of the
5 constructions you set forth in paragraph 69 of
6 your declaration?

7 A It is very similar. What is described in
8 118 is a geographical portion of the cell site.
9 It adds the word geographic, but I think it is
10 very similar to what is in paragraph 69.

11 Q And you identified earlier two
12 constructions in paragraph 69. Which of these two
13 constructions you set forth in paragraph 69 of
14 your declaration do you believe is very similar to
15 the patent owner's construction that you applied
16 in paragraph 118?

17 A The first.

18 Q So is this one of the instances where --
19 strike that.

20 Under the district court's definition of
21 sector that we just looked at, is it still your
22 opinion that Goldberg's region satisfies the

1 claimed sector of the challenged claims?

2 A My recollection is that it discloses both.

3 Q Your recollection is that what discloses
4 both?

5 A That Goldberg discloses both of the
6 parties' constructions.

7 Q And by that you mean the first
8 construction and second construction you applied
9 in paragraph -- or sorry, strike that.

10 And by that you mean the first and second
11 constructions you set forth in paragraph 69 of
12 your declaration?

13 A That is correct.

14 Q Can you point me to where in your
15 declaration you offered an opinion that Goldberg's
16 region satisfies the claimed sector of the
17 challenged claims under the second construction
18 that you set forth in paragraph 69 of your
19 declaration?

20 A Yes, let me look. So I thought it was in
21 here. (Document reviewed.)

22 Maybe it is in a different section. I

1 think the section that we're in really focuses on
2 one particular aspect. So for example, paragraph
3 130 has the sentence, Indeed the only issue
4 identified by the board with respect to Vornefeld
5 was that it did not describe transmitting second
6 downlink data traffic in the same frame.

7 So that is where I am focused on in that
8 section, that is the additional dependent
9 limitation.

10 I thought there was a description, maybe
11 it is back on page 25 where I am just describing
12 Goldberg generally. Let me see if it is there. I
13 thought it was in there somewhere. I'm not sure
14 it is in this section, but I would have to go
15 through and check and see.

16 Q I think, if you have an electronic copy of
17 your declaration feel free to electronically
18 search, because I do believe it is there, so I
19 would like you to find it if you can.

20 A Okay.

21 Q If you need we can drop an electronic copy
22 into the chat.

1 A No, I've got one that is marked with the
2 exhibits. I think it is the official version.
3 (Document reviewed.)

4 So I'm not sure what else I can add other
5 than I thought there was a portion in the
6 declaration that either discussed Goldberg more
7 generally or there is portions of what is cited
8 here that would be sufficient. But I know at
9 least the section that we're looking in is really
10 focused on the additional dependent limitation of
11 28 that was alleged to be missing from Vornefeld,
12 but I'm not sure what else I can add at this
13 point.

14 Q So sitting here today, have you been able
15 to find an opinion that you set forth in your
16 declaration as to whether Goldberg's region
17 satisfies the claimed sector of the challenged
18 claims under the first construction of sector you
19 set forth in paragraph 69 of your declaration?

20 A I don't see a specific section. I haven't
21 had the time to look through the entirety of the
22 declaration to see what could potentially be

1 relevant to that particular question.

2 I think the section that we were in, which
3 starts on page 65, really looks at the additional
4 dependent limitation beyond Vornefeld. So there
5 might be an additional section that relates to
6 Goldberg. I know that this first ground was not
7 the only place that Goldberg was used.

8 So I can't say that I have had enough time
9 to look through the whole declaration, but sitting
10 here right now, I don't -- I don't have a
11 particular paragraph number that I can cite to
12 you.

13 Q I would like for you to have the time to
14 look through the declaration. You have it in
15 front of you and I have said that you can search
16 an electronic copy if you need to search for
17 Goldberg or whatever else, because I would like a
18 full answer to the question.

19 A I'm not sure that I can answer your
20 question with 100 percent certainty sitting here
21 thumbing through the declaration. There might be
22 some portion that I missed that would have been

1 relevant if I had had time to think about the
2 question, so it is going to be hard for me to
3 really say.

4 Q Okay. This is my only chance that I get
5 to ask you questions about your declaration. So
6 my question is sitting here today, can you recall
7 an opinion that you set forth in your declaration
8 as to whether Goldberg's region satisfies the
9 claimed sector of the challenged claims under the
10 first construction of sector you set forth in
11 paragraph 69 of your declaration?

12 A I've given you the best answer I can. I
13 don't know that I can give you an answer with
14 anymore certainty given the constraints I have
15 previously mentioned.

16 Q Well, the constraint you mentioned was
17 that you haven't had time to review your
18 declaration, but you drafted your declaration.
19 And I have told you you have all the time you want
20 to look at your declaration and you can search an
21 electronic copy.

22 So I need to know are you aware of an

1 opinion you set forth in your declaration as to
2 whether Goldberg's region satisfies the claimed
3 sector of the challenged claims under the first --
4 strike that -- under the second construction of
5 sector you set forth in paragraph 69 of your
6 declaration?

7 A I think the first part mischaracterized my
8 testimony. And the second part I don't have
9 anything to add over how I've answered the
10 question already.

11 Q What -- what did I mischaracterize about
12 your testimony?

13 A I think you said the only reason was that
14 I didn't have time. I think I also said there
15 might be some portion that I would look at that
16 upon further consideration might actually bear on
17 the question so it is hard for me to give you an
18 answer with absolute certainty.

19 Q But this is the only time I get to depose
20 you about your declaration unless you submit a
21 supplemental one. This current declaration, this
22 is when I get to depose you, so I need to know

1 what your opinions are.

2 And I need to know whether you have an
3 opinion that you set forth in your declaration as
4 to whether Goldberg's region satisfies the claimed
5 sector of the challenged claims that you set forth
6 in the second portion -- second definition of
7 sector you set forth in paragraph 69 of your
8 declaration?

9 A I've given you the best answer I can.

10 Q And what is that?

11 A What I've answered numerous times when you
12 have asked that question.

13 Q I have not gotten an answer that satisfies
14 that. This is one we're going to take to the
15 Board if this is how this is going to be the whole
16 day. You have to answer my questions as to what
17 your opinions are or we're going to get on the
18 phone with the Board, unless you didn't write the
19 declaration?

20 A I have given you the best answer I can to
21 the question. That is -- that is what I have to
22 say.

1 Q So is it fair to say that sitting here
2 today you have not been able to identify an
3 opinion you set forth in your declaration as to
4 whether Goldberg's region satisfies the claimed
5 sector of the challenged claims that you set forth
6 in the second portion -- second definition of
7 sector you set forth in paragraph 69 of your
8 declaration?

9 A I have not given you a specific paragraph
10 number for the reasons I've cited in the last few
11 questions.

12 Q Because you have not been able to find a
13 specific paragraph number that would answer my
14 question, correct?

15 A I think that is an incomplete
16 characterization of the reasons I've given.

17 Q Well, then give me a complete
18 characterization.

19 A I've given it to you multiple times
20 before, I will give it to you yet again. That
21 I've looked through the declaration. The sections
22 that we were looking at that start about paragraph

1 126 are focused on the issues related to what was
2 not -- what was alleged not to have been found in
3 Vornefeld. There might be some other portion of
4 the declaration I have that I don't have
5 memorized. There might be some portion that would
6 bear on that question that when I look at it
7 doesn't jump out as being relevant.

8 So I think the portion we're looking at is
9 focused on a slightly different issue. I pointed
10 to other potential sections. So I don't have a
11 particular paragraph number to cite, but that
12 doesn't mean that there isn't one that would
13 possibly be relevant to that question.

14 Q But paragraph 118 of your declaration is
15 -- relates to the first definition of sector you
16 set forth in paragraph 69 of your declaration,
17 correct?

18 A Paragraph 118 does say that I've been
19 asked to consider patent owner's construction from
20 the related litigation.

21 Q And the patent owner's construction from
22 the related litigation is the same as or similar

1 to the first construction of sector you set forth
2 in paragraph 69 of your declaration, right?

3 A It is.

4 Q If you look at your declaration, page 65,
5 footnote 3. Are you there?

6 A Well, I see that.

7 Q So here you state that to the extent
8 patent owner's implied definition of sector
9 applies, Goldberg's regions being portions of the
10 cell site that include at most one subscriber
11 describes these sectors, right?

12 A Yes.

13 Q Does this footnote also relate to --
14 strike that.

15 Does footnote 3 also apply the first
16 construction of sector that you set forth in
17 paragraph 69 of your declaration?

18 A I'm not sure what that question means. I
19 mean, the footnote says what it says. It
20 describes portions that would be particularly
21 relevant that I think would disclose the concept
22 of a sector under patent owner's use of that term,

1 and that is really what the focus of that footnote
2 is.

3 Q Does anything in footnote 3 apply the
4 second definition of sector you set forth in
5 paragraph 69 of your declaration?

6 A I would have to look at what is cited
7 here. I mean, I understand your question to be
8 asking is there any portion of what is cited here
9 relevant to what would be sufficient to meeting
10 the limitation under the Court's construction or
11 the second construction identified in paragraph 69
12 that is in Goldberg. I would have to potentially
13 look.

14 There actually might be portions of
15 Goldberg that are relevant. I don't know that I
16 have cited to all of those here in large part for
17 the reasons I set forth earlier including I don't
18 recall that I'm relying on Goldberg for this
19 particular aspect of the limitation given the
20 disclosures in Vornefeld and what the Board has
21 already determined and what the patent owner has
22 accepted with respect to how that term is used in

1 claims 1 and 19.

2 Q You say you don't believe that you're
3 relying on Goldberg for this particular aspect of
4 the limitation. What particular aspect of the
5 limitation are you referring to there?

6 A That in the combination of Vornefeld and
7 Goldberg that Goldberg describes or that I'm
8 relying on Goldberg to disclose sectors in the
9 combination.

10 Q You are instead relying on Vornefeld to
11 disclose sectors in the combination of Vornefeld
12 and Goldberg?

13 A Well, the term "sectors" and what is
14 within a sector is a requirement of claims 1 and
15 19. It is my understanding that Vornefeld has
16 already been determined to disclose sectors in the
17 context of claim 1 and 19 and that has been
18 accepted by the patent owner. So I am at least
19 relying on Vornefeld for the disclosure of
20 sectors.

21 Q Did you perform an analysis as to whether
22 Vornefeld discloses sectors under the district

1 court's construction or the second construction of
2 sector you set forth in paragraph 69 of your
3 declaration?

4 A I believe I did. I think starting at
5 paragraph 75, 76. I would also note if patent
6 owner is suggesting the claim is no longer invalid
7 given the Court's construction, I haven't seen
8 that opinion, but I think independently I have
9 addressed that requirement in those paragraphs 75
10 and 76 as at least one example.

11 Q Are you relying on Vornefeld for the
12 disclosure of sectors for all combinations that
13 you set forth in your -- for all prior art
14 combinations that you set forth in your
15 declaration?

16 A No, the two -- the short answer is no,
17 that is what you asked. If you want me to explain
18 why I can.

19 Q Yes, please.

20 A Sure. So I think the Youssefmir
21 combination doesn't include Vornefeld, so that
22 would be a good example where I'm not relying on

1 Vornefeld in that combination. I think also in
2 the Vornefeld combinations where I applied the
3 first construction, I don't believe I am relying
4 on Vornefeld for the disclosure as to what a
5 sector would be. That is the description you have
6 been pointing me to about where I think that
7 aspect is specifically disclosed in Goldberg.

8 Q And when you said -- when you're relying
9 on -- when you have applied the first construction
10 you're talking about the first construction sector
11 you set forth in paragraph 69 of your declaration?

12 A That is correct, the one patent owner's
13 construction.

14 Q See if we can look at paragraphs 182 and
15 183 of your declaration.

16 A Okay.

17 Q Here you also talked about, I believe, the
18 patent owner construction or the first
19 construction you set forth in paragraph 69 of
20 sector; is that right?

21 A I see that.

22 Q In paragraphs 182 and 183 of your

1 declaration, have you performed an analysis with
2 respect to the second definition of sector that
3 you set forth in paragraph 69?

4 A In these paragraphs, they are focused more
5 on the first definition. And again, the idea here
6 is that they -- for the -- for the second
7 construction I'm relying on the primary reference
8 Vornefeld.

9 And then I believe as I mentioned earlier
10 there is a -- there is additional support showing
11 that Atsuta and Goldberg are consistent with that
12 understanding. And so really the role of
13 Tangemann here is further to that understanding,
14 but applying the first definition construction.

15 Q So you don't rely on Tangemann for a
16 disclosure of sector when you are applying the
17 second definition of sector you set forth in
18 paragraph 69; is that right?

19 A When you say I'm not relying on it, it is
20 part of the combination. It might be part of the
21 motivation. It might still fit within the context
22 of the system, but the primary aspect that I'm

1 relying on it for here is under the first
2 construction.

3 Q And for the second construction of sector
4 you set forth in paragraph 69, you're relying for
5 grounds 4 and 5 on Vornefeld for the disclosure of
6 the term "sector" and not Tangemann, right?

7 A For the second construction or for the
8 second construction where Vornefeld is the primary
9 reference, I am primarily relying on the
10 disclosures in Vornefeld.

11 Q I think this might be a good time to take
12 a break if y'all are ready?

13 A Sure, if you would like.

14 (Recess, 10:57 to 11:04 a.m.)

15 Q Dr. Almeroth, do you have the '931 patent
16 in front of you or would you like us to throw that
17 into the chat?

18 A I have got it in front of me in printed
19 form. I probably have it in electronic form, too,
20 so if there is any searching that needs to be done
21 I can do that, but otherwise go for it.

22 Q Okay. You use whichever form you are

1 comfortable with.

2 If you look at the '931 patent, column 6?

3 REMOTE TECHNICIAN: Is that Exhibit 1001?

4 MS. SPIRES: Yes that is Exhibit 1001.

5 (Exhibit 1001 discussed.)

6 A I am there, column 6.

7 Q And at lines 2 to 5 it says, In TDD, a
8 single channel is used for transmission and
9 reception and specific periods of time, i.e.,
10 slots are allocated for transmission and other
11 specific periods of time are allocated for
12 reception.

13 Do you see that?

14 A I do.

15 Q Is this your understanding of TDD?

16 A In the context of what TDD is in
17 isolation, the reality is it can be stacked and
18 still be true. So for example, you can use TDD in
19 a frequency division multiplexing system where you
20 have one frequency for upstream, a different
21 frequency for downstream. And then the statement
22 that you just read is still true, but it shows

1 that it is -- it is not limited to just the system
2 with one channel, for example.

3 Q So understanding that TDD is a -- includes
4 a wide body of -- and cannot be described in one
5 sentence, do you agree with the definition of TDD
6 or explanation of TDD set forth in paragraph 6,
7 lines 2 to 5 of the '931 patent?

8 A So you used the term "definition." I am
9 not sure that there is an opinion that this is
10 lexicography for what TDD is.

11 Q I will change my question.

12 A Okay.

13 Q Do you agree with the '931 patent's
14 explanation of TDD in column 6, lines 2 to 5?

15 A So I think I answered that. And basically
16 what I said is TDD could be characterized in a
17 system where it is not as limited as what this
18 describes. And so the idea that you have a single
19 channel or maybe it depends on what the channel
20 is, but you could have a system that uses one
21 frequency for upstream, one frequency for
22 downstream and then within each of those upstream

1 and downstream portions of the frequency, you can
2 be using time division multiplexing.

3 Q In forming your opinions, did you apply
4 this explanation of TDD set forth in paragraph 6,
5 lines 2 to 5 of the '931 patent where a single
6 channel is used for transmission and receptions?

7 A My recollection of the declaration is
8 where TDD shows up again is in claims 1 and 19.
9 And 1 and 19 were already determined to be invalid
10 based on Vornefeld. And so I also confirmed that
11 that analysis is to be true and I confirmed that
12 what Vornefeld discloses is consistent with at
13 least what is required of the claims.

14 I don't know that there was a construction
15 set forth as specifically as what is described --
16 as what you are pointing to in the '931
17 specification. But I can see -- I can go back and
18 look at the declaration to see if it says that I
19 -- what I -- if I identified specific requirements
20 for what TDD requires.

21 Q Sure.

22 A So paragraph 73 certainly I identified

1 that Vornefeld has a TDD channel and it,
2 quote-unquote, uses the same frequency for uplink
3 and downlink. That is not the whole quote, but
4 just reading at the end of paragraph 73.

5 Q Is there anywhere else in your declaration
6 or do you want to keep looking?

7 A Well, that was the example from Vornefeld
8 for at least the first time I see TDD appear. I
9 suspect there is other portions where it cites
10 TDD, it might cite to the same thing that is an
11 example of essentially what I've pointed to in the
12 context of Vornefeld.

13 Q So do you disagree with the statement in
14 the '931 patent that in TDD a single channel is
15 used for transmission and reception and specific
16 periods of time, i.e., slots are allocated for
17 transmission and other specific periods of time
18 are allocated for reception?

19 A I don't know that I have formed an opinion
20 one way or another with respect to whether or not
21 I agree with that statement or not. Again, I can
22 point you to what I have identified in the -- or

1 in Vornefeld it seems pretty consistent with what
2 is described there. But other than as I testified
3 earlier, the time division duplexing in general
4 can be used in the context of other kinds of
5 systems. That that is really the extent of the
6 opinions that I've offered.

7 Q Here the single channel referred to on
8 line 2 of column 6 of the '931 patent -- strike
9 that.

10 In column 6, line 2 of the '931 patent,
11 the single channel refers to the same frequency
12 band as can be defined by a center frequency and
13 bandwidth, correct?

14 A Are you asking if -- I don't understand
15 the question.

16 Q What does a single channel refer to in --
17 as it is used in column 6, line 2 of the '931
18 patent?

19 A I don't specifically recall. I don't know
20 if the specification goes on to say something more
21 specific than that.

22 Q Do you know whether a single channel in

1 column 6, line 2 means the same frequency band as
2 defined by a center frequency and bandwidth is
3 used for uplink and downlink?

4 A I don't recall having to answer that
5 question in the context of the declaration.
6 Sitting here now I would have to give it some
7 thought.

8 Q Do you want to give it some thought or
9 will that take more than the time we have?

10 A I think it would take more than the time
11 we have. I think you are asking me to define
12 terms from the specification that would usually
13 take some amount of time.

14 Q Okay. Let's look at a different portion
15 of the '931 patent. Let's look at column 13.

16 A Okay.

17 Q At the very end starting at line 66 it
18 says, this asymmetry is typically greater --
19 strike that.

20 Starting at line 66 it says, Generally
21 there is an asymmetry of data usage in the
22 downlink and the uplink. This asymmetry is

1 typically greater than 4 to 1, downlink to uplink.

2 Do you see that?

3 A I do.

4 Q What is your understanding of asymmetric
5 data usage that is referred to here?

6 A I don't think I have specifically
7 addressed it in the context of this declaration.
8 I have some sense of what it is referring to
9 generally. You would have to be more specific in
10 your question as to what you're -- what you're
11 asking for.

12 Q Generally is it your understanding that
13 asymmetric data usage refers to the fact that
14 users generally need to send more data in the
15 downlink direction than in the uplink direction?

16 A If you are talking about asymmetry
17 potentially in the last mile usually users receive
18 more data than they transmit. Obviously that is
19 not always true. It has varied over time, but I
20 think that it certainly can happen.

21 Q Here it says, Generally there is an
22 asymmetry of data usage in the downlink and the

1 uplink.

2 So is it your understanding that that is
3 what we're talking about here that generally, so
4 not always, users need to send more data in the
5 downlink direction than in the uplink direction?

6 MR. OLIVER: Objection, form.

7 A I see the statement. I'm not sure. If
8 you are asking for an explanation of what this
9 means, you said send in the downlink direction
10 usually it is received in the downlink direction,
11 but it appears to be describing the idea that
12 there is more data received the more data
13 transmitted.

14 Q If we keep looking, moving on to column 14
15 at about line 7 I believe it says, TDD operations
16 share a single RF channel between a transceiver
17 base station and a subscriber premises and use a
18 series of frames to allocate resources between
19 each user uplink and downlink. A great advantage
20 of TDD operation is the ability to dynamically
21 allocate portions of a frame allocated between the
22 downlink and the uplink. This results in an

1 increased efficiency of operation relative to
2 frequency division duplex, FDD, techniques.

3 Do you see that?

4 A I do.

5 Q In your opinion, is this stating that TDD
6 operation shares a single RF channel between a
7 base station and subscriber premises and uses a
8 series of frames to allocate resources between
9 each user uplink and downlink?

10 A So far it seems like you have just read
11 the sentence again and not included a couple of
12 words. So if you are asking if that is what it
13 says, that is pretty much what it says.

14 Q Is it saying that what you just described
15 is an advantage of the '931 patent?

16 A This is saying a great advantage of TDD
17 operation. That concept of TDD operation, the
18 ability to dynamically allocate the portions of a
19 frame allocated between the downlink and the
20 uplink is, is something that was known pretty long
21 before the '931 patent.

22 I don't recall the '931 patent claiming a

1 particular innovation on TDD operation
2 specifically. So it would seem like it would not
3 be appropriate to characterize what you are
4 reading here as an advantage of the '931 patent as
5 opposed to a generally recognized feature of TDD
6 that was known before the '931 patent.

7 Q Let's look at Atsuta, which is Exhibit
8 1005 we can pull that up electronically or
9 whatever works best for you.

10 (Exhibit 1005 discussed.)

11 MR. OLIVER: I've got the electronic
12 version of the exhibit that is marked from the
13 petition, and then I've also got a hard copy in
14 front of me so I should be good to go.

15 Q All right. Feel free to look at whatever
16 works best for you. Let's look at Atsuta's figure
17 3.

18 A Okay.

19 Q You are faster than me.

20 Look at Atsuta's figure 3. Does Atsuta
21 teach that his invention requires the required
22 channel bandwidth to triple for his three sector

1 example?

2 MR. OLIVER: Objection, form.

3 A I don't think that is what figure 3 is
4 conveying.

5 Q Do the channel bandwidth in the upper half
6 of figure 3 -- strike that.

7 Are the channel bandwidth in the upper
8 half of figure 3 three times wider than the
9 corresponding channel bandwidth in the lower half
10 of figure 3?

11 A I would have to check. I don't know that
12 that is a requirement.

13 Q Go ahead and look at figure 3.

14 A Okay, you've got it.

15 Q I'm asking whether exhibit -- you
16 understand that the top half of figure 3 with
17 number 1 is Atsuta's invention, and then the
18 bottom half of figure 3 with number 2 is the prior
19 art, right?

20 A That is my understanding.

21 Q And so looking at those two, it is correct
22 that Atsuta's invention -- that the channel

1 bandwidths in Atsuta's invention at the top
2 labeled number 1 present invention are three times
3 wider than the corresponding channel bandwidths in
4 the lower half of figure 3 labeled related art,
5 right?

6 MR. OLIVER: Objection, foundation.

7 A When you say three times as large, I mean,
8 there is three of them for the related art and
9 then there is one for Atsuta. Your question
10 wasn't clear whether you were asking if it was
11 three times the combination of the three or
12 whether it was three times an individual one.

13 Q I'm asking whether Atsuta's invention
14 requires triple the channel bandwidth for his
15 three sector example from the related art?

16 A That doesn't clarify it. So let me -- let
17 me try and explain.

18 So there are what are called sector zones,
19 frequency 1, 2 and 3 for the related art and then
20 there is one for the sector zone. Generally when
21 you have three different frequencies, one of the
22 things you could do is aggregate those three

1 frequencies together.

2 And so the frequency that you are using,
3 the frequency range should be the same, but it
4 would be the difference between whether or not you
5 are using three separate frequencies or whether or
6 not you are using the one frequency and then doing
7 some sort of time or time division multiple access
8 versus frequency allocation.

9 For this particular figure whether or not
10 there is a requirement of three times -- you said
11 bandwidth, really it is about necessary frequency.
12 I would have to check to see if Atsuta actually
13 has that as a requirement. It is not my
14 recollection that it did.

15 Q What the example illustrated in figure 3
16 does triple the bandwidth or I think you said -- I
17 don't remember what you clarified it as?

18 A The frequency spectrum. I did not recall
19 that being a requirement of Atsuta over the prior
20 art.

21 Q Is it a feature of Atsuta over the prior
22 art in figure 3 that the Atsuta invention uses

1 triple the frequency allocation?

2 A I don't think that is what figure 3 is
3 saying. And so feature or requirement I would
4 have to check what Atsuta says about figure 3.
5 Ultimately it is not this aspect of the invention
6 that I am relying on from Atsuta for what gets
7 combined into Vornefeld. I'm not relying on the
8 totality of Atsuta to be combined with Vornefeld
9 to create the combination.

10 Q But you agree that the 60 in Atsuta's
11 invention is three times wider than the 20 in the
12 related art, correct?

13 A That there is three of the 20s in the
14 related art. So it is really just restructuring
15 what is being described in the related art, so I
16 don't -- I don't interpret that to be requiring
17 three times the bandwidth in Atsuta's description
18 of what is in figure 3. And then ultimately this
19 aspect of the invention is not what I am relying
20 on to be combined with Vornefeld.

21 Q Did you consider this aspect of the
22 invention in your -- Atsuta's combination with

1 Vornefeld that would be in Atsuta figure 3?

2 A I did consider the totality of Atsuta, but
3 the particular aspect of Atsuta that I think a
4 person of skill in the art would have looked to
5 based on Vornefeld as the primary reference,
6 person of skill in the art sitting at a
7 hypothetical work bench looking at Vornefeld, the
8 portion of Atsuta that they would look at and say,
9 oh, this -- this actually could enhance what is
10 included in Vornefeld is this -- is not this part
11 Atsuta. There isn't a requirement to use this
12 aspect of Atsuta in the context of what the
13 combination would be.

14 Q So Atsuta's invention is tripling each
15 bandwidth in order to keep the overall uplink
16 throughput the same since the utilization of each
17 sector is now only one/third, right?

18 MR. OLIVER: Objection, mischaracterizes.

19 A I don't think that is what Atsuta is
20 attempting to do.

21 Q Then why do you believe Atsuta triples
22 each bandwidth from the prior art?

1 A I never agreed with your characterization
2 as to what -- that that is what figure 3 shows.
3 That was your characterization and I don't think
4 that I have agreed with that characterization.

5 Q Then why does Atsuta, I think you said
6 restructure the bandwidth from the prior art?

7 A Let's see, why does it do that. I don't
8 have a particular answer for that from memory.
9 I'm looking to see where it describes figure 3 in
10 the specification of Atsuta.

11 Right. So maybe you had in mind column 5,
12 43 where it is describing the data capacity. And
13 so I think maybe -- well, I don't want to read it
14 into the record, I think that is a waste of time.
15 But column 5 around line 45 what it is saying is
16 the frequency band is tripled and so that actually
17 creates triple the capacity or it creates
18 increased capacity. It could actually be more
19 than triple the capacity depending on the symbol
20 and coding mechanism that is used.

21 So it is actually trying to improve the
22 capacity of the channel by instead of using a

1 frequency division slot and then doing TDMA within
2 each of the frequency slots to be able to do time
3 division across the combined frequency. And that
4 actually increases capacity within the system.

5 Q So --

6 A But again, this kind of goes to how it is
7 restructuring the available spectrum, which I
8 think is a characteristic of Atsuta but not one
9 that I have relied on or that I think a person of
10 skill in the art would attempt to draw out of
11 Atsuta and modify Vornefeld or maybe they would,
12 that is -- that is not the aspect that I think a
13 person of skill in the art would be motivated to
14 pull from Atsuta.

15 Q Do you agree based on Atsuta column 5 that
16 the frequency band is tripled in Atsuta when
17 compared with the prior art, correct?

18 A The frequency band is tripled, but so is
19 the capacity. So it is -- it is growing capacity
20 and the use of what the frequency band is. So
21 instead of three smaller frequency bands, it uses
22 one frequency band that is three times as large as

1 an individual frequency band, but the same size as
2 the three frequency bands together. And it
3 increases capacity commensurately for the one
4 combined frequency band.

5 Q Is the overall throughput, though, the
6 same from the present -- from Atsuta compared to
7 the related art in that you still have 60 time
8 slots total for each?

9 A The last sentence starting at column 51
10 that says, thus, a receiving apparatus has a
11 larger transmission capacity than that that is
12 actually used and a wider frequency band than that
13 of the conventional frame are required.

14 So then it says that basically, as you get
15 into the next paragraph, it is sufficiently large
16 to accomplish what is required. So it is -- it is
17 restructuring the available frequency and
18 attempting to meet the particular requirements of
19 at least one aspect of what Atsuta is talking
20 about, not -- again, not the portion that I have
21 specifically relied on.

22 Q And the cellular radio world generally,

1 you would agree that licensed bandwidth is not
2 free, correct?

3 A Licensed bandwidth is not free if I
4 understood the question correctly. I guess it
5 depends on -- on who the "you" is in this
6 sentence. Bandwidth can be leased, it can be
7 purchased, it can be used. Costs associated with
8 one aspect or another might be for free or depend
9 on the cost.

10 Q So someone pays for licensed bandwidth, we
11 just don't necessarily know who?

12 A Usually someone always pays.

13 Q In Atsuta figure 3, does Atsuta's scheme
14 perform reception from each sector at least
15 one-third of the time?

16 MR. OLIVER: Objection, form.

17 A I don't recall. I'd have to check.
18 Again, I don't recall that being an aspect of
19 Atsuta that I was relying on. I don't know if it
20 -- I don't remember if Atsuta uses a fixed scheme
21 or allows for some dynamic assignment or not.
22 Again, that is not something I specifically recall

1 for Atsuta.

2 Q Do you want to check or no?

3 A You would have to point me to it,
4 otherwise I would have to go and investigate
5 again. I don't think it was an aspect of what I
6 focused on with respect to Atsuta.

7 Q Let's look at Atsuta starting on column 5,
8 starting at line 65.

9 A Okay.

10 Q And so line 65 says, just through column
11 6, line 7. If you just want to read that, you can
12 read it out loud or to yourself, either is fine?

13 A How far into column 6 did you say?

14 Q To line through -- the line 7, thus
15 asymmetrical communications are required.

16 A Okay. Okay.

17 Q Is that section of Atsuta describing an
18 example of asymmetric downlink versus uplink
19 transmission?

20 A I think what it is saying is in an example
21 where you have a cable TV system that is trying to
22 download a picture, in that instance more

1 downstream data is received than upstream data is
2 sent.

3 Q If you could just keep reading to the end
4 of that paragraph at the top of column 6 of
5 Atsuta?

6 A Okay.

7 Q This states that both the transmission
8 capacity and the frequency band of data sent in
9 the uplink direction are small, right?

10 A In this example, that is what it is
11 describing.

12 Q What does it mean when it says that the
13 transmission capacity of the uplink is small?

14 A I think it is actually referring to how
15 much data it needs to be able to send upstream are
16 small.

17 Q What does it mean that the frequency band
18 of the uplink is small?

19 A That it is saying that there are minimal
20 requirements for upstream communication when all
21 you are doing is acknowledging the receipt of the
22 picture.

1 Q And is this saying that the transmission
2 capacity and frequency band of the uplink is small
3 in comparison to the downlink?

4 A I don't think that is what it is saying
5 there. I think it is really talking more about
6 what the characteristics of that scenario would
7 be. And I think it becomes clearer when you start
8 to read into the next paragraph of Atsuta.

9 It says, the predetermined number of time
10 slots of the TDMA synchronous fan are equally
11 assigned to each fan-shaped divided zone. And
12 then it says, you can actually vary those based on
13 the density of subscribers. And then it goes on
14 to consider a variety of different factors so that
15 you can do assignments that vary based on
16 different considerations.

17 So in the one scenario that it started
18 with in the paragraph that crosses between the
19 bottom of column 5 and the top of 6 it is really
20 talking about really just downloading a picture.
21 And in that scenario, there is more data being
22 downloaded than data being uploaded.

1 Q If the frequency band of the uplink is
2 small, in this example the frequency band of the
3 downlink would need to be larger to handle the
4 increased downlink data resulting from the
5 asymmetry, correct?

6 MR. OLIVER: Objection, form.

7 A I don't think that is what it is saying
8 here.

9 Q But would that be true?

10 A No.

11 Q Why not?

12 A Well, the assumptions of the question
13 aren't what is being described here. But I
14 understand your attempt to characterize this as
15 describing constraints on the frequency band in
16 uplink versus downlink, but that is -- that is not
17 really what it is describing here. It is talking
18 about the different bandwidth requirements between
19 uplink and downlink.

20 And then ultimately what it is really
21 describing is that there is flexibility within the
22 system for how you allocate slots to be used for

1 upstream transmission and downstream transmission
2 within a given capacity of the system as it has
3 been configured.

4 Q So in this example, asymmetrical
5 communications are required. And so it configured
6 the system such that the frequency band of the
7 uplink is small and the frequency band of the
8 downlink is larger, correct?

9 A Yeah. I think some of the words that it
10 is using when it says asymmetrical communication
11 are required, I think it is more describing in
12 that scenario what is actually happening. I think
13 the language is -- is a little bit off. And so I
14 would be careful not to take away an implication
15 from this example to suggest that asymmetric
16 bandwidth is required.

17 The communication to download a picture
18 and confirm its receipt requires asymmetrical
19 communication, but the implication of the
20 characteristics of that communication can impact
21 how the slots in a system would be used. And that
22 is the point of the example to then say Atsuta

1 describes the ability to dynamically assign slots
2 based on a variety of different considerations.

3 Q Right. But in the first example, it is
4 saying that in many situations the sharing of a
5 TDMA synchronous frame might not become a problem,
6 right?

7 A No, I don't think that is what that
8 paragraph is saying.

9 Q That is literally word for word what it
10 says.

11 A It is describing the example, and then it
12 goes on to describe how you deal with scenarios
13 like that. That is the point of the example.

14 Q So you disagree that sharing a TDMA
15 synchronous frame may not become a problem in many
16 situations?

17 A I think you had a double negative in
18 there, so -- or maybe a triple negative. Maybe I
19 can answer it this way.

20 I think what it says at the end of the
21 paragraph that started in column 5 and ends at 6
22 around 10, that if you use this particular

1 technique of Atsuta, which has the ability to
2 provide more downstream capacity than upstream
3 capacity that that shouldn't be a problem, because
4 of asymmetric communication. But then it goes on
5 to say, in fact, you can actually do the slot
6 assignment pretty much however you want based on
7 considerations that are described there.

8 Q What does sharing -- go ahead?

9 A And I mean it ends with the sentence,
10 thus, at this point the communication facility can
11 be more effectively used than the above described
12 embodiment.

13 Q What does sharing a TDMA synchronous frame
14 mean in this context?

15 A In this context, the ability of different
16 devices or transmitters, I don't recall exactly
17 what term it used, could use different slots in a
18 TDMA synchronous frame.

19 Q Does this section of Atsuta starting at
20 about column 6, lines 7 through 12 discuss
21 downlink?

22 A I think it does.

1 Q Where?

2 A When a picture providing service such as
3 CATV is performed with radio signals, the
4 transmission capacity of picture data sent from
5 the base station to the subscriber section in the
6 downlink direction, and then it goes on from
7 there.

8 Q My question was the next sentence.
9 Consequently, since the transmission capacity and
10 the frequency band of data sent in the uplink
11 direction are small, the increases of the
12 transmission capacity and the frequency band of
13 the communicating method of sharing a TDMA
14 synchronous frame may not become a problem in many
15 situations.

16 Does that sentence use the word
17 "downlink"?

18 A Does it use the word "downlink"? To be
19 clear, you're asking me about whether or not a
20 particular sentence has the word "downlink" in it
21 in a paragraph that talks about downlink
22 communication. The sentence you have identified

1 and read does not have the word "downlink" in it,
2 though, it is describing the overall transmission
3 capacity, which includes both upstream and
4 downstream communication.

5 Q Does it describe sharing a TDMA
6 synchronous frame between uplink and downlink?

7 A Yes.

8 Q Does Atsuta in this paragraph we've been
9 talking about describe the downlink bandwidth?

10 A Yes.

11 Q Where?

12 A In the portions I've read to you.

13 Q I think we read the whole paragraph.
14 Where specifically in the paragraph does Atsuta
15 describe the downlink bandwidth?

16 A The transmission capacity of a picture
17 data sent from the base station to the subscriber
18 station in the downlink direction, the
19 transmission capacity is the downlink bandwidth in
20 that sentence.

21 Q Does Atsuta describe the downlink
22 bandwidth in this asymmetrical example as small,

1 like, the uplink bandwidth?

2 A No, the downlink would be larger than the
3 uplink. That is what asymmetrical would mean.
4 And so in this example, the allocation is with
5 respect to more of the band or the frame being
6 used for downlink than uplink.

7 Q I will have you look at your declaration,
8 paragraph 105.

9 A Okay.

10 Q The first sentence of this paragraph you
11 talk about Atsuta describing a single synchronous
12 frame in quotes, correct?

13 A I see that.

14 Q If you look at Atsuta you then cite to
15 Atsuta column 6, lines 35 to 64.

16 A Okay.

17 Q Could you show me where in that portion of
18 Atsuta your quoted single synchronous frame is
19 found?

20 A Let's see. Line 40 says the resultant
21 TDMA synchronous frame.

22 Q The quote was single synchronous frame.

1 That is what you had in quotes in your
2 declaration?

3 A I am describing the concept of a single
4 synchronous frame. I don't think I'm attempting
5 to quote the words single synchronous frame from
6 that portion. Describing -- characterizing what
7 Atsuta describes. Let me pull it up and just try
8 and do a word search to see if those words appear
9 in that portion, but that really wasn't the intent
10 of putting the single synchronous frame in quotes.

11 Yeah, I don't think those three words
12 appear, but I'm referring to the TDMA synchronous
13 frame that is being described there.

14 Q So do you think putting the quotation
15 marks around single synchronous frame in paragraph
16 105 is an error?

17 A No, I don't think it is an error. If you
18 confused it and thought that that was referring to
19 something that has appeared in the text then I
20 hope that I've clarified your misinterpretation.

21 Q So the term "single synchronous frame"
22 does not appear in Atsuta?

1 A I just did a word search. I didn't see
2 appear in there, but of course that is not the
3 point of putting it into quotes.

4 Q Keep looking at the same paragraph of your
5 declaration. The next portion of it starting,
6 These frames are TDD frames, if you could just
7 read the rest of that paragraph 105 of your
8 declaration.

9 A Okay.

10 Q Does transmitting data in the uplink
11 direction in the context of sharing a TDMA
12 synchronous frame teach or imply anything about
13 the downlink?

14 A It does in this paragraph in Atsuta.

15 Q How so?

16 A Because that is what the paragraph says.

17 Q Does asymmetrical communications in the
18 downlink and uplink directions inherently apply or
19 teach TDD?

20 A Beyond Atsuta whether or not that would be
21 sufficient to -- to make that representation I'm
22 not sure, it depends. Certainly in the context of

1 Atsuta where I'm offering the opinions that you
2 are reading from it is sufficient to disclose that
3 concept.

4 Q But asymmetrical communications in the
5 downlink and uplink directions in general does not
6 inherently imply or teach TDD?

7 A It depends on the context. I've looked
8 specifically at Atsuta and that is the point that
9 I'm making in paragraph 105 is what those
10 statements mean in the context of the surrounding
11 paragraph.

12 Q When Atsuta says that consequently since
13 the transmission capacity and the frequency band
14 of data sent in the uplink direction are small, is
15 it possible that Atsuta could be referring to a
16 system where the uplink frequency band is small
17 and the downlink frequency band is larger to
18 accommodate the data asymmetry between uplink and
19 downlink?

20 A You will have to repeat the question. I'm
21 not -- I'm not sure based on what Atsuta said that
22 you were reading from what implication you are

1 asking about.

2 Q The section of Atsuta that we've been
3 looking at, end of column 5, beginning of column
4 6, in that example is it possible that Atsuta
5 could be referring to a system where the uplink
6 frequency band is small and the downlink frequency
7 band is larger to accommodate the data asymmetry
8 between uplink and downlink?

9 A I believe Atsuta describes an example
10 where there is more downstream data sent than
11 upstream data sent. And that is one of the types
12 of systems that Atsuta can satisfy or it is a
13 requirement -- if it were a requirement, Atsuta's
14 configuration of the bandwidth would work in the
15 context of those requirements. And then it goes
16 on to say there is also flexibility in how you do
17 that assignment.

18 Q So Atsuta's configuration of the bandwidth
19 would work in a system where the uplink frequency
20 band is small and the downlink frequency band is
21 larger to accommodate the data asymmetry between
22 uplink and downlink?

1 A Atsuta's system could be configured that
2 way to have asymmetric bandwidth more in the
3 downstream direction than in the upstream
4 direction.

5 Q Would such a system be a TDD system?

6 A Linking those two together, a system that
7 had just the characteristic of what Atsuta is
8 describing I need more information to know whether
9 or not it is a TDD system or not. So you could
10 have a TDD system that worked that way or you
11 could have a TDD system that didn't work that way.

12 Q If the uplink frequency band is small and
13 the downlink frequency band is larger the two
14 bands are not the same, correct?

15 A If I understand your hypothetical, then
16 large and small are not the same then they would
17 not be equal.

18 Q I think we've been going about another
19 hour. This would be a good spot for a break if
20 you want one.

21 A I'm fine to keep going. If you want to
22 take a break, I'm also fine with that.

1 MR. OLIVER: Why don't we do 5 minutes.

2 MS. SPIRES: Sounds good.

3 (Recess, 11:59 to 12:05.)

4 Q I would like to have you go back to your
5 declaration and look at paragraph 48?

6 A Okay.

7 Q Okay. If you could read that paragraph
8 either to yourself or out loud?

9 A Okay.

10 Q When you say that a wireless channel is
11 divided by time for different users, does divided
12 by time for different users refer to the TDMA
13 portion of TDD/TDMA?

14 MR. OLIVER: Objection, form.

15 A It is referring -- it is really
16 referencing the idea of having different time
17 slots in which different users' transmissions can
18 be placed.

19 Q So divided by time for different users it
20 is not referring to the TDMA portion of TDD/TDMA?

21 A I don't know that one implies the other.
22 Certainly in the context of TDD and TDMA where you

1 do have different time slots, then part of what
2 you can do is to put different users'
3 communications into different time slots.

4 Q And that is TDMA, correct?

5 A TDMA is just the ability to divide a
6 frequency by time. You can certainly divide it
7 into time to create time slots, and then put
8 different users' communications into those
9 different time slots if that is ultimately how
10 TDMA is being used.

11 Q Then do you agree that divided by time for
12 downlink and uplink transmissions refers to the
13 TDD portion of TDD/TDMA?

14 A I think it is going to be similar. I
15 think within the context of time division
16 duplexing, I guess it gets to the question of how
17 much of the detail of the way that a system
18 implements a particular set of functionality how
19 much of that functionality falls within the
20 umbrella of TDD versus the specific design choices
21 of the system or not, so it depends.

22 Q Is it your opinion that a divided zone in

1 Atsuta satisfies the sector in the challenged
2 claims?

3 A I have to see if I make that
4 characterization in the declaration. I don't
5 recall if I do or not. If I haven't, I would have
6 to give it some thought. If I do in some portion
7 of the declaration, then we can go look at it and
8 I can refresh my recollection.

9 Q Look at page 54, footnote 2.

10 A Okay.

11 Q So based on that review, is it your
12 opinion that a divided zone in Atsuta satisfies
13 the sector in the challenged claims?

14 MR. OLIVER: Objection, form.

15 A Sorry, I don't see where it says divided
16 and I'm not sure which construction you are asking
17 about.

18 Q Okay. So you don't -- I'm not talking
19 about whether this paragraph says divided, I'm
20 asking the question. Is it your opinion that a
21 divided zone in Atsuta satisfies the sector in the
22 challenged claims. So start with the first

1 definition of sector you set forth in paragraph
2 69.

3 A I don't see where it references a divided
4 sector.

5 Q Divided zone?

6 A I'm sorry, a divided zone.

7 Q So I'm not asking about a reference
8 divided zone, I'm asking for your opinion. And my
9 question --

10 A Okay.

11 Q -- is it your opinion sitting here today
12 that a divided zone in Atsuta satisfies the sector
13 in the challenged claims under the first
14 definition of sector set forth in paragraph 69?

15 A I don't think I have offered an opinion
16 with respect to divided zones, and so sitting here
17 right now I would have to give it some thought. I
18 can certainly search through and see if I ever
19 used the term or referred to a portion of Atsuta
20 that talks about divided zone. I guess it --

21 Q Atsuta column 2 starting about line 45
22 talks about divided zones.

1 A Yeah. And actually at the end of footnote
2 2 it does -- it includes a quote that talks about
3 frames or form for respected divided zones so let
4 me see. I don't think I was relying on Atsuta one
5 way or another for the concept of a sector.
6 Again, I think that went back to Vornefeld.

7 And so whether or not Atsuta's divided
8 zones would mean one construction or the other I
9 don't recall offering that opinion. I don't see
10 that in this paragraph. Maybe there is others
11 that address it, but sitting here right now I
12 don't have the ability to give you an answer kind
13 of on the fly.

14 Q Could you come up with an answer if I gave
15 you time or would you need more time than you have
16 available today?

17 A I would want to do it outside the confines
18 of a deposition.

19 Q Okay. And is your answer the same for the
20 second construction of sector you set forth in
21 paragraph 69 that sitting here today you do not
22 have an opinion one way or the other as to whether

1 a divided zone in Atsuta satisfies a sector in the
2 challenged claims?

3 A That wasn't the sum total of my opinion.
4 My opinion was I don't know if it is addressed
5 somewhere in the declaration. To the extent --
6 whether it is or isn't sitting here right now, I
7 don't have the ability to either generate or
8 regenerate a conclusion basically on the fly.

9 Q Okay. Could you read Atsuta paragraph or
10 column 2, lines 45 to 63? You can read it to
11 yourself or out loud.

12 A 45 to 63?

13 Q Yes. Apologies, yeah, go ahead.

14 A Okay, I've read it. I've read it.

15 Q After reading that section, do you still
16 have no opinion as to whether divided zones are
17 sectors within the meaning of the challenged
18 claims under either construction you provide in
19 paragraph 69?

20 A Based on that paragraph, I would have to
21 give it some thought in what the constructions
22 require. Whether or not there is some portion of

1 the declaration that addresses that paragraph and
2 that question, I would defer to what the
3 declaration says. I don't recall that I do, so I
4 would have to see what someone -- if patent owner
5 has some perspective on that paragraph and then
6 provide a response.

7 Q If you look at Atsuta column 3, line 64?

8 A Okay.

9 Q And so there is a sentence that says, This
10 is because the TDMA control is performed for
11 individual divided zones with different radio
12 frequencies corresponding to a common TDMA
13 synchronous frame.

14 Do you see that?

15 A I do.

16 Q Is this saying that individual sectors
17 have different radio frequencies?

18 A As an inherent fact I guess it depends on
19 the system. This is saying that when you have
20 individual divided zones with different radio
21 frequencies corresponding to a common TDMA
22 synchronous frame, the "this" comes into play,

1 which is the previous sentence. The size of the
2 receiving apparatus can be reduced and thereby the
3 power consumption can be decreased.

4 And that is -- and even that is a
5 conclusion based on the preceding sentence, which
6 describes the results of the present invention.

7 Q Let's look up a little bit in that column,
8 column 3, lines 50 to about 54.

9 A Okay.

10 Q If you could read that?

11 A Okay.

12 Q And. So if we look at that description in
13 combination with figure 2 of Atsuta?

14 A Okay.

15 Q Is Atsuta describing that the frequency
16 converters 6A, 6B and 6C of figure 2 are
17 converting signals with different radio
18 frequencies?

19 A I would have to check. The paragraph you
20 are reading from is more a general description of
21 what the invention is as to what component, to the
22 extent that functionality is necessary, would be

1 performed by what component I would have to check.

2 Again, this is an aspect of Atsuta that I
3 am not relying on for the particular combination.
4 And what I'm drawing on from Atsuta is fairly
5 specific and described in the declaration.

6 Q Do you want to check? You said you would
7 have to check.

8 A I don't know what I would need to check.
9 Oh, with respect to what is performing the
10 function that you identified from column 3, I
11 would need some time to look and see what figure 2
12 is describing. If that is an analysis you want me
13 to try and perform right now, I can certainly give
14 it a shot. I don't recall it is one I did in the
15 declaration.

16 So again, I think you're kind of asking me
17 to form opinions on the fly, which I can always
18 do, but I wouldn't represent that they are
19 necessarily accurate until I had a full chance to
20 consider the question and do the analysis.

21 Q So even if you take the time to do the
22 analysis, you won't represent that it is an

1 accurate one sitting here today?

2 A That is not what I said.

3 Q So if you want to take the time to do the
4 analysis, and you feel like you can do a complete
5 analysis please go ahead.

6 A I'm not really prepared to form new
7 opinions outside of the scope of the declaration
8 on the fly so --

9 Q Okay.

10 A -- I'm not sure what to tell you.

11 Q So sitting here right now, you do not have
12 an opinion as to whether the section Atsuta column
13 3, lines 50 to 54 is describing that the frequency
14 converters 6A, 6B and 6C of figure 2 are
15 converting signals with different radio
16 frequencies, correct?

17 A I don't see that description from column 3
18 that you were reading from.

19 Q You don't see that description in column
20 3, is that what you are saying?

21 A Where were you reading from?

22 Q The column 3, lines 50 to 54 is what we

1 read earlier. The frequency converters of the
2 TDMA receiving apparatus according to the present
3 invention convert TDMA signals with different
4 radio frequencies sent with the same TDMA
5 synchronous frame into intermediate frequency
6 signals with the same frequency.

7 A Right. I see where you are reading. The
8 best I can say is I don't see where that
9 specifically ties that functionality to any
10 component of figure 2. So whether or not it does
11 or not, that is the part I would have to go
12 investigate and look at the rest of the
13 specification and try to decide.

14 I don't recall having done that analysis.
15 I don't recall that -- whether it is or isn't has
16 any impact on my invalidity opinions. I don't
17 believe it does, but to the extent that you think
18 it does, then potentially I will see those
19 opinions at some point in the future.

20 Q Are you able to identify any passage in
21 Atsuta that describes using the same frequency
22 band for different sectors?

1 A I don't have Atsuta memorized. I don't
2 recall that being -- I would have to check the
3 declaration to see if that is something that I
4 rely on Atsuta for.

5 Q Go ahead.

6 A I don't see where in the declaration it is
7 something I relied on Atsuta for. So to the
8 extent I'm missing it and you have got someplace
9 in mind you can point me to it, otherwise it is a
10 fairly lengthy declaration. To the extent it is
11 there and I'm missing it, I think the declaration
12 speaks for itself.

13 Q So at least you are not aware of any
14 passage in Atsuta that describes using the same
15 frequency band for different sectors sitting here
16 today, correct?

17 A Sitting here today, I don't have Atsuta
18 memorized. So it would be hard for me to point
19 you to a particular portion of Atsuta that would
20 meet your characterization.

21 Q There are none that you can recall sitting
22 here today?

1 A I don't have Atsuta memorized, so it would
2 be really difficult for me to recite Atsuta column
3 and line number for support for that particular
4 characterization.

5 Q Correct.

6 A Maybe there is -- sorry, maybe there is
7 something in the declaration, but sitting here
8 right now, just based on memory, I don't have
9 something I can point you to.

10 Q Does Atsuta's figure 3, you can look at
11 that, does Atsuta's figure 3 show that the sectors
12 use non-overlapping distinct frequency bands?

13 A Sorry, could you repeat the question?

14 Q Sure. Does Atsuta's figure 3 show that
15 you -- strike that.

16 Does Atsuta's figure 3 show that the
17 sectors use non-overlapping distinct frequency
18 bands?

19 MR. OLIVER: Objection, form.

20 A Let's see. I don't recall if the
21 declaration says that about figure 3, so let me
22 see if there is a discussion of figure 3. It

1 seems to be around paragraph 106.

2 I'm not sure what the scope of your
3 characterization would include, so the best I can
4 point you to is where I describe Atsuta in figure
5 3 around paragraph 106 and 107.

6 Q My question is, you are a POSA or at least
7 have the knowledge of a POSA, right?

8 A I am.

9 Q So can you look, as a POSA, at Atsuta's
10 figure 3 and tell me whether Atsuta's figure 3
11 shows that the sectors use non-overlapping
12 distinct frequency bands?

13 MR. OLIVER: Objection, foundation.

14 A I have to give it some thought. There is
15 a discussion of figure 3, there is the
16 description. I have provided my explanation of
17 how figure 3 is relevant in the context of the
18 combination in paragraphs 107 and 108. So to the
19 extent you are asking me to form a new opinion
20 beyond what is described in the declaration, I
21 would have to give it some thought.

22 Q So sitting here today, you do not know

1 whether Atsuta's figure 3 shows that the sectors
2 use non-overlapping distinct frequency bands; is
3 that correct?

4 A Well, there is two systems in figure 3.
5 There are frequencies that are identified for the
6 different zones. Those look to be non-overlapping
7 for the different sectors. If I understand your
8 question correctly, that is part of what the
9 frequency spectrum on the right side would show,
10 but I don't recall if that is an aspect of figure
11 3 that I'm relying on Atsuta for.

12 Q If two adjacent sectors use two different
13 non-overlapping frequencies or frequency bands as
14 in Atsuta's figure 3, would transmissions on one
15 of those frequencies interfere with transmissions
16 on the other of those frequencies at the common
17 sector border?

18 A It would depend.

19 Q On?

20 A On lots of details and how the system was
21 implemented and what the environment was.

22 Q What are some of those details that you

1 would need to know?

2 A It is hard for me to give you a definitive
3 list what the frequency -- what kind of separation
4 between the frequencies were, what the different
5 antennas would look like, what the different
6 components layout in the particular transmitter
7 would be, characteristics of environments, the
8 degree to which you would have multipath
9 interference. I mean, it depends.

10 Q Is this an analysis you did in forming
11 your opinions?

12 A I don't recall whether or not there would
13 be interference or not had an impact on the
14 opinions that I've offered in the declaration. I
15 don't think whether or not there can be
16 interference would have an impact in large part
17 because the references describe different ways in
18 which interference can be adapted and dealt with.

19 Q Let's look at Atsuta column 1.

20 A Okay.

21 Q Lines 13 to 18, if you could read that
22 paragraph.

1 A Okay.

2 Q What does fan-shaped beam antenna mean in
3 this context?

4 A Just what it says. An antenna that can
5 transmit a beam that is fan-shaped.

6 Q Is a fan-shaped beam antenna directional
7 so that it is uniform over a sector with a gain
8 pattern that falls off between the sector. Would
9 you agree with that?

10 A Not necessarily.

11 Q Why not?

12 A Because it is not always a requirement or
13 a characteristic --

14 Q What is --

15 A -- because -- sorry, go ahead.

16 Q Go ahead.

17 A It depends on the environment that you are
18 in. The antenna, the signal, power, frequency, et
19 cetera.

20 Q I can't -- I've got to ask you to repeat
21 something because I can't read it back in the
22 realtime.

1 So I asked what does a fan-shaped beam
2 antenna mean in this context. You said that can
3 transmit a beam and I don't know what it says
4 after that.

5 A In the shape of a fan radiate from an
6 antenna and then typically is an arc fanning out
7 from the transmission point. Usually there is a
8 figure with what that transmission might look
9 like. I don't see one in Atsuta. The '931 patent
10 might have an example.

11 Q Does a fan-shaped beam antenna necessarily
12 include a antenna array?

13 A Not necessarily.

14 Q Does a fan-shaped beam antenna necessarily
15 include a smart array?

16 A Not necessarily. I think with both these
17 questions it depends on the context and how those
18 terms are used.

19 Q Does Atsuta describe that its antennas can
20 beamform to individual subscriber dividers within
21 sectors?

22 A I don't have Atsuta memorized in order to

1 give you a paragraph that might or might not meet
2 that characterization.

3 Q Feel free to look through Atsuta to try to
4 find it if there is one?

5 A I am not prepared to look through all of
6 those paragraphs and see whether or not one or
7 more would meet the characterization as you have
8 asked in your question.

9 Q So sitting here today, you cannot recall a
10 description in Atsuta of antennas that can
11 beamform to individual subscriber devices within
12 sectors; is that fair?

13 A I don't have Atsuta memorized. There is
14 some discussion of Atsuta's transmission
15 capability in paragraph 106. I don't know if that
16 is directly responsive to your question or not.
17 And obviously there might be other paragraphs in
18 the declaration that address that question.

19 Q But my question is whether sitting here
20 today, you can recall a description in Atsuta of
21 antennas that can beamform to individual
22 subscriber devices within sectors?

1 A Same answer.

2 Q You haven't given me a yes or no. You
3 have directed me to a paragraph in your
4 declaration that you think may or may not be
5 relevant. My question is just, I understand you
6 don't have Atsuta memorized. I have the
7 reference -- you have the reference in front of
8 you, you have it in electronic copy.

9 Do you recall from all of the analysis
10 that you have done any description in Atsuta of
11 its antennas beamforming to individual subscriber
12 devices within sectors?

13 A I disagree you characterized my previous
14 answer correctly. I believe I answered it, it
15 would be the same answer, which in part says I
16 don't have the references memorized but then went
17 on from there.

18 Q There is not a requirement that people
19 submitting a declaration have declarations
20 memorized. There is a requirement that experts
21 providing a declaration allow themselves to be
22 questioned as to what their opinions are.

1 A I disagree that I'm not allowing you to
2 question me. I'm giving you truthful answers as
3 to what I recall.

4 Q And I would like to know, sitting here
5 today, if you recall any description in Atsuta of
6 its antennas beamforming to individual subscriber
7 devices within sectors?

8 A It is the same answer. I don't have the
9 references memorized. I can't give you a
10 paragraph off the top of my head for a reference I
11 don't have memorized.

12 Q So I guess that means you can't recall a
13 reference within Atsuta that describes that its
14 antennas can beamform to individual subscriber
15 devices within sectors, correct?

16 A I can't give you a paragraph off the top
17 of my head, because I don't have one memorized.

18 Q So you think there is one there and you
19 just can't find it?

20 A I didn't say that. I don't have a
21 paragraph, because I don't have the reference
22 memorized.

1 Q I am telling you we can sit here all day.
2 Look through Atsuta and tell me whether you see a
3 description that its antennas can beamform to
4 individual subscriber devices within sectors?

5 A To the extent you are asking me to form
6 new opinions and a characterization of Atsuta, I
7 would need some time to look through Atsuta. I'm
8 not prepared to sit here and do a full review of
9 Atsuta. I think it might take more time than we
10 have left for the deposition. And so to the
11 extent it is not something that is properly
12 addressed in the declaration, I would have to give
13 it some thought.

14 Q So right now you do not know one way or
15 the other?

16 A I don't have Atsuta memorized, so I can't
17 give you a paragraph or a citation to Atsuta that
18 would meet the requirements of your
19 characterization.

20 Q The Board is going to love your
21 transcript. Okay.

22 How about if you do an electronic search

1 of Atsuta for the word "array"?

2 A It says there is not a hit, there is no
3 response.

4 Q What about the word "beamform"? Can you
5 do an electronic search of Atsuta to find the word
6 beamform?

7 A The only time beam shows up is where you
8 were reading fan-shaped beam antenna.

9 Q So the word "beamform" does not appear in
10 Atsuta?

11 A It appears not.

12 Q Okay. Let's look at your declaration
13 pages -- paragraph 108 and it goes into -- it is
14 the paragraph that splits pages 56 and 57?

15 A Okay.

16 Q At the end of page 56 you say, Thus, the
17 blue, green and red downlink data in Vornefeld,
18 figure 3, showed downlink data transmitted to
19 subscribers in different sectors and the same
20 blue, green and red downlink data are shown in
21 Atsuta figure 3 all within a single frame. And
22 then you have the image of Vornefeld below.

1 Do you see that?

2 A I do.

3 Q In making the statement that I just read,
4 what construction of "sector" are you using?

5 A I don't know that this particular
6 statement would be impacted by whether or not you
7 used one construction or another. This goes
8 really to the concept of what the structure of the
9 frame would look like, and then ultimately the
10 frame could be transmitted to a sector described
11 as a geographic portion of a cell site or a cell
12 site defined by the transmission area of a
13 corresponding antenna.

14 Q So you state, correct, that the data is
15 transmitted to subscribers in different sectors?

16 A Yeah. I don't think that sentence changes
17 whether or not you use patent owner's construction
18 for the construction that the Court adopted that I
19 used in this declaration as the second definition.

20 Q Can you point to where in Vornefeld it
21 describes that your annotated transmissions are to
22 subscribers in different sectors?

1 A So at least one example is that you have
2 different spatial domains shown in figure 3. So
3 those different spatial domains would be for
4 different sectors, and in different sectors they
5 would be different users. That is at least one
6 example. Whether or not there is other portions I
7 could potentially cite to, I would have to go back
8 and look.

9 Q Can you point to where in Vornefeld it
10 describes interference between two different
11 sectors?

12 A I don't have Vornefeld memorized.

13 Q You talk about this in paragraph 109 when
14 you cite Vornefeld at page 55. So I guess I would
15 like to know where on Vornefeld's page 55 you are
16 referring to exactly?

17 A The second column and the second half of
18 that paragraph.

19 Q Which paragraph, the above or below uplink
20 scheduling?

21 A Below.

22 Q Okay.

1 A The second half of that paragraph.

2 Q Okay. Can you read what you're referring
3 to?

4 A Starting with the words, "By tracking
5 these positions and monitoring reception success"
6 to the end.

7 Q Okay. That is the portion of Vornefeld
8 that you are relying on in paragraph 109?

9 A It is the portion -- what I've cited in
10 page 55, that is the portion that is particularly
11 relevant. Before you pointed me to paragraph 109,
12 I was also looking at page 52 that provides some
13 characteristics of the spatial domain and the
14 kinds of interference and then signal processing
15 algorithms that can be used in the context of
16 space division multiplier access to account for
17 things like interference, signal degradation,
18 multipath effects.

19 Q In --

20 A Sorry, just so consistent with 109 that is
21 one place that I've cited to, but that is
22 obviously in the context of the overall

1 understanding a person of skill in the art would
2 have from reading the reference.

3 Q In Vornefeld, does a uniform linear array
4 correspond to one sector?

5 A Sorry, what is the term again?

6 Q In Vornefeld, does the uniform linear
7 array or one antenna array correspond to one
8 sector?

9 A I don't see where that -- I'm sorry, I was
10 in Atsuta. Let me pull up Vornefeld to see where
11 that term shows up.

12 I don't see where that term shows up.
13 Actually the exhibit from the petition doesn't
14 seem to be OCR.

15 The best I can do to answer that question
16 is point you to the summary of the analysis --
17 analysis that I did for Vornefeld's --

18 Q If it helps, I can show you where the term
19 shows up.

20 A The Patent Office and the patent owner
21 have already determined and accepted that
22 Vornefeld discloses that feature. As to what was

1 determined to specifically meet that limitation, I
2 don't have that detail memorized.

3 Q If you look on page 56 of Vornefeld the
4 last paragraph under performance evaluation you
5 will see a discussion of uniform linear array.

6 A Sorry, which column?

7 Q The last paragraph of page 56?

8 A Okay. I see what it says.

9 Q And so my question was, in Vornefeld does
10 this ULA correspond to one sector?

11 A I don't recall or have memorized the
12 details of what the determination was by the Board
13 and what was accepted by the patent owner as to
14 whether or not this was what was identified as
15 sufficient to meet the limitation. If you could
16 remind me what limitation it shows up in I can
17 point you to where I identified what I thought
18 would be sufficient to meet that limitation in the
19 first part of the declaration.

20 Q I can read your declaration and see what
21 you identified. I was just asking you a question
22 and your interpretation of Vornefeld.

1 A I don't remember either what I said and
2 what the PTAB said or what the patent owner agreed
3 to.

4 Q Did you form your own opinions about
5 Vornefeld aside from the PTAB said?

6 A I did and those are summarized in the
7 first part of the declaration.

8 Q In drafting your declaration, did you
9 perform the drafting of your declaration?

10 A They're essentially my opinions. So when
11 I signed my name, they became additional record of
12 what my opinions were. The process itself, I
13 don't specifically recall.

14 Q I mean, it is a very large document. You
15 don't recall whether you drafted it or not?

16 A There is certainly large portions of the
17 document that I drafted. Portions like
18 incorporating the figures, I don't recall if I
19 specifically did that or not, but ultimately
20 they're my opinions in the declaration.

21 Q Can you point to where in Vornefeld it
22 describes scheduling across or between subscribers

1 in two different ULAs?

2 A I would need some time to look through
3 Vornefeld.

4 Q Sure.

5 A What is the question again?

6 Q Can you point to where in Vornefeld it
7 describes scheduling across or between subscribers
8 in two different ULAs?

9 A I'm not sure what that means, scheduling
10 across or between subscribers. I said I'm not
11 sure what your question meant, what you meant by
12 across or between subscribers.

13 Q Let's look instead, let's go to your
14 declaration at paragraph 109.

15 A Okay.

16 Q Actually let's skip that.

17 Let's look at the claims of the '931
18 patent?

19 A Okay. I've got them up.

20 Q All right. I assume you have reviewed
21 these in forming your opinions?

22 A I have.

1 Q Okay. Looking at claim 28. Is it within
2 the scope of claim 28 in your opinion that the
3 second transmission, i.e., the transmission of
4 second downlink data traffic can be simultaneous
5 with the first transmission or the transmission of
6 the first downlink data traffic?

7 A If I understand your question correctly,
8 it is about can be. I don't recall there being a
9 requirement in claim 28 that would exclude that
10 possibility so it seems like it could potentially
11 be within the scope.

12 I'm not sure I have enough details to
13 understand, but if I do understand and you are
14 just asking about simultaneous transmission, my
15 recollection is that it could be within scope
16 though the claims aren't limited to that scope.

17 Q So the transmission also cannot be --
18 doesn't have to be simultaneous between the
19 transmissions, correct?

20 A I think that is incomplete.

21 Q Okay. Could you complete it?

22 A Sure. So it is -- it is actually where

1 the transmission in said downlink portion of said
2 TDD frame, and then it goes on from there. So
3 there is a requirement with respect to the second
4 downlink transmission being in the same downlink
5 portion as referenced in claim 1.

6 Q Is it within the scope of claim 28 that
7 the second transmission can be not simultaneous
8 with the first transmission?

9 A I believe --

10 MR. OLIVER: Objection, form.

11 A I believe it doesn't have to be
12 simultaneous, but it has to meet the requirements
13 of the claim.

14 Q Is the same true for claim 29 that it can
15 be sim -- the transmission -- second transmission
16 can be simultaneous with the first transmission
17 but does not have to be?

18 A As long as it meets the requirements of
19 the claim.

20 Q Let's look back at Atsuta. This time I'm
21 looking at figure 2.

22 A Okay.

1 Q Does figure 2 show the components of a
2 base station or a subscriber station?

3 A Well, let's see. It says a TDMA receiving
4 apparatus, so it should be a receiver.

5 Q A base station?

6 A It is a receiving unit. So while base
7 stations can receive, I think it is looking more
8 at the receiving apparatus itself.

9 Q And does figure 2 show receivers or
10 transmitters?

11 A It is focused on receiving. Whether or
12 not the device can also do transmitting I think it
13 would, but it is really focused on the receiving
14 aspect.

15 Q So figure 2 is focused on uplink then,
16 correct?

17 A No. I think as we discussed earlier with
18 respect to Atsuta, it is describing receiving.
19 And so you can either receive in the uplink or you
20 can receive in the downlink, so I don't know that
21 figure 2 is -- would be limited in what it is
22 describing to just the uplink.

1 Q Let's look at Atsuta's description at --
2 in column 45.

3 A You broke up a little bit. I didn't hear
4 what figure or what columns.

5 Q Atsuta figure 3, description of figure 3,
6 in column 5?

7 A Okay.

8 Q It is at lines 17 to 20?

9 A Okay.

10 Q And so it says that figure 3 is describing
11 TDMA communicating method and the operation of the
12 TDMA receiving apparatus for use with the base
13 station according to the present invention.

14 A I see that.

15 Q So does this mean that Atsuta is using
16 figures 3A and B to describe uplink transmissions
17 from subscriber stations to a base station?

18 A No, I don't think that is accurate. It is
19 describing how it would work using the example of
20 the uplink direction but it is not limited to
21 uplink. So it is really using that as an example
22 with the understanding it would essentially be the

1 mirror for downlink, which is something I said in
2 the declaration.

3 Q So it is your opinion that TDMA receiving
4 apparatus for use with the base station refers to
5 something other than an uplink TDMA receiving
6 apparatus in the base station?

7 MR. OLIVER: Objection to form.

8 A No, I think that mischaracterizes what I'm
9 saying.

10 Q So then it is your opinion that TDMA
11 receiving apparatus for use with the base station
12 refers to an uplink TDMA receiving apparatus in
13 the base station?

14 MR. OLIVER: Objection, form.

15 A That is incomplete.

16 Q How so?

17 A There is the specific example that is
18 described here. And it is described in the
19 context of uplink, but it is functionality that
20 also applies in the downlink direction. In
21 particular the aspects that I am relying on from
22 Atsuta that a person of skill in the art would

1 look to incorporate in the context of Vornefeld.

2 Q But my question is TDMA referring
3 apparatus for use with the base station. Does
4 that or does that not refer to an uplink TDMA
5 receiving apparatus in the base station?

6 A That is the example scenario in which the
7 technology is described and applies equally in the
8 downlink direction.

9 Q That wasn't my question. My question is,
10 does the statement TDMA receiving apparatus for
11 use with the base station in Atsuta refer to an
12 uplink TDMA receiving apparatus in the base
13 station, yes or no?

14 A It is not a yes or no question. I think
15 yes or no to that description is a
16 mischaracterization of what Atsuta teaches.

17 Q Why? I asked you one time --

18 A Hold on -- well --

19 Q Go ahead.

20 A You said why, and I provided an
21 explanation for why that is the case. And so
22 trying to create a representation of what this

1 figure shows divorced from the rest of the
2 specification is an inaccurate characterization of
3 both what this figure describes and how it would
4 be understood by a person of skill in the art.

5 Q You will agree that Atsuta intends figures
6 3A and 3B at least to describe the uplink,
7 correct?

8 A As to intention, it describes what it
9 describes, which is a technique that can be
10 applied in the uplink and downlink direction as
11 Atsuta specifically says.

12 Q Looking back at Atsuta figure 3, would a
13 POSA know what Atsuta means by added bits?

14 A I don't have any reason to believe that a
15 person of skill in the art wouldn't in the context
16 of Atsuta.

17 Q Did you say would or wouldn't?

18 A Wouldn't. They wouldn't have any -- I
19 don't have any reason to believe a person of skill
20 in the art would not know what that was referring
21 to.

22 Q Can you explain the POSA's understanding

1 of the added bits?

2 A It doesn't specifically say, but added
3 bits can be any sort of bit that is at the
4 beginning depending on how this system was
5 implemented. It is from the end of the previous
6 frame additional bits to create synchronization
7 with other frames. And there is a variety of
8 reasons in which you might have added bits in the
9 system.

10 Q Which subscriber station would transmit
11 the added bits for Sector Zone 1 in Atsuta figure
12 3.

13 A It seems like a fairly specific question.
14 I would probably have to give it some thought.

15 Q That is not something you've considered
16 before today?

17 A For something that specific I don't recall
18 thinking that I needed to answer that question to
19 form the opinions that are in the declaration.

20 Q Is that a question you are prepared to
21 answer today or is that not something you can do
22 in the context of this deposition?

1 A I would have to give it some thought.

2 Q I assume that answer is the same for which
3 subscriber station transmits the added bits for
4 sector zones 2 and 3?

5 A Or even that it would have to come from
6 that particular station.

7 Q But the answer is the same, that sitting
8 here today you haven't formed an opinion on that
9 question?

10 A Or that the added bits change any of the
11 opinions in my declaration.

12 Q Are the added bits intended to be received
13 by the base station?

14 A It would depend on whether or not you're
15 considering uplink versus downlink.

16 Q And --

17 A Sometimes -- sorry. It says -- the figure
18 says that added bits, I think your -- your
19 implication in your question seems to be that it
20 is -- it is actual bits as opposed to bit times
21 and whether or not those bits would have any
22 meaningful information. I think that -- that

1 assumption is inconsistent with how I answered the
2 question when you asked what a person of skill in
3 the art would understand those to be.

4 Q Okay. So you don't believe added bits are
5 something that is received by a base station?

6 A It would depend on the scenario in which
7 the transmission would occur. I think they really
8 represent bit slots, bit times. As I testified to
9 earlier they could be used for synchronization to
10 align the beginning of a particular frame in time.
11 As to whether they would have to be received by a
12 base station would depend on whether or not you're
13 transmitting and/or receiving in the uplink or
14 downlink -- in the upstream or downstream
15 direction.

16 Q If you're transmitting in the uplink,
17 would the added bits be received by the base
18 station?

19 A If they were actual bits. Again, that was
20 the point of whether or not they were bit times
21 for synchronization or not. So to the extent they
22 were actual bits and you had a system that was

1 implemented that way, then presumably in that
2 implementation those bits would be received by the
3 base station in the uplink direction.

4 But again, I don't think that that is
5 necessarily the interpretation or the teaching of
6 Atsuta. It gets into a detail that is beyond what
7 Atsuta specifically describes. So it would come
8 to more of a hypothetical, so it would depend on
9 how the system would be implemented.

10 Q Okay. Are the added bits intended to be
11 received by other subscriber stations?

12 A Again, you are using the word intended.
13 It would depend on what the system is that would
14 implement Atsuta and what those additional bits
15 would be in that particular implementation.

16 Q Are the added bits for Sector 1 intended
17 to be received by the base station receiver that
18 receives Sector Zone 2?

19 A Same answer.

20 Q Which was?

21 A It would depend on the system.

22 Q Even though the sectors had different

1 frequencies?

2 A If that is how the system were designed,
3 then it depends on the system. It is a level of
4 detail that Atsuta doesn't go into, and so as a
5 characteristic it would depend on how Atsuta were
6 used. And that goes into the implementation
7 detail of the resulting system.

8 And so its -- its intent or its use or how
9 it would function would depend on how it was
10 designed to implement it, which is beyond the
11 details that are offered in Atsuta.

12 Q Would a POSA understand that the added
13 bits are broadcasted?

14 A I don't think Atsuta says one way or
15 another as to whether or not they would be
16 required to be broadcasted or not. I don't think
17 it is a detail that Atsuta specifically
18 identifies.

19 Ultimately the point would be those
20 additional bits don't change what Atsuta
21 identifies as the frame structure or change what I
22 believe a person of skill in the art would draw

1 from Atsuta. It is the detail unrelated to what
2 I've relied on in Atsuta for what the combined
3 system of Vornefeld and Atsuta would look like as
4 one example.

5 Q We have been going a little over an hour
6 if anyone needs a break.

7 A It is up to you.

8 Q Let's take five minutes.

9 A Sure.

10 (Recess, 1:12 to 1:18 p.m.)

11 Q So I would like to look at Atsuta column
12 2.

13 A Okay.

14 Q So the paragraph under Summary of the
15 Invention?

16 A Yes.

17 Q It says, An object of the present
18 invention is to share the same functional circuit
19 so as to simply -- simply, I assume it means
20 simplify, the structure, the entire apparatus and
21 reduce the size and power consumption thereof.

22 A Yes.

1 Q Is it your opinion that Atsuta reduces the
2 size and power of the base station receive
3 circuitry?

4 A Of the receive circuitry, certainly that
5 is one of the things that it could do to the
6 extent the technique was used in the uplink
7 direction.

8 Q Is it your opinion that Atsuta's design
9 reduces the complexity of the base station receive
10 circuitry?

11 A In a typical use of Atsuta, especially as
12 it would be used in Vornefeld, I think that would
13 be understood to be a benefit as part of what I
14 identify in the motivation to combine section.

15 Q Could I have you look at Atsuta figure 2?

16 A Okay.

17 Q Could you describe what about Atsuta's
18 invention in this figure saves size and power over
19 the prior art figure 1?

20 A Sure. So where in the prior art you have
21 the first indoor unit, second indoor unit and
22 third indoor unit. So figure -- in figure 1, 1A,

1 1B and 1C it allows you to consolidate those kinds
2 of components.

3 And that is an example of kind of one of
4 the configurations and uses of Atsuta where you
5 can have -- instead of having multiple redundant
6 components each performing individual
7 functionality, they can be consolidated into a
8 single device. And those components can provide
9 the functionality multiple times but only needing
10 one instance. The consequence of fewer components
11 would lead to smaller form factor, better
12 performance, better reliability, less power.

13 Q Anything else?

14 A That is the first thing that comes to
15 mind. It is particularly advantageous in the
16 context of how the difference between figure 1 and
17 figure 2 would be applied given the functionality
18 that Vornefeld describes.

19 So again, the idea is not to take Atsuta's
20 entire system and incorporate it into Vornefeld,
21 but to incorporate particular aspects of Atsuta as
22 identified in the declaration into a system like

1 Vornefeld.

2 Atsuta provides a description of what some
3 of those components would look like where
4 Vornefeld describes it more from a functional
5 perspective. And so it would give a person of
6 skill in the art guidance as to the advantages of
7 the simplification that Vornefeld would provide in
8 support of the kinds of functionality that I rely
9 on Atsuta for.

10 Q And this includes simplification in the
11 base station receive circuitry?

12 A In the base station transmit circuitry for
13 the downlink.

14 Q So not for the -- Atsuta's design does not
15 reduce the complexity of the base station receive
16 circuitry?

17 A No, it could if it is also used in the
18 uplink, but it also would have advantages if it
19 were used in the downlink direction as Atsuta also
20 contemplates.

21 Q Did you perform any analysis of how much
22 size and power Atsuta's invention would reduce a

1 base station design?

2 A If you are asking for some sort of
3 specific number in a corresponding metric, I
4 didn't go to that level of detail. I thought the
5 level of detail that I provided was sufficient to
6 establish a motivation to combine, obvious to try,
7 with the likelihood of success to kind of use some
8 common language.

9 Q Did you do an analysis of the added size
10 power and complexity of the receive -- the three
11 receive antennas, 3A, 3B and 3C if their bandwidth
12 is tripled?

13 MR. OLIVER: Objection, form.

14 A So that presumes the characteristic of
15 Atsuta that I disagreed with. And so I don't
16 think that is a characteristic of the combination.
17 And so I wouldn't have needed to do any sort of
18 impact analysis as you suggested in your question,
19 because ultimately that is not the combination.

20 Q Did you do an analysis of the added size,
21 power and complexity of Atsuta's newly added
22 combining unit 10?

1 A That would presume that functionality
2 similar to a combining unit wouldn't have existed
3 in Vornefeld. And so the reality is there is
4 already combining functionality within Vornefeld
5 to identify data to go into particular slots. And
6 so I don't believe there would be any additional
7 complexity or cost or size or cost that would rise
8 to the level to make it not obvious to at least
9 try with a likelihood of success.

10 Q In forming your opinions, did you do any
11 analysis of the added size, power, complexity of
12 Atsuta's newly added combined unit 10?

13 A I thought I just answered that question.

14 Q It wasn't clear to me that you did this
15 analysis in forming your opinions. It sounded
16 like this was an analysis you were doing now?

17 A No, I think it is part of the motivation
18 that I considered both advantages as well as
19 whether or not there would be disadvantages so
20 significant to make it not obvious.

21 Q You agree that demodulating circuit 8 now
22 handles three times the data rate that each prior

1 art demodulating circuit 8A, 8B or 8C had to
2 handle?

3 A No, I don't think that is necessarily the
4 case.

5 Q Why is that?

6 A It is not a question of data rate. It is
7 a question of being able to handle. In the
8 context of how this functionality would be used in
9 Vornefeld, the demodulating circuit doesn't have
10 to change. And moreover, if you are thinking
11 about transmitting, you are not looking at a
12 demodulation circuit. You are looking at a
13 modulation circuit.

14 Really the modulation circuit doesn't have
15 to change. All it has to do is be fed data to be
16 sent to second downlink data traffic in the same
17 downlink portion of the TDD frame.

18 Q So in your opinion, the demodulating
19 circuit 8 would not need to change from figure 2
20 to figure -- from figure 1 to figure 2?

21 A Not in the context of what I'm relying on
22 Atsuta for in the combination of Vornefeld plus

1 Atsuta.

2 Q Did you do an analysis of the added size,
3 power and complexity of the TDMA control circuit 9
4 as opposed to the TDMA control circuit 9A, B or C
5 in figure 1?

6 MR. OLIVER: Objection, form.

7 A It is -- it is essentially the same answer
8 in the context of what functionality I'm relying
9 on from Atsuta. That is functionality that would
10 have already needed to be in Vornefeld, because it
11 still has to control transmissions for a
12 particular sector within a frame.

13 Q If we could look at page 79, paragraph 153
14 of your declaration.

15 A Okay.

16 Q In the last sentence of page 79, paragraph
17 153, you say, Moreover -- I cannot pronounce --
18 Youssefmir describes using an antenna array to
19 transmit different beams to different sectors of
20 the cell site.

21 Do you see that?

22 A I do.

1 Q Is this your opinion -- strike that.

2 Which construction of sector are you using
3 in forming this opinion?

4 A I believe it is under the second
5 definition.

6 Q Is it also -- is it also under the first
7 definition or just the second?

8 A I believe it is just under the second
9 definition, which is ultimately then why there is
10 an additional ground to consider the first
11 definition.

12 Q When you say the second definition, you
13 are again talking about the second definition that
14 you gave for sector in paragraph 69 of your
15 declaration, correct?

16 A That's correct.

17 Q And you provide cites to Youssefmir to
18 support your opinion, correct?

19 A I do.

20 Q And is it your opinion that the -- there
21 are four citations in there that you provide -- is
22 it your opinion that these four citations, either

1 individually or collectively, teach using an
2 antenna array to transmit different -- to
3 different sectors of the cell site?

4 MR. OLIVER: Objection, form.

5 A I'm not sure what four you are talking
6 about, but I think in ultimately one of the
7 portions is that it has a smart antenna system and
8 it has an array of antenna elements. I believe
9 that it then goes on to identify additional sites.
10 I'm not sure where you get just four sites from.
11 There is actually a whole collection in paragraph
12 153 across pages 79 and 80 that I think I go --
13 that go to what a person of skill in the art's
14 understanding would be.

15 Q So I'm using the four sites. You say,
16 moreover, Youssefmir describes using an antenna
17 array to transmit different beams to different
18 sectors of the cell cite.

19 And then you cite Exhibit 1007 at column
20 5, line 31 to 40 that says, Smart antenna system
21 has an array of antenna elements, a beamforming
22 network that forms a set of fixed beams for the

1 antenna elements. Then you go on to cite column
2 6, lines 23 to 48, column 9, lines 13 to 19, and
3 column 14, line 5 to 19. Those are the citations
4 you provide for that sentence.

5 A I see. And then I would also include 7,
6 33 through 61 and 8, 5 through 12, all of which I
7 think form an exemplary set of citations.

8 Q Okay. So those citations in paragraph
9 153, is it your opinion that those citations
10 either individually or collectively teach using an
11 antenna array to transmit different beams to
12 different sectors of the cell site?

13 A I think that is incomplete. I think what
14 it actually is teaching is what is required of
15 limitation 1C under the second -- under the second
16 construction. So your characterization is not all
17 of what is actually required.

18 Q Okay. So you say Youssefmir describes
19 using an antenna array to transmit different beams
20 to different sectors of the cell site, correct?

21 A That is one of the sentences.

22 Q What citations of Youssefmir do you

1 believe teach, either individually or
2 collectively, that statement that you made right
3 there?

4 A The ones that I cited to in the paragraph,
5 which to be clear, is not a full recitation of
6 what I think the claim requires. Those citations
7 cover what the claim requires. So instead of
8 repeating all of the words of the construction and
9 the words of the claim, I'm summarizing in that
10 portion what Youssefmir teaches and how those
11 citations relate to the specific requirements of
12 the claim. So I wouldn't take that statement that
13 you read, the moreover overstatement, and
14 interpret it as a substitution for the
15 construction and what the claims actually require.

16 Q Is it your opinion that the passages that
17 you just referred to from Youssefmir teach that a
18 given TDD frame structure such as the one in
19 Youssefmir's figure 3 or 4 or 5 must be the same
20 for all sectors at a given time if there are two
21 or more sectors?

22 MR. OLIVER: Objection, form.

1 A I didn't follow your question.

2 Q Is it your opinion that the passages you
3 have just referred to from Youssefmir teach that a
4 given TDD frame structure must be the same for all
5 sectors at a given time if there are two or more
6 sectors?

7 A I don't know if you want to break it down.
8 I don't believe I'm relying on those cites in
9 Youssefmir for that characterization. Maybe you
10 could repeat it one more time slowly and I will
11 try and pick up all the requirements in the
12 question.

13 Q Okay. See if I can make it a little
14 clearer. So per Youssefmir's invention, is it
15 possible that the TDD frame structure might be
16 different for different sectors at a given time?

17 A That the frame structure might be
18 different, I don't recall if Youssefmir teaches
19 that. I don't recall relying on there being a
20 different frame structure as something I thought
21 was required by the claims and then cited to that
22 in support of the limitation being met.

1 Q So you don't recall one way or the other
2 whether Youssefmir teaches that a -- the TDD frame
3 structure must be the same for all sectors at a
4 given time or can be different for different
5 sectors at a given time?

6 A Right. I don't remember the specific
7 teachings of Youssefmir whether or not it is
8 inclusive or exclusive that has limitations on
9 what the structure can be. I think in terms of
10 what the frame structure would be, that gets into
11 the limitation after the paragraph you have been
12 asking about, 153.

13 And I don't think that paragraph 154 talks
14 anything about whether or not Youssefmir
15 contemplates a different frame structure or even
16 exactly what that would mean. I believe that
17 portions I've cited to are sufficient for the
18 limitation, so I'm not sure if you are asking
19 about some other uncited portion and what it
20 teaches. Maybe it is a different embodiment, I'm
21 not sure.

22 Q Let's look at your declaration, paragraph

1 165.

2 A Okay.

3 Q So here in the last sentence of this
4 paragraph you say, The frames described by Atsuta
5 are TDD frames as claimed, because they reserve
6 time slots for data in the uplink and downlink
7 direction within a single synchronous frame,
8 correct?

9 A I see that. You will notice, I guess,
10 here it puts quotes around synchronous frame
11 instead of single synchronous frame.

12 Q Yes, true.

13 And for this you cite to Atsuta, paragraph
14 -- or column 5, line 65 through column 6, line 64.

15 A Yes. Actually the same -- no, it is just
16 after the portion you were asking about before for
17 single synchronous frame, sorry, okay. Yeah, I
18 see where you're pointing to.

19 Q Can you point to the specific language in
20 that basically column that you cite that teaches
21 that a single channel is used for transmission and
22 reception?

1 A It uses the term frequency band in the
2 first paragraph, let me keep reading.

3 Q First paragraph of column 6?

4 A The one you were asking about earlier that
5 started at the end of column 5 into column 6 uses
6 the term frequency bands multiple times.

7 Q Is it your opinion that frequency band
8 means that a single channel is used for
9 transmission and reception?

10 A In the context of Atsuta and the overall
11 way that it is describing the system and using
12 that term in Atsuta, that is what Atsuta is
13 referring to when it references the frequency
14 band.

15 COURT REPORTER: Sarah, your document
16 might be blocking your microphone. You've gotten
17 real quiet. Now I can hear you.

18 A I think I'm waiting for a question.

19 Q Is that the only answer. I had asked
20 for --

21 A Okay. Let me look.

22 Q I can repeat the question if you need it.

1 A No, I have got the question. Just to
2 level set, I pointed to frequency band -- actually
3 maybe repeat the question. I thought the question
4 -- well, I didn't hear a question so --

5 Q No problem.

6 A -- ask it.

7 Q I had just asked if you can point to the
8 specific language in Atsuta at column 5, line 65
9 to column 6, line 64 which is your citation that
10 teaches that a single channel is used for
11 transmission and reception?

12 A Right. And so I started with that first
13 paragraph that crosses column 5 into column 6 when
14 it talks about a frequency band, then I thought
15 you asked does frequency band mean channel. And I
16 said yes, in the context of Atsuta.

17 There is probably other portions through
18 that column I can point to. I didn't know if you
19 wanted me to continue or not.

20 Q Yes, any language you are relying on,
21 please.

22 A Yeah. Actually I think it goes on and

1 there is a fair amount of detail in the next
2 paragraph that starts with, in the above described
3 embodiment, it is describing basically a different
4 way of using that same channel.

5 And then for the paragraph that starts at
6 column 6, line 25, it is essentially going through
7 and describing in that context what the
8 transmission looks like, so this is another
9 portion starting on line 35, in addition, the TDMA
10 control circuit shows in figure 4 receives a
11 plurality of modulated signals to be transmitted
12 to the subscriber stations. So now it is
13 contemplating transmitting in the downlink.

14 And then it says, as it arranges these
15 signals into one sequence as a predetermined
16 synchronous frame in the TDMA method.

17 So it is talking about being able to use
18 that same channel for the different portions that
19 get modulated into that particular channel.

20 And then it continues to the different
21 frequencies for the portions that are transmitted
22 in the different frequencies at the same time. So

1 it is essentially talking about how the uplink and
2 downlink is happening within the same frequency
3 band or channel.

4 Q Is that everything?

5 A I think so. There might be more here, but
6 those are the things that come to mind first.

7 Q Then still the same citation, can you
8 point to the language in that citation that
9 teaches that specific periods of time are
10 allocated for transmission and other specific
11 periods of time are allocated for reception?

12 A So where I would start would be the first
13 full paragraph in column 6. It talks about how
14 the time slots are assigned to each fan-shaped
15 divided zone corresponding to the density of
16 subscribers. So it is talking about how you have
17 different numbers of slots used for upstream and
18 downstream consistent with how it started off the
19 example where a portion of the frequency band
20 and/or channel is used to both send and receive in
21 both directions.

22 And then it goes into more detail in the

1 paragraph after that starts with the word next
2 through to the end of that long paragraph. And I
3 think in both instances I've -- well, I've
4 referenced those sections I think in the
5 declaration, so I guess I just articulated how
6 they meet the requirements of the claim.

7 Q Okay. During any break today, did you
8 talk to your counsel about the substance of your
9 testimony?

10 A No.

11 MS. SPIRES: I don't have any further
12 questions.

13 MR. OLIVER: Why don't we just take a 5
14 minute break and I will determine whether I have
15 any questions.

16 MS. SPIRES: Sure.

17 (Recess, 1:51 to 1:55 p.m.)

18 MR. OLIVER: I have no questions for the
19 witness, thank you very much.

20 MS. SPIRES: Thank you for your time.

21 (Deposition adjourned at 1:55 p.m.)
22

1 CERTIFICATE OF SHORTHAND REPORTER

2
3 I, Susan S. Klinger, Certified Reporter and
4 Notary Public within and for the State of Texas
5 do hereby certify:

6 That DR. KEVIN ALMEROTH, the witness whose
7 deposition is hereinbefore set forth, was duly sworn
8 by me before the commencement of such deposition and
9 that such deposition was taken before me and is a
10 true record of the testimony given by such witness.

11 I further certify that the adverse party,
12 Petitioner, was represented by counsel at the
13 deposition.

14 I further certify that the deposition of
15 DR. KEVIN ALMEROTH, occurred virtually on Friday,
16 April 5th, 2024 commencing at 9:58 a.m. to 1:55 p.m.

17 I further certify that I am not related to
18 any of the parties to this action by blood or
19 marriage, I am not employed by or an attorney to any
20 of the parties to this action, and that I am in no way
21 interested, financially or otherwise, in the outcome
22 of this matter.

1 IN WITNESS WHEREOF, I have herunto set my
2 hand on the 10th of April, 2024.

3
4 
5 _____

6 Susan S. Klinger, RMR-CRR, CSR

7 Texas CSR 6531, Exp: 10/23/25

8 California CSR 14487, Exp: 11/30/24
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