

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3
4 SAMSUNG ELECTRONICS CO., LTD.,

5
6 Petitioner,

7 V.

8 ONE-E-WAY, INC.,

9 Patent Owner.
10

11
12 Case: IPR2025-01516
13 U.S. Patent No. 10,468,047
14

15 HYBRID VIDEOTAPED DEPOSITION OF

16 DR. JOSE LUIS MELENDEZ

17 Thursday, August 20, 2026
18
19
20
21
22

23 Reported by:

24 LISA M. MURACO, RPR, CCR-NJ

25 JOB NO. 57717

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Thursday, August 20, 2026
9:00 a.m.

HYBRID Deposition of DR. JOSE LUIS
MELENDEZ, held VIA ZOOM, before LISA M.
MURACO, a Registered Professional Reporter,
CCR-NJ, a Notary Public of the State of New
York, New Jersey, Florida, Massachusetts.

1 A P P E A R A N C E S:

2 (REMOTE)

3
4 GREENBERG TRAURIG, LLP
5 Attorneys for Petitioner
6 One Vanderbilt Avenue
7 New York, NY 10017
8 BY: VIMAL KAPADIA, ESQ.

9
10
11 DiNOVO PRICE
12 Attorneys for Witness
13 7000 N MoPac Expy #350
14 Austin, TX 78731
15 BY: DANIEL SCHMID, ESQ.

16
17
18 ALSO PRESENT:
19 Legal Video Specialist, Sandra Suarez
20 Edward Jenks, Notary
21 Sandra Suarez, Legal Video Specialist
22
23
24
25

1 IT IS HEREBY STIPULATED AND AGREED
2 by and between the attorneys for the
3 respective parties herein, that filing and
4 sealing be and the same are hereby waived.

5 IT IS FURTHER STIPULATED AND AGREED
6 that all objections, except as to the form
7 of the question, shall be reserved to the
8 time of the trial.

9 IT IS FURTHER STIPULATED AND AGREED
10 that the within deposition may be sworn to
11 and signed before any officer authorized
12 to administer an oath, with the same
13 force and effect as if signed and sworn
14 to before the Court.

15
16
17
18
19 - oOo -
20
21
22
23
24
25

1 THE VIDEOGRAPHER: We're now on the
2 record. Today's date is August 20, 2026,
3 and the time is 9:22 a.m.

4 This is the recorded video
5 deposition of Dr. Jose Luis Melendez in the
6 matter of Samsung Electronics Co., Ltd.
7 versus One-E-Way, Inc. in the United States
8 Patent and Trademark Office. Case IPR
9 2025-01516.

10 This deposition is being held at
11 Regis Metro Office Park in Guaynabo, Puerto
12 Rico.

13 My name is Sandra Suarez from
14 Everest Court Reporting, and I'm the video
15 specialist. The court reporter today is
16 Lisa Muraco, also from Everest Court
17 Reporting.

18 Counsel will now state your
19 appearances for the record.

20 MR. KAPADIA: My name is Vimal
21 Kapadia from Greenberg Traurig LLP, and I
22 represent the petitioner, Samsung
23 Electronics Co., Ltd.

24 MR. SCHMID: I'm Daniel Schmid from
25 DiNovo Price LLP, and I represent the

1 patent owner One-E-Way, Inc.

2 (Notary administers the oath.)

3 D R. J O S E L U I S M E L E N D E Z,
4 called as a witness, having been duly sworn by
5 a Notary Public, was examined and testified as
6 follows:

7 THE WITNESS: Dr. Jose Luis
8 Melendez.

9 I would like to note that she only
10 mentioned one IPR.

11 MR. KAPADIA: I was going to address
12 that as well.

13 THE WITNESS: He only swore me in --

14 MR. KAPADIA: Excuse me. I believe
15 he needs to be sworn in for all three IPRs.
16 I believe you only mentioned one. We need
17 to be deposed in three different IPRs, IPR
18 2025-0516 and then it's -01540 and -01541.

19 THE VIDEOGRAPHER: Now it's on the
20 record, the numbers.

21 MR. KAPADIA: We might need to
22 readminister the oath.

23 It's consolidated.

24 THE NOTARY: Okay. Can you please
25 state your name for the record.

1 THE WITNESS: Dr. Jose Luis
2 Melendez.

3 (Witness sworn.)

4 EXAMINATION BY

5 BY MR. KAPADIA:

6 Q. Okay.

7 Thank you and good morning.

8 A. Good morning.

9 Q. As we have just heard this is a
10 single-consolidated deposition for the three
11 IPRs filed by Samsung Electronics on three
12 separate patents. The IPR 2025-01516 is for
13 U.S. patent number 10468047.

14 Is that your understanding?

15 A. That's my recollection, yes.

16 Q. Okay.

17 And for IPR 2025-01540 it's for IPR
18 10129627?

19 A. You said IPR, but I think you meant
20 U.S. patent, and that's the patent number.

21 Q. Yeah, yes, that is correct.

22 A. Thank you.

23 Q. And the final IPR is 2025-01541 and
24 that's for U.S. patent number 910700?

25 A. That's my recollection, yes.

1 Q. Okay. Thank you.

2 I've handed you already what has
3 been marked as Exhibits 1 through 6.

4 (Exhibit 1-6, premarked, marked for
5 identification.)

6 MR. KAPADIA: Exhibit 1 is your
7 declaration and the -- what I'll call the
8 '047 IPR.

9 A. Okay.

10 Q. If I refer to IPR 2025-01516 as to
11 '047 IPR, will you understand what I'm
12 referring to?

13 A. I believe so, and if I'm confused
14 I'll ask.

15 Q. All right.

16 And then similarly for the 1540 IPR,
17 if I refer to that as the '627 IPR, will you
18 understand that to be IPR 2025-01540?

19 A. I believe so, yes.

20 Q. Okay.

21 And finally, if I refer to the '000
22 IPR, you'll understand that refers to IPR
23 2025-01541?

24 A. That patent number refers to that
25 IPR, yes.

1 Q. Great.

2 I've also handed you what I've
3 marked as Exhibits 4, 5, and 6.

4 MR. KAPADIA: Exhibit 4 is U.S.
5 patent number 10468047.

6 Exhibit 5 is U.S. patent number
7 10129627.

8 And Exhibit 6 is U.S. patent number
9 9107000.

10 BY MR. KAPADIA:

11 Q. Do you have all of those exhibits in
12 front of you?

13 A. I have those Exhibits 1, 2, 3, 4, 5,
14 and 6, yes.

15 Q. Okay.

16 MR. KAPADIA: Counsel, to hopefully,
17 you know, to speed things along and not go
18 through this three times, I suggest that we
19 try to go through the declarations, you
20 know, combined as -- so I will refer to the
21 047 declaration as the exemplary
22 declaration. And then instead of going
23 through and asking the same exact questions
24 for the other two, and if there's any
25 differences, you know, I'll direct it to --

1 questioning to respective declaration.

2 Is that okay with you?

3 MR. SCHMID: That works for us. I
4 know there's some minor differences between
5 three. We will try to keep an eye on, but,
6 yes, that makes sense to me.

7 BY MR. KAPADIA:

8 Q. Dr. Melendez, are you okay with that
9 as well?

10 A. Yes I would not characterize the
11 differences as minor differences, but other
12 than that, I think there is a lot of
13 similarities certainly in my declaration in
14 terms of the arguments, so.

15 Q. Okay. Understood.

16 I'm going to go through some ground
17 rules.

18 I'm going to ask that all of your
19 answers to my questions be verbal and out loud.
20 Please do not respond with a -- simply a nod or
21 a shake of your head if possible.

22 If you don't understand what I say,
23 please say so, and I'll try to rephrase and ask
24 a better question.

25 If you do answer, I'll assume that

1 you understood my question.

2 We can take a break generally
3 whenever you would like. Except if there's a
4 question pending.

5 And at times your counsel may
6 object; however, unless you are instructed not
7 to answer due to privilege, you will be
8 required to answer the question.

9 If at any point in this deposition,
10 you recall that, you know, one of your prior
11 answers needs to be changed, please let me
12 know.

13 And I'll be happy, you know, to
14 explore your new answer.

15 Do you understand those
16 instructions?

17 A. Yes, I do.

18 Q. Okay.

19 Is there anything preventing you
20 from giving your full and honest testimony
21 today?

22 A. No, not to my knowledge.

23 Q. Do you have any illnesses or medical
24 conditions that would prevent you?

25 A. No, I do have a strain in my neck

1 that may cause me to need a break, but --

2 Q. Understood.

3 A. -- it's not going to prevent me from
4 giving honest testimony.

5 Q. Okay.

6 Yeah, please just let us know when
7 you need to take a break.

8 Q. Okay.

9 When were you retained in these
10 IPRs?

11 A. Let's see.

12 I know the notice came a couple of
13 months after I filed my declaration. So
14 working backwards, around four months ago.

15 Q. Were you retained specifically for
16 these IPRs?

17 A. Yes.

18 Q. Were you -- do you understand that
19 there are District Court litigations involved
20 in the same patents that are currently pending?

21 A. I understand that there is
22 litigation. I'm not familiar with the details
23 of that.

24 Q. Have you been retained in those
25 litigations as well?

1 A. I'm -- not to my knowledge, unless
2 the retention agreement is more general than
3 the specific IPRs. I think the agreement is
4 specific to IPRs.

5 Q. Okay.

6 How much time did you spend in
7 preparing for your deposition today?

8 A. It was two really long days. So I
9 would say maybe 20 hours.

10 Q. Okay.

11 Did you meet with anyone as part of
12 your preparations?

13 A. Briefly I met this morning with
14 counsel.

15 Q. Okay.

16 A. We drove over together in the Uber
17 from the hotel.

18 Q. Oh, excellent.

19 Did you speak with anyone else as
20 part of your preparations?

21 A. For the deposition, not specifically
22 for the deposition.

23 Q. How about in preparing your
24 declarations in these IPRs?

25 A. I did have the opportunity to speak

1 with at least the inventor with counsel
2 present. And I recall there was someone else
3 from the company, One-E-Way, but I didn't see
4 them. I only heard a voice. I don't remember
5 a name.

6 Q. You said you don't remember her
7 name?

8 A. It was a lady, a female voice. I
9 mean, it's hard to tell sometimes.

10 Q. Okay.

11 A. But that's my recollection.

12 Q. Did you speak with any other experts
13 as part of your preparation for the declaration
14 or preparation for this deposition?

15 MR. SCHMID: Objection. Form.

16 A. No, I did not.

17 Q. All right.

18 And let me ask a better question.

19 Did you speak with any other experts
20 as part of your preparation for this
21 deposition?

22 MR. SCHMID: Same objection.

23 A. No, I did not.

24 Q. Did you speak with any other experts
25 as part of your preparation for the

1 declarations that you filed in these three
2 IPRs?

3 MR. SCHMID: Same objection.

4 A. No, I did not.

5 Q. Okay.

6 Are you aware that One-E-Way had
7 retained a different expert in its past IPRs?

8 MR. SCHMID: Objection. Scope.

9 A. I have no recollection of any expert
10 in any other matter related to One-E-Way, other
11 than Mr. Davies, and he was retained, I
12 understand, by Samsung or Samsung counsel.

13 Q. Okay.

14 Did you review any of the materials
15 for any of the past IPRs involving One-E-Way?

16 MR. SCHMID: Objection. Form.

17 A. If I did, that would be in my
18 declaration.

19 Q. Okay.

20 So if it's not -- sorry.

21 A. And it would have been specific to
22 an argument in the declaration. I didn't -- if
23 I did look at it, it would be in there. And if
24 I did look at it, I wouldn't have read the
25 whole thing. I would have just looked at

1 something -- I know I looked at some reference
2 materials related to claim construction. And I
3 don't recall specifically if that -- where that
4 came from. But it's sort of throughout the
5 petition and Mr. Davies' and mine.

6 I -- I feel like at some point I
7 must have looked at the original source of
8 that. But that must have been a District Court
9 ruling, not a PTAB ruling. I'm not sure.

10 Q. Okay.

11 Can you go to Exhibit 1 and turn to
12 paragraph 15, which is on page 9.

13 A. I'm there.

14 Q. Okay.

15 Can you review that paragraph to
16 yourself. And let me know when you're
17 finished.

18 (Document review.)

19 A. I've read it.

20 Q. Okay.

21 Do you see where it says on the top
22 of page 10 refers to the '047 patent
23 prosecution history. And then it has a
24 parenthetical: Or at least the pertinent parts
25 thereof?

1 A. Yes.

2 Q. What did you mean by the '047 patent
3 prosecution history?

4 MR. SCHMID: Objection. Form.

5 A. I think that it's sufficiently
6 defined. There's a prosecution history
7 associated with the '047, what I understand it
8 could be referred to as a file rep or a file
9 history, that includes what was, I suppose,
10 designated as that by the patent office
11 officially.

12 I'm not really sure exactly how
13 that -- that works. But that's what I'm
14 referring to when I say the prosecution history
15 of the '047 patent.

16 Q. So you are referring to, you know,
17 what I'll refer to as the back and forth
18 between the applicant and the patent office
19 specifically with respect to the '047 patent?

20 MR. SCHMID: Objection to form.

21 A. I'm sorry, I don't think you
22 actually asked me a question.

23 Q. So is it your understanding that the
24 '047 patent prosecution history is limited to
25 the back and forth between the applicant and

1 the patent office specifically with respect to
2 the '047 patent?

3 MR. SCHMID: Same objection.

4 A. Not sure. It was really long.
5 There's a lot of legal stuff and portions of it
6 that I usually wouldn't look at because I don't
7 think there's any substantive information
8 related to the specific patent.

9 I would say that it at least
10 includes back and forth with the patent office
11 and the applicant in terms of what ultimately
12 became the '047 patent.

13 Q. Do you understand that '047 patent
14 is part of a family of patents that are related
15 to each other?

16 A. Yes.

17 Q. Are you including the file histories
18 of all of those other patents as part of the
19 '047 patent prosecution history?

20 MR. SCHMID: Objection. Form.

21 A. I am including exactly what I
22 referred to previously. The prosecution
23 history for the '047 patent. And that's a
24 document that I received that I understood is
25 registered with the patent office as the file

1 history for that patent. When I refer
2 specifically to this patent prosecution history
3 or at least the pertinent parts thereof, that's
4 intended primarily to say it's a very long
5 history and there's certain things that aren't
6 really relevant to my declaration or the
7 petition.

8 Q. Can you pull up Exhibit 4 in front
9 of you?

10 A. Yes.

11 Q. And do you see in the middle of the
12 page on the left where it says: Related U.S.
13 patent application data. And there's a 63 in
14 parentheses to the left of it?

15 A. Sorry, I just have it up in front of
16 me now.

17 Q. Yup.

18 A. Can you repeat the question?

19 Q. Sure.

20 Do you see on the left in around the
21 middle of the page where it says: Related U.S.
22 patent application data?

23 A. Yes.

24 Q. And do you see under there it says
25 continuation of application number 15 dash --

1 15, slash, 003, 242 filed on January 21, 2016,
2 now patent number 10129627?

3 A. Yes.

4 Q. When you referred to the '047 patent
5 prosecution history, are you also including as
6 part of that the '627 patent prosecution
7 history?

8 MR. SCHMID: Objection. Form.

9 BY MR. KAPADIA:

10 Q. I'm just trying to understand what
11 you meant on your paragraph?

12 A. I literally meant exactly what I've
13 already said several times, which is my
14 understanding is at the patent office, for the
15 '047 patent, there's a file history. And
16 that's what I mean by the prosecution history.

17 Q. So you are not including the
18 prosecution history for other patents as part
19 of the '047 patent prosecution history; is that
20 correct?

21 MR. SCHMID: Same objection.

22 A. I would say to the -- in that
23 reference there, to the extent that the
24 prosecution history isn't included within the
25 official document for the '047, I did not pull

1 up in reviewing the '047 the file histories,
2 for example, for the 0, I would have pulled
3 that up for the '000. I don't have that
4 declaration in front of me.

5 But that's what I mean by that. And
6 I certainly would've read the patent.

7 Q. Can you open up Exhibit 2 and go to
8 paragraph 15.

9 A. I am there.

10 Q. And you see at the top of page 10
11 you refer to the '627 patent prosecution
12 history?

13 (Document review.)

14 A. The '047 patent prosecution history,
15 Exhibit 1.

16 What exhibit am I supposed to be in?

17 Q. Looking at Exhibit 2.

18 A. Sorry.

19 Q. I just want to confirm that you've
20 reviewed -- that you've reviewed the '047
21 patent prosecution history, the '627 patent
22 prosecution history, and the '000 patent
23 prosecution history?

24 A. Okay. That was paragraph?

25 Q. 15.

1 A. 15.

2 (Document review.)

3 A. Yes, it says that I reviewed the
4 '627 patent prosecution history.

5 Q. Okay.

6 So you've reviewed the patent
7 prosecution history for the three patents
8 involving -- involved in the three IPRs for
9 which you are testifying today, correct?

10 MR. SCHMID: Object to form.

11 A. That -- sorry.

12 That's my recollection. I haven't
13 looked at the declaration. But whatever is in
14 the declaration, if it says that I reviewed
15 that, then I would have reviewed at least the
16 pertinent parts of that. I wouldn't have read
17 the entire document for the reasons that I've
18 mentioned.

19 Q. Okay.

20 So if you referred to the patent
21 prosecution history for other patents in your
22 declaration, you've reviewed that as well.

23 Is that what you are saying?

24 MR. SCHMID: Objection. Form.

25 A. I've reviewed at least the pertinent

1 portions.

2 Q. Okay.

3 Do you understand that -- well,
4 strike that.

5 Do you know if there were any prior
6 IPR petitions that were filed with respect to
7 the '047 patent?

8 MR. SCHMID: Objection. Form.

9 A. I think we covered that already.
10 But, yes, I do know that there was at least
11 one, and I think there may have been more.

12 Q. Did you review all the filings in
13 those IPRs?

14 MR. SCHMID: Same objection.

15 A. Assuming there were multiple IPRs,
16 which is what I think those IPRs means in your
17 question, I would only have reviewed them to
18 the extent that they were pertinent. And I
19 would have listed that in my -- in my list of
20 things I considered.

21 Q. Okay.

22 So the only opinions you have with
23 respect to those IPRs would be included in your
24 declarations; is that correct?

25 MR. SCHMID: Objection. Form.

1 A. That's sort of correct, if I
2 understood your question. I don't know what's
3 in those, so there could be things that are in
4 those that overlap with things that are in
5 these. Certainly, you know, things like the
6 claim construction stuff may, since I don't
7 know what was in those, I didn't really
8 actually know there was more than one.

9 I can't -- I don't think I can
10 answer your question as it was stated. So
11 maybe you can either resay it so I can make
12 sure or restate it.

13 Q. The declaration -- let's see -- I'll
14 strike that.

15 Is it fair to say that any opinions
16 you have with respect to any other IPRs would
17 be included in your declarations here?

18 MR. SCHMID: Objection. Form and
19 scope.

20 A. I have no opinions with respect to
21 any other IPR. My declarations are specific to
22 these IPRs: 15, 16, 1540, and 1541.

23 To the extent that they include
24 overlap with things from other IPRs, that's not
25 -- not an analysis that I expressly did.

1 Q. Did you review the record in IPR
2 2021-00284?

3 MR. SCHMID: Objection. Form.

4 A. If I said it in my declaration, then
5 I did. If not, I have no recollection of what
6 that IPR is by the number.

7 Q. For completeness sake, do you recall
8 if you reviewed the record in IPR 2021-00285?

9 MR. SCHMID: Same objection.

10 A. That number is meaningless to me
11 right here.

12 Q. Would it help your recollection if I
13 said that these were IPRs that were previously
14 filed by Apple?

15 A. I seem to recall that I mentioned
16 that in my declaration. I'm really not an
17 expert on who filed what IPR when.

18 I do recall that in this case there
19 were some other IPRs that were filed that were
20 not instituted. I have no recollection of the
21 numbers.

22 Q. Okay.

23 Do you recall if One-E-Way had filed
24 any other expert declarations in those IPRs?

25 MR. SCHMID: Objection. Form and

1 scope.

2 A. I have no recollection of other
3 expert declarations. I don't recall reading
4 other expert declarations. I would imagine
5 they would have had another expert, because I
6 wasn't the expert.

7 But I don't know that it's a
8 requirement in a PTAB proceeding to actually
9 have an expert. So I don't want to guess for
10 that.

11 Q. Did you review the declaration of
12 Mr. Joseph McAlexander, which was submitted in
13 the two Apple IPRs that I referred to earlier?

14 MR. SCHMID: Objection. Form and
15 scope.

16 A. I think I answered that question
17 already. But I don't recall a Mr. Alexander
18 (sic), and I don't recall looking at any
19 declarations from any other expert, other than
20 Mr. Davies in the present IPRs.

21 Q. Did you review any declarations from
22 Mr. McAlexander with respect to the
23 corresponding Apple District Court litigation?

24 MR. SCHMID: Same objections.

25 A. I think I answered that. But maybe

1 I wasn't general enough.

2 I have not reviewed any declarations
3 that I can think of for any other expert and
4 didn't know offhand that there was another
5 expert, unless it's something I specifically
6 referenced that can spark recollection. But I
7 -- there's plenty of documents to review and
8 that wasn't one that came up that I can recall.

9 If I did review it, I certainly
10 didn't -- it would have been in my declaration
11 noted, and I have no recollection of reviewing
12 it. But certainly none of my opinions are
13 based on any opinions of any other expert.

14 Q. Do you have an opinion as to whether
15 One-E-Way is bound by the positions it took in
16 its previous IPRs with respect to the '047
17 patent?

18 MR. SCHMID: Objection. Form and
19 legal conclusion.

20 A. Because I'm not familiar with those
21 other IPRs, I can't -- or at least I have no
22 recollection of them, outside of what's
23 mentioned in my declaration.

24 I can say that generally if, for
25 example, there was claim construction in an IPR

1 proceeding, there could be the case where each
2 party has a position and ultimately the
3 administrative judge rules on what the
4 construction is.

5 And for my experience, that normally
6 means that the positions, whether they are from
7 the petitioner or from the patent owner, would
8 become irrelevant in the sense that the Judge
9 would decide what the correct view of that
10 would be.

11 But I'm speaking there generally,
12 not with respect to that specific IPR.
13 Obviously, if there are positions that lead to
14 ruling that relies on the position, then
15 normally I would expect that either party that
16 would be bound by that. But I really -- I'm
17 not an expert on knowing how the PTAB rulings
18 bind or don't bind the District Court
19 litigation.

20 And my response is they are all
21 general, because I'm not familiar with the
22 litigation here.

23 Q. Do you know if One-E-Way is taking
24 any different positions in the Apple IPRs than
25 it has taken in this IPR?

1 MR. SCHMID: Objection.

2 MR. KAPADIA: Let me rephrase that.

3 BY MR. KAPADIA:

4 Q. Are you aware of any differences in
5 positions that One-E-Way has taken in the Apple
6 IPRs that I referred to as compared to the
7 three IPRs that we're discussing today?

8 MR. SCHMID: Objection. Form, scope
9 and foundation.

10 A. I think I've already answered that,
11 but I'm not aware of any differences. I didn't
12 study any other IPR.

13 Q. Can you open up Exhibits 1, 2, and 3
14 and put them side by side each other.

15 Can you turn specifically to page 10
16 in all of them.

17 A. For the record, I should say, yes, I
18 can put them side by side. And yes, I can turn
19 to page 10, since you did ask the question that
20 way.

21 Q. Thank you.

22 A. You're welcome.

23 Q. Are you --

24 A. I am there, on all of page 10 of
25 each one.

1 Q. And honestly, that should be include
2 rather -- strike that.

3 That should include the start of
4 Section 3: The statement of legal and claim
5 construction principles?

6 A. Yes, it does.

7 Q. Are you aware of any material
8 differences between the three declarations with
9 respect to this section?

10 MR. SCHMID: Objection. Form.

11 A. Not with respect to the statement of
12 legaling claim construction principles.

13 Q. Okay.

14 A. And by the three patents, I think
15 you mean the patents that these declarations
16 are referred to.

17 Q. Yeah, I said between the three
18 declarations.

19 A. Okay.

20 Q. But, yes.

21 Can you turn to page 13 in all of
22 them. And you see the start of Section 4:
23 Claim constructions?

24 (Document review.)

25 A. Yes, I can turn to page 13 on all of

1 them. And yes, I can see the start of
2 Section 4: Claim constructions.

3 Q. Okay.

4 Are there any material differences
5 that you're aware of in Section 4 across all
6 three declarations?

7 A. Section 4.

8 MR. SCHMID: Same objection.

9 A. Let me briefly review. I would
10 expect them to be the same, but maybe they are
11 not.

12 (Document review.)

13 A. They appear to be all the same,
14 having same table, which is what I was
15 instructed that I should use as the
16 constructions for my analysis of these patents
17 and for these three IPRs.

18 Q. Okay.

19 Same question for Section 5, which
20 is the person of ordinary skill in the art.

21 Are there any material differences
22 that you're aware, other than the difference in
23 the reference to the patent number, across the
24 three declarations?

25 MR. SCHMID: Objection. Form.

1 (Document review.)

2 A. The only differences I see there
3 appear to be citations of the petition. I'm
4 not aware of why there would be any
5 differences.

6 Q. Okay.

7 Can you turn to Section 7 of your
8 report.

9 A. Of which one?

10 Q. All three. Actually, specifically
11 Section 7A.

12 (Document review.)

13 A. Yes, I can, and I have done so.

14 Q. Okay.

15 And Section 7A is for the -- has the
16 heading: Disclosure of a, quote, direct
17 conversion module, end quote, in the 2003
18 application.

19 A. Yes, that's correct, across all
20 three of those declarations.

21 Q. And is it your understanding that
22 that section is the same across all three
23 declarations?

24 MR. SCHMID: Objection. Form.

25 A. I have no recollection that they are

1 different, but I can tell you that just looking
2 at them real quick.

3 Q. Yup.

4 (Document review.)

5 A. They appear, all three, to be the
6 same.

7 Q. Okay.

8 Can you look at the next section,
9 disclosure of a, quote, differential phase
10 shifting -- strike that.

11 The section is titled: Disclosure
12 of a differential phase shift keying DPSK in
13 the 2003 application.

14 Do you see that?

15 A. Yes, I see that.

16 Q. It --

17 A. It's in all three patents.

18 Q. Yup.

19 A. I mean in all three declarations,
20 sorry.

21 Q. And are you aware of any -- or
22 strike that.

23 Is this section the same across all
24 three declarations?

25 A. Give me a moment, and I will confirm

1 that.

2 (Document review.)

3 A. It appears to be the same, yes.

4 Q. Okay.

5 Can you turn to the next section in
6 all three declarations, which is for the
7 heading: Disclosure of a, quote, reduced
8 intersymbol interference, end quote, in the
9 2003 application.

10 A. Yes, I have done that.

11 Q. Okay.

12 Is that section the same across all
13 three declarations?

14 MR. SCHMID: Objection. Form.

15 A. Give me a moment. And I will
16 confirm that.

17 (Document review.)

18 A. Yes, it appears to be the same.

19 Q. Okay.

20 Can you turn to the next section
21 across all three declarations, which is for
22 the: Summary for support in the 2003
23 application.

24 A. Yes, I have done that.

25 Q. Is that section the same across all

1 three declarations?

2 MR. SCHMID: Objection. Form.

3 A. Give me a moment, and I will let you
4 know.

5 (Document review.)

6 A. Yes, it appears to be the same.

7 Q. Can you turn to Section 8B, as in
8 boy.

9 A. In all of them?

10 Q. Yes.

11 A. Yes, I can, and I have done that.

12 Q. And that section is headed:

13 Independent CDMA is not taught in Miyake?

14 A. Yes, that's correct in all three.

15 Q. Okay.

16 Is that section the same across all
17 three declarations?

18 MR. SCHMID: Object to form.

19 A. Give me a moment. Sorry. Give me a
20 moment, and I will let you know.

21 Q. Sure.

22 (Document review.)

23 A. Sorry, it's a little longer section.
24 I am still going through it.

25 (Document review.)

1 A. A lot longer section. I'm almost
2 done.

3 (Document review.)

4 It appears to be the same in all
5 three.

6 Q. Okay.

7 Can you turn to the next section,
8 which is titled: Independent CDMA is not
9 taught in Walley.

10 A. Yes, I'm actually already at that
11 section.

12 Q. Other than the very first sentence
13 in that section in each of the declarations,
14 are you aware of any differences across the
15 three declarations with respect to this
16 section?

17 MR. SCHMID: Object to form.

18 A. Give me a moment. Give me a moment,
19 and I will confirm that.

20 Q. Sure.

21 (Document review.)

22 A. I need to clarify a response, I
23 think. In the first sentence of each of these,
24 they are -- I see them to be the same, except
25 for this citation. And when I was answering

1 the previous questions and going through the
2 text to confirm that they were the same, I did
3 not verify that the citations were the same. I
4 would expect them to be because they should be
5 with respect to that prior art.

6 But when you asked the question, you
7 noted that the first sentence was different and
8 I see them to be the same as well. The only
9 thing I saw a difference was the citation. So
10 to the extent there's a difference in citation
11 in the rest of the text of the prior sections,
12 that's not something that I spent the time to
13 verify.

14 If you would like me to do that, I
15 can do that.

16 Q. Nope. Understood.

17 And then can you turn to Section 9
18 of all three declarations.

19 A. Actually, I'm already there.

20 Q. All right.

21 Are there any differences in
22 Section 9 across the three declarations?

23 MR. SCHMID: Objection. Form.

24 A. Would you like me to come -- to
25 explore also the citations or just generally

1 look at the content?

2 Q. You can look at the citations. It's
3 not particularly long.

4 (Document review.)

5 A. The only difference I could see
6 relate to the patents that are being referenced
7 in those sections.

8 Q. Is that in paragraph 66?

9 A. That's the one I found, yes. In 66,
10 there's a reference to -- in one -- in the --
11 the relevant -- the patent that is relevant to
12 that particular IPR being the '047, the '627,
13 and the '000.

14 Q. Bless you.

15 So the only difference is the patent
16 number that you see in paragraph 66.

17 There's no other difference in
18 paragraph 66?

19 A. In absence of a document comparison
20 tool.

21 Q. Yup.

22 (Document review.)

23 A. In my review here, they appear to be
24 identical with, outside of that reference to
25 the patent claims.

1 Q. And in this section is titled: The
2 combination of Walley and Miyake, correct?

3 MR. SCHMID: Objection. Form.
4 (Document review.)

5 A. Yes, in Section 9 in all of the IPRs
6 is titled: The combination of Walley and
7 Miyake.

8 Q. Okay.

9 Can you go back to Section 7A of
10 your declaration, which is the '627 patent. So
11 I guess that would be Exhibit 2.

12 A. Repeat the section, please.

13 Q. Specifically, you can turn to
14 page 18 of Exhibit 2.

15 A. I am there.

16 Q. Do you see Section 7A starts there?

17 A. Yes, that's Section 7A.

18 Q. Okay.

19 And if you turn to the -- turn to
20 page 19, you see at the top on the third line,
21 you see a reference to the '062 patent?

22 (Document review.)

23 A. I may be in the wrong place. I
24 don't see a reference where I'm at to the '062
25 patent.

1 What paragraph is that in?

2 Q. If you look at Exhibit 2 --

3 A. Yes.

4 Q. -- the third line from the top.

5 A. Oh, see it. Thank you.

6 Q. Should that be the '627 patent?

7 A. I don't think there is an '062

8 patent. Yes, thank you for catching that

9 mistake.

10 Q. And then if you look at that same
11 section for the '000 patent, which is your
12 Exhibit 3, I believe there's also a reference
13 to the '062 patent.

14 Can you confirm that?

15 Again, it'll be page 19, third line.

16 A. Paragraph 34, yes, that would also
17 be a mistake.

18 Q. That should be the '000 patent?

19 A. Yes, the subject of that particular.

20 Q. Are you aware of any other errata
21 for your three declarations, other than those
22 two that we just discussed?

23 A. Well --

24 MR. SCHMID: Object to form.

25 A. Leads me to believe that that could

1 be wrong in the first one, except you didn't
2 ask me to look there.

3 Q. Oh, if you would like, you can look,
4 for completeness sake. But I do believe it was
5 correct there.

6 (Document review.)

7 A. Yes, it is correct there.

8 Thank you for highlighting those. I
9 would like to have those accurately reflect the
10 patent. I think it's obvious from the context,
11 but thank you for helping me clarify that.

12 Q. Yup. Okay.

13 Have you reviewed the patent owner
14 response that was filed in the three IPRs that
15 we're discussing today?

16 MR. SCHMID: Objection. Form.

17 A. I have not reviewed all of it. And
18 I only reviewed the parts where my declaration
19 was cited to ensure that the citations were
20 accurately reflected.

21 But I did review the patent owner
22 response, just not all of it.

23 Q. All right.

24 Have you reviewed -- well, strike
25 that.

1 Are you aware that the patent owner
2 has provided several exhibits in its patent
3 owner response?

4 MR. SCHMID: Objection. Form.

5 A. I have no specific recollection of
6 exhibits and the patent owner response. Other
7 than I understand that my declaration was
8 attached to that patent owner response, and I
9 think it's attached as an exhibit. I'm not
10 exactly sure how it works.

11 And I would expect that what I cite
12 would at least be included somehow. I'm not
13 really sure the mechanics of the composition of
14 a patent owner response in the context of all
15 the exhibits that are attached.

16 Q. Do you have any testimony in your
17 declarations with respect to Exhibit 2011,
18 which is a paper by C. Rudell?

19 MR. SCHMID: Objection. Foundation.

20 A. I have no recollection of what that
21 exhibit number means. I have no recollection
22 of that name. But certainly if I cited it
23 specifically in my declaration, then I would
24 have looked at it at some point.

25 Q. Okay.

1 It's titled: Recent developments in
2 high integration multistandard CMOS
3 transceivers for personal communication
4 systems.

5 A. That doesn't jog any memory. If
6 I've cited it in my declaration, then I would
7 have looked at it some point. And if I didn't,
8 then I have no recollection either way right
9 now.

10 Q. All right.
11 What about Exhibit 2015, which is
12 for: Data and computer communication
13 networking and internet working, by Hura,
14 H-U-R-A, et al.?

15 MR. SCHMID: Same objection.

16 A. Same response. I have no
17 recollection of that. I don't recall that
18 reference from my declaration. If I've cited
19 it specifically, then I would have looked at it
20 in support of my -- my declaration.

21 Q. Okay.
22 How about Exhibit 2017, which is
23 for: Digital communication techniques signal
24 design and detection. Which was published in
25 1994 by M. Simon, et al.

1 MR. SCHMID: Objection. Foundation.

2 A. Same response. I have no
3 recollection of using that reference for any
4 opinions within my declaration. And the title
5 and the date, the author sparked no
6 recollection. And I certainly don't memorize
7 exhibit numbers or attachments to anything, so.

8 Q. Understood.

9 And how about Exhibit 2018, which is
10 a Texas Instruments document titled: The
11 design and demonstration of an advanced data
12 collection, slash, position locating system.
13 Which is from 1978.

14 MR. SCHMID: Same objection.

15 A. Same response.

16 Would you like me to articulate the
17 response or is same response okay?

18 Q. That's fine.

19 How about Exhibit 2019, which is for
20 a paper titled: Modulated coding for
21 intersymbol interference channels. Which is a
22 2001 paper by Xiang-Gen Xia.

23 MR. SCHMID: Same objection.

24 A. Same response. To the extent that
25 it's cited specifically in my declaration, then

1 I would have looked at it.

2 Q. Okay.

3 A. Right now, I have no specific
4 recollection of relying on that reference for
5 my opinions. I can't think of anything
6 offhand, and I don't recognize exhibit numbers.

7 Q. How about Exhibit 2020, which is the
8 1997 edition of the Communications Handbook by
9 Jerry D. Gibson?

10 A. Gibson I certainly have recollection
11 of. That was something that petitioner had put
12 forward with respect to some of the claim
13 elements and limitations that the petitioner
14 and Mr. Davies argued.

15 Those weren't substantive in my
16 declaration, in the sense that my rebuttal
17 declaration was specific to rebutting certain
18 aspects of the Davies -- of the Mr. Davies'
19 declaration.

20 Q. Okay.

21 A. But that's my recollection of Gibson
22 relates to some of the reception and audio and
23 coding and things like that. But that's just
24 off the top of my head. I don't recall
25 specifically --

1 Q. Okay.

2 A. -- using -- using expressly Gibson,
3 but I may have. I may have.

4 Q. Okay.

5 But --

6 A. And I'm sorry. And I don't know
7 what exhibit number that was, just to make
8 sure.

9 Let me clarify. I don't have any of
10 those documents in front of me. So I'm just
11 going by my recollection.

12 Q. Okay.

13 I just want to clarify, there is
14 another exhibit that patent owner had marked,
15 which was Exhibit 2021, which is for the 2022
16 second edition of the Communications Handbook.
17 And I believe you do cite Exhibit 2021.

18 If Exhibit 2020, which is the 1997
19 edition is not cited in your declaration, is it
20 fair to say that you have not provided any
21 opinions with respect to 2021 -- strike that.

22 Is it fair to say that you didn't
23 provide any opinions with respect to
24 Exhibit 2020?

25 MR. SCHMID: Objection. Form.

1 Compound.

2 A. I have no recollection which exhibit
3 is what exhibit. I can say that -- that I know
4 that Gibson is referenced in the petition. And
5 it's referenced in -- or at least a version of
6 Gibson is referenced in a petition of the --
7 and it's referenced in Mr. Davies' declaration.

8 My use of that in my declaration, I
9 think would be very limited. Because my
10 recollection is that -- is that Gibson was used
11 primarily with respect to things that I didn't
12 focus on in my arguments.

13 Q. Okay.

14 Have you reviewed Exhibit 2023,
15 which is for U.S. patent number 518577 --
16 sorry, strike that.

17 It's for U.S. patent number 5185766,
18 which is a Samsung patent that was filed back
19 on April 24, 1990?

20 MR. SCHMID: Objection. Form.

21 BY MR. KAPADIA:

22 Q. And the inventor is Song Wong Cho.
23 Have you reviewed this exhibit?

24 MR. SCHMID: Objection.

25 A. I don't know what the exhibit is,

1 what the exhibit is an attachment to. I don't
2 have the document in front of me.

3 If it's cited in my declaration,
4 then I would have looked at it. No
5 recollection of that. To the extent any of my
6 opinions and my declaration relate to that,
7 then I would have looked at it.

8 I don't have any -- any of the
9 exhibits that you are referencing and that
10 you've referenced, they are not in front of me.
11 So I only have what information you gave me.

12 Generally, if I look at a document,
13 I can flip through it and see if something
14 about the document reminds me that oh, yeah, I
15 looked at this.

16 But, you know, I don't tend to
17 memorize inventor names. I certainly know
18 Woolfork because he invented these patents. I
19 certainly know names like Miyake, because
20 that's one of the prior arts, and Walley, for
21 example. But I don't tend to memorize inventor
22 names.

23 Even on these patents, it wasn't
24 until later I realized the inventor was
25 Woolfork. It wasn't something that I paid

1 attention to.

2 Q. Okay.

3 But if you have not cited these
4 exhibits in your declarations, then you have no
5 opinion based on those exhibits?

6 MR. SCHMID: Objection to form.

7 A. I don't -- that should be like that.
8 But, obviously, a little while ago, you noted
9 errors in, like, I had made a citation to
10 patent that wasn't --

11 Q. Yeah.

12 A. -- intended one. So absent an error
13 that I'm unaware of, I didn't rely on -- on
14 them. I tried to be very careful in my
15 declaration when I rely on something to ensure
16 that it's there. That's obviously a little bit
17 different than saying did I look at something
18 and not rely on it.

19 There's so many exhibits attached to
20 the, you know, these petitions and responses.
21 And I certainly, you know, didn't read most of
22 that, so.

23 Q. Okay. Fair enough.

24 So you don't recall reviewing any
25 Samsung patents?

1 MR. SCHMID: Objection. Form.

2 A. I looked at patents. Again, for
3 example, Miyake, I don't know who that is
4 assigned to. So if that's assigned to Samsung,
5 I can say I looked at Miyake. I looked at
6 Walley.

7 I have no recollection of who it's
8 assigned to. I can see who it was originally
9 assigned to, I guess, if you would like me to
10 do that.

11 Q. But you don't recall reviewing Cho?

12 MR. SCHMID: Objection to form.

13 Q. Which would be U.S. patent number
14 5185766, correct?

15 MR. SCHMID: Same objection.

16 A. If I looked at the patent, I can
17 tell you if I have looked at it before. That
18 patent is not a basis of any of my opinions, or
19 I would recognize it.

20 But I've also worked in this art
21 field for a very long time. So it's possible I
22 looked at that patent at some point in my life.

23 For example, I worked at Texas
24 Instruments. You mentioned the Texas
25 Instruments patent. I didn't work there in the

1 time frame you mentioned the patent was issued.
2 But I don't know when it was filed.

3 So I -- based on the information
4 available to me right now, which is just
5 whatever you put on the record, I don't have
6 recollection of -- of those documents.

7 Q. Okay.

8 And how about Exhibit 2024, which is
9 a paper titled: Ultra-wide bandwidth time
10 hopping spectrum impulse radio for wireless
11 multiple access communication. Which is an
12 IEEE article whose authors are Moe Z. Win and
13 Robert A. Scholtz.

14 MR. SCHMID: Objection to form.

15 BY MR. KAPADIA:

16 Q. Do you recall reviewing this
17 article?

18 MR. SCHMID: Same objection.

19 A. Based on the information you've
20 provided me, I have no recollection of
21 reviewing a document based on the information
22 that you provided me.

23 Q. Okay.

24 A. I may have, but I would need to
25 actually look at the document and look at my --

1 probably just reviewing the document would be
2 enough. But if I had my declaration -- and
3 this is for, by the way, all the documents
4 you've mentioned.

5 Based on the information you've
6 provided, I don't have recollection. But
7 certainly if it's cited specifically in my
8 declaration, then that means I would have
9 looked at it.

10 Q. But if you didn't cite these
11 exhibits in your declaration, then you haven't
12 provided any opinions on them, correct?

13 MR. SCHMID: Objection. Form.

14 A. I think it's fair to say that I
15 didn't provide opinions on those patents,
16 generally.

17 Q. To be clear, by patents, did you
18 mean the exhibits that I had just discussed,
19 which include Exhibit 2011, Exhibit 2015,
20 Exhibit 2017, Exhibit 2018, Exhibit 2019,
21 Exhibit 2023, and Exhibit 2024?

22 MR. SCHMID: Objection. Form.

23 Compound.

24 A. Those exhibits, in your questioning,
25 I think I know what you are trying to say, but

1 I have no short-term memory or long-term memory
2 of those exhibit numbers, so I can't answer
3 your question as you've asked it.

4 If you would like to restate the
5 question, I would be happy to answer the
6 question I think you are trying to ask.

7 And that's just because if you told
8 me I wasn't clear on the question, maybe you
9 could close your eyes and write down what all
10 those exhibits numbers are and who they were,
11 but I don't remember.

12 Q. Do you recall my line of questioning
13 regarding the exhibits which started with an
14 article by C. Rudell titled: Recent
15 developments in high integration multistandard
16 CMOS transceivers for personal communication
17 systems?

18 A. Yes.

19 Q. Now -- and do you recall I went
20 through several exhibits that I represented
21 were attached to or a part of the patent owner
22 response?

23 MR. SCHMID: Object to form.

24 A. I don't recall that you had
25 mentioned that each of those were attached to

1 the patent owner response. But if you
2 represent that to me, then I do recall you
3 mentioning several documents. I don't recall
4 that they were -- I think some were articles,
5 maybe one was a book. Since that point, unless
6 you put something in there in between that
7 wasn't, but I accept that representation.

8 And in that context, now I'm
9 prepared to answer your question.

10 Could you re-ask the question so I
11 remember what it was?

12 Q. Sure.

13 Starting with Exhibit 2011, which
14 was the exhibit that is an article by C.
15 Rudell, et al., titled: Recent developments in
16 high integration multistandard CMOS
17 transceivers for personal communication
18 systems.

19 Starting off with that exhibit
20 through Exhibit 2024, which was the most recent
21 article we had discussed, which was the paper
22 by M. Win and Robert Scholtz titled:
23 Ultra-wide bandwidth time hopping spread
24 spectrum impulse radio for wireless multiple
25 access communications.

1 Is it fair to say that if those
2 exhibits were not cited in your declaration,
3 then you have not provided any opinions
4 regarding them?

5 MR. SCHMID: Objection. Form.
6 Compound.

7 A. Yes. It's fair to say I have not
8 provided any opinions with respect to those
9 publications, I think that would include the
10 different types that you mentioned.

11 Q. All right.

12 MR. KAPADIA: I think now is a good
13 time to take a break.

14 Can we go off the record.

15 THE VIDEOGRAPHER: 10:41. We are
16 off the record.

17 (Recess is taken.)

18 THE VIDEOGRAPHER: We are back on
19 the record. The time is 10:54.

20 BY MR. KAPADIA:

21 Q. Okay.

22 Welcome back.

23 A. Thank you.

24 Q. Can you open up Exhibit 1 and turn
25 to Section 4, which starts on page 13 of your

1 declaration.

2 A. Would you like me to leave these
3 other exhibits here?

4 Q. I think we can set the other
5 declarations aside.

6 Let's just focus on Exhibit 1 for
7 now.

8 A. Okay. And remind me the page
9 number, please, that you asked me to go.

10 Q. Page 13.

11 A. I am on page 13 of Exhibit 1.

12 Q. Great.

13 Do you see the first sentence where
14 it says: I have been asked to assume the claim
15 constructions set forth below?

16 A. Yes, I do.

17 Q. And then on the next page is a table
18 which includes claim constructions that you
19 were asked to assume?

20 A. Yes.

21 Q. Do you dispute any of those claim
22 constructions?

23 MR. SCHMID: Objection. Form.
24 Foundation.

25 A. Can you repeat the question? I just

1 didn't hear it.

2 Q. Do you dispute the constructions
3 that you were asked to assume?

4 MR. SCHMID: Same objections.

5 A. I -- I have no opinion on the
6 constructions that I was asked to assume. I
7 assumed them. I understand that they came from
8 somewhere. You had asked that question a
9 little bit earlier, or at least some of them
10 came from somewhere. And I'm aware that
11 there's at least some history related to the
12 unique user code, which I assume used that
13 construction.

14 I just used the constructions. I
15 don't have a separate opinion on the
16 constructions.

17 Q. So you don't have an opinion as to
18 whether you dispute those constructions?

19 MR. SCHMID: Objection. Form.

20 A. I think I answered that question.
21 So maybe I did not understand the original
22 question.

23 I just assumed them, so I don't see
24 how I would have an opinion on disputing them.
25 I don't have an opinion on them specifically.

1 I assumed them as I was instructed to do.

2 Although I understand there's a
3 history, I think I mentioned this already,
4 related to some of these constructions. I
5 assumed that they were constructed as I was
6 asked to assume in this history.

7 I recall there was district -- not
8 District Court, what was it -- there was some
9 appellate court thing I looked at with respect
10 to unique user code.

11 And so I assumed this came from that
12 or was related to that construction. I don't
13 -- I don't dispute. I just don't have an
14 opinion either way. I just assumed them.

15 Q. Okay.

16 I'm going to mark as Exhibit 7, the
17 first 20 pages of Exhibit 1005 from IPR
18 2025-01516.

19 (Exhibit 7, first 20 pages of
20 Exhibit 1005 from IPR 2025-01516, marked
21 for identification.)

22 A. Sorry. What did you say this was?

23 Q. This is the first 20 pages of
24 Exhibit 1005.

25 A. Of the --

1 Q. Of the IPR petition for the '047
2 patent.

3 A. Okay. I'll accept that.

4 Q. Okay.

5 And this is an excerpt from what I
6 believe -- or strike that.

7 I believe this includes what you
8 referred to as the 2003 application in your
9 declaration?

10 (Document review.)

11 BY MR. KAPADIA:

12 Q. Can you flip through Exhibit 7 and
13 confirm if that's correct?

14 (Document review.)

15 A. This appears to at least be part of
16 this 2003 application, which I think is what
17 you asked.

18 Q. Are you aware of anything that's
19 missing from this?

20 MR. SCHMID: Objection. Form.

21 A. You said excerpt in your question,
22 so I assume it's not the complete application.

23 Q. Let me be clear.

24 So Exhibit 1005 is the full file
25 history -- well, let me be accurate -- strike

1 that.

2 Exhibit 1005 is the file history for
3 U.S. application number 10648012 filed
4 August 26, 2003.

5 And as part of that file history,
6 which I believe was originally about a thousand
7 or so pages, this is the first 20 pages of that
8 much larger exhibit.

9 And what I'm representing is that
10 the first 20 pages of Exhibit 1005 includes the
11 original application that you referred to as
12 the 2003 application in your declaration.

13 Does that make sense?

14 A. Yes, your question makes sense.

15 Q. So do you recall referring to a 2003
16 application in your declarations?

17 A. Yes.

18 Q. And looking at what I've handed you
19 as Exhibit 7, does this include the entirety of
20 the 2003 application?

21 MR. SCHMID: Objection. Form.

22 A. I think I must not have understood
23 your explanation.

24 Q. I can clarify again.

25 So the full Exhibit 1005 is the file

1 history for that application.

2 When the applicant had filed that
3 patent application that you referred to as the
4 2003 application, they filed a specification,
5 drawing, and claims for that application.

6 And what they submitted on
7 August 26, 2003, for that application is
8 included in Exhibit 7.

9 A. I think you are waiting for me. But
10 I actually don't think you asked me a question.

11 Q. Okay.

12 Does that make sense what I said?

13 A. What you said makes sense to me.

14 Q. And you're aware that what you
15 referred to as a 2003 application had
16 amendments to the specification that occurred
17 after 2003.

18 Does that ring a bell to you?

19 MR. SCHMID: Objection to form.

20 A. I can see from the first page here
21 it's a continuation in part. And typically
22 that means that -- that it's not a strict
23 continuation.

24 So I would expect there to be some
25 amendments.

1 Q. And it's a continuation in part of
2 an earlier application whose serial number is
3 10027391, if you look around a third of the way
4 down.

5 MR. SCHMID: Objection. Form.

6 Scope.

7 A. I don't think you asked me a
8 question again, so I hope you are not waiting
9 on me.

10 Q. Is that correct? Is it a
11 continuation in part of U.S. application number
12 10027391?

13 A. That's my understanding, yes.

14 Q. Okay.

15 And -- I'm handing you as Exhibit 8.

16 (Exhibit 8, Exhibit 1004 from IPR
17 2025-01516, marked for identification.)

18 MR. KAPADIA: It's a copy of
19 Exhibit 1004 from IPR 2025-01516.

20 BY MR. KAPADIA:

21 Q. Do you see that?

22 A. Actually, you gave me Exhibit 8.

23 Q. Yup.

24 A. And it looks like the 196
25 application. If that's what you asked me, then

1 yes, this is what it is.

2 Q. I didn't ask you anything other than
3 if you saw this is Exhibit 1004?

4 A. Yes, I can see that on the bottom.
5 It says Sony Exhibit 1004-0001.

6 Q. Do you see under that, Samsung
7 Exhibit 1004?

8 A. Yes, Samsung Exhibit 1004, page 1 of
9 6.

10 Q. Okay. Great.

11 And if you look again at Exhibit 7,
12 starting on page 3 and extending until page 11.
13 Do you see enumerated paragraphs and the
14 abstract for the 2003 application; is that
15 correct?

16 MR. SCHMID: Objection to form.

17 A. I see background of inventions,
18 summary of invention, brief description of
19 drawings, detailed description, and claims up
20 to page 11 of the 1037 or page 9 of what's
21 shown on the page.

22 Q. Okay.

23 A. Did I go far enough?

24 Q. Yes.

25 So you have the first 21 paragraphs

1 and the claims in those pages, is that
2 accurate, those pages being 3 through 11.

3 Let me clarify the record here
4 because there are two different page numbers on
5 here.

6 There are page numbers as part of
7 Exhibit 1005 in the bottom right. There is
8 also page numbers for the specification which
9 is above that and centered on this page.

10 So let me just clarify the record
11 here.

12 If you look at page 3 of
13 Exhibit 1005, which has been marked as
14 Exhibit 7 here.

15 And go through page 15 of this
16 excerpt of Exhibit 1005.

17 Do you see the entirety of the 2003
18 application as filed?

19 MR. SCHMID: Objection. Form.

20 A. You said page 13? I just don't
21 recall.

22 Q. 15.

23 MR. SCHMID: Same objection.

24 A. Okay. So I'm going through, I think
25 they are the same. But it says Sony exhibit

1 page 3, and then underneath it says Samsung
2 exhibit page 3 of 1037.

3 And I am going to look between there
4 and I think you said page 15, which also seems
5 to be the same in Sony exhibit and Samsung.

6 Q. Yes.

7 A. Okay.

8 So there I see background of the
9 invention, summary of the invention, brief
10 description of drawings, detailed description,
11 claims, abstract of the disclosure, and two
12 figures.

13 Q. So would you agree that this is the
14 original specification claims and drawings that
15 were submitted with the 2003 application?

16 MR. SCHMID: Objection. Form.

17 A. I'm not sure I provided an opinion
18 on that. I would need to look through what's
19 actually written here. But my understanding is
20 that this is the application that we just
21 discussed that was a continuation in part and
22 has that serial number you mentioned on the
23 front.

24 Q. All right.

25 So do you have an understanding as

1 to whether or not the continuation in part --
2 strike that.

3 Are you aware whether this
4 specification, which extends through pages 3
5 through 15 of Exhibit 1005, are you aware
6 whether that specification was amended after
7 2003?

8 MR. SCHMID: Objection. Form.
9 Scope.

10 A. My recollection is that there's --
11 from the page of these three patents, that
12 there's a continuation -- one or more
13 continuations, and at least one, maybe more,
14 continuation parts for a lot of patents after
15 2003. So I -- I didn't analyze -- analyze
16 that. I don't think any of my declaration
17 opinions relate to that.

18 Q. Okay.

19 Were you asked to determine whether
20 certain concepts were inherently disclosed in
21 the 2003 application?

22 A. Yes.

23 Q. Okay.

24 Does this include the entirety of
25 the 2003 application that you considered as

1 part of that analysis?

2 MR. SCHMID: Objection to form.

3 A. I don't know, because considered
4 is -- I would have had -- opened this 1005 or
5 comparable version of that exhibit, which
6 apparently has 1,307 -- 37 pages, so it's
7 likely that in that process, I would have
8 looked at what those pages were.

9 To the extent that I -- I have an
10 opinion with respect to the content of that --
11 of those 1037 pages, I expect I would have
12 cited that within the sections regarding the
13 written disclosures of 2003 application for at
14 least -- well, for only, actually, those three
15 terms that I was asked to look at.

16 Q. All of your opinions regarding the
17 2003 application be cited in your three expert
18 declarations in these IPRs?

19 MR. SCHMID: Objection. Form.

20 A. Yes.

21 Q. Okay.

22 Are you aware if the specification
23 from the 2003 application is the same as the
24 specification for that patent application that
25 was marked as Exhibit 8, which is the 196

1 publication?

2 MR. SCHMID: Objection. Form.

3 Scope.

4 A. I don't believe I have any -- have
5 offered any opinion with respect to that.

6 I do recall, because I had to skim
7 through the -- or not even skim, just kind of
8 flip through the patent owner response when I
9 looked at it.

10 And I should have mentioned I don't
11 know that I looked at the final as filed patent
12 owner response. We had talked about that
13 earlier in the day, but now that you asked this
14 question, I'm not sure actually if I looked at
15 the final. I know I looked at what was going
16 to be filed, to make sure that the citations to
17 my declaration were correct.

18 That's a little bit of an aside, but
19 I want to make sure that that's clear in my
20 earlier answer. You had asked me to do that if
21 something came up.

22 Q. Yup.

23 A. Now I'm ready to answer this
24 question, but I need your help remembering what
25 it was. This latest question.

1 Q. Okay.

2 Well, is the 2003 -- strike that.

3 Is the 2003 application a
4 continuation in part of what was marked as
5 Exhibit 8 here?

6 MR. SCHMID: Objection. Form.
7 Legal conclusion.

8 A. That's my understanding, that it is
9 a continuation in part. I can maybe verify
10 that, if you want.

11 Q. And I believe you had stated that
12 that's what you saw on page 1 of Exhibit 7?

13 A. It's -- yeah, it says it's a
14 continuation in part. I'm not sure I stated of
15 what.

16 Q. And if you look at about a third of
17 the way down, where it says serial number and
18 then it says: 10, slash, 027, 391?

19 A. Yes, I see that.

20 Q. And then if you look at about a
21 third of the way down on Exhibit 8, it says:
22 Application number 10, slash, 027, 391?

23 A. I see that, yes.

24 Q. Okay.

25 So would you agree that this -- that

1 the 2003 application is a continuation in part
2 of what has been marked as Exhibit 8?

3 MR. SCHMID: Objection. Form.
4 Legal conclusion.

5 A. It -- I agree that it's indicated as
6 that. And so that would be my understanding.

7 Q. Okay.

8 Is the specification of the 2003
9 application the same as the specification of
10 Exhibit 8?

11 MR. SCHMID: Objection. Form.
12 Foundation. Scope.

13 A. I don't have an opinion on that.
14 That wasn't what part of my declaration.

15 I would expect there would be at
16 least some difference because it's indicated as
17 a continuation in part. So my understanding is
18 that that means they are not identical.

19 Q. Are you aware that the petitions in
20 the three IPRs we're discussing today included
21 grounds based on the 196 publication, which has
22 been marked as Exhibit 8?

23 MR. SCHMID: Object to form.

24 A. I'm aware of those because I had to
25 skip through those to get to the sections that

1 I was asked to opine on.

2 Q. Okay.

3 So you have no opinions as to
4 whether or not the 196 publication anticipates
5 or renders obvious any of the claims challenged
6 in the three IPRs that we're discussing today?

7 MR. SCHMID: Objection. Form.

8 Scope. Legal conclusion.

9 A. My understanding was that those were
10 legal arguments, and I didn't -- I wasn't asked
11 to opine on them. That's the extent of my
12 familiarity, other than flipping through them.
13 When I say flipping, I just mean initially sort
14 of seeing what was in the petition, and then
15 focusing on the things that I understood
16 weren't legal argument. And that's just from
17 -- from counsel. That wasn't -- I didn't read
18 them and decide they were -- I just didn't read
19 them at all.

20 Q. Okay.

21 Have you ever designed a wireless
22 headphone?

23 MR. SCHMID: Objection. Form.

24 A. Oh. Give me a moment to rewind the
25 tape and go through.

1 If I ever designed a wireless
2 headphone? I have no recollection here having
3 done that. I've designed a lot of things.

4 Certainly not -- I didn't rely on --
5 on any prior experience of designing a wireless
6 headphone. Within my declaration, though,
7 certainly wireless systems that I've been
8 involved in whole or in part in designing
9 could've had, you know, or would've had audio
10 or video or other types of multimedia as part
11 of the application.

12 Q. How about a wireless speaker, have
13 you ever designed a wireless speaker?

14 MR. SCHMID: Objection. Form.

15 A. I'm doing the same process of
16 thinking. Thinking back through.

17 The answer to that would be yes.
18 The answer to that would be yes, I have.

19 Q. Do you recall when you designed a
20 wireless speaker?

21 MR. SCHMID: Same objection.

22 A. Yes. Not in 2002, but in 2002 I
23 founded a company called Commoca, and somewhere
24 in the 2005-ish time frame, we introduced a
25 wireless, could be wired also, but a wireless

1 handset that did include a speaker. So
2 technically that's a wireless speaker is part
3 of a wireless handset. That particular device
4 could also have been operated, connected to
5 Ethernet.

6 Q. What was the name of that company
7 again?

8 A. Commoca, C-O-M-M-O-C-A, Inc.

9 Q. Okay.

10 Can you turn to Exhibit 1,
11 Section 3C.

12 A. I'm at the top of that on page 9.

13 Q. Page, I believe, that's on page 12,
14 3C.

15 A. Oh. Maybe I'm in the wrong section.

16 Q. I think you were looking at 2C.

17 A. Okay.

18 Is it entitled: Written description
19 requirement?

20 Q. Yes.

21 A. Okay. And I'm there.

22 Q. Okay.

23 MR. SCHMID: That was me, sorry.

24 MR. KAPADIA: No problem.

25 BY MR. KAPADIA:

1 Q. Do you see -- can you read the last
2 line of paragraph 19 out loud?

3 A. The last line?

4 Q. Yeah, I'm sorry, strike that.
5 Can you read the last sentence of
6 paragraph 19?

7 A. It says, this -- you want me to read
8 it out loud?

9 Q. Yes, please.

10 A. This is an objective inquiry and
11 confined to the four corners of the
12 specification, viewed from the perspective of a
13 person of ordinary skill in the art at the
14 relevant time.

15 Q. Okay.

16 Is it your understanding that the
17 written description requirement is confined to
18 the four corners of the specification viewed
19 from the perspective of a person of ordinary
20 skill in the art at the relevant time?

21 MR. SCHMID: Objection. Form.
22 Legal conclusion.

23 A. I think -- if you can just say the
24 question again. It was kind of long. I'm not
25 sure if there was two questions in one.

1 Q. Sure.

2 Is it your understanding that the
3 written description requirement is an objective
4 inquiry confined to the four corners of the
5 specification viewed from the perspective of a
6 person of ordinary skill in the art at the
7 relevant time?

8 MR. SCHMID: Same objections.

9 A. That's my understanding, yes.

10 Q. And what is the relevant time?

11 MR. SCHMID: Same objections.

12 A. Of --

13 Q. For the written --

14 A. Can you provide me some context?

15 Q. Sure. My apologies.

16 What is the relevant time for the
17 written description requirement for the three
18 patents we are discussing today, the '047, the
19 '627, and the '000 patents?

20 A. For the actual patents, I understand
21 that would be in the 2001 time frame, as viewed
22 evaluating the specification or the application
23 including a specification for -- for this
24 requirement.

25 I'm not sure from a -- since I'm not

1 -- I don't understand the legal differences in
2 terms of whether it's, you know, between filing
3 and publication in terms of the written
4 description, but certainly in an issued patent,
5 it would be expected that written description
6 would meet this requirement.

7 And then in an application, I would
8 look at that. In terms of what dates matter
9 and where, I would defer to a lawyer, I guess,
10 to figure that out.

11 It doesn't impact any of my
12 opinions.

13 Q. It doesn't impact whether or not the
14 date is 2001?

15 MR. SCHMID: Objection. Form.
16 Compound.

17 A. It doesn't impact in terms of my
18 opinions, because both Walley and Miyake
19 predate that 2001 date.

20 Q. But that's for -- strike that.
21 Do you understand what the written
22 description requirement is?

23 MR. SCHMID: Objection. Form.
24 Legal conclusion.

25 A. It's my understanding of it is

1 reflected there in those two paragraphs.

2 Q. Do you have an understanding as to
3 whether or not written description has to be
4 established as of 2001 for the three patents we
5 are discussing today, the '047, '627 and '000
6 patents?

7 MR. SCHMID: Objection. Form.
8 Compound.

9 A. I think the way you asked the
10 question, I -- it's -- it wasn't relevant
11 because of how you asked the question.

12 But I do understand based on what we
13 just reviewed that the -- the December 21,
14 2001, application 10027391 is the original
15 application that's referenced in the -- what we
16 referred to as the 2003 application excerpt of
17 Exhibit 1005 from the Samsung petition that is
18 a continuation in part.

19 Q. So is December 21, 2001, the
20 relevant time for the written description
21 requirement test?

22 MR. SCHMID: Same objections.

23 A. My understanding it's -- the test is
24 related to the specification. So it would be
25 the specification of whatever is like in the

1 issued patent, and then I suppose that would be
2 informed -- now I know that would be informed
3 by file history. And then I know that -- or I
4 -- I understand that that's also the case for
5 an application.

6 The ins and outs of, you know, what
7 changes are allowed, not allowed, I'm not an
8 expert on that. In this context of my
9 declaration, I very specifically only applied
10 that to the three terms that I was asked to
11 opine on with respect to the 2003 application.

12 I did not, to my recollection,
13 review the 196. If I did, it would be -- I
14 would have explicitly cited that in my
15 declaration.

16 Q. Okay.

17 So when you opined on those three
18 terms, what have the relevant time that you
19 used as part of your analysis?

20 MR. SCHMID: Same objections.

21 A. I just reviewed the 2003 application
22 and the disclosures within the 2003
23 application.

24 There would not have been a
25 distinction in terms of time frame, unless

1 there was a difference, I suppose, in the
2 definition of a person of ordinary skill in the
3 art in those two time frames, which I don't
4 believe there was.

5 And unless I was asked to opine on
6 priority dates, but that's not an analysis that
7 I was asked to do, and I did not do that.

8 So my opinions would be the same
9 throughout my declaration, whether it was a
10 2001 or a 2003 for the grounds that I was asked
11 to opine on. Which did not include the 196
12 application.

13 Q. I don't know what you mean by your
14 opinions would be the same whether it was a
15 2001 or a 2003 date?

16 A. What I mean is that the opinions
17 within my declaration rely on the knowledge of
18 a person of ordinary skill in the art in a time
19 frame of 2001, which would be the same in the
20 time frame of 2003. Primarily because the art
21 that I was asked to opine on predates 2001, the
22 understanding of what would qualify as a person
23 of ordinary skill in the art in my view, that
24 definition would not change if it -- if the
25 time frame were changed, the way we've designed

1 or proposed it, both in the petition and my
2 declaration.

3 And because the written description
4 requirement I was asked to opine on was
5 specifically with respect to the 2003
6 application, and that's the document that I --
7 that I looked at.

8 So I'm not aware of any other
9 portions of my declaration that would otherwise
10 be sensitive to that, to the date differences.

11 Q. What I'm asking is what date did you
12 apply?

13 MR. SCHMID: Same objections.

14 A. What date did I apply to what?

15 Q. To your analysis in Section 7 of
16 your declaration.

17 And to be clear, I'm not asking as
18 to what your opinion is today, I'm asking what
19 date did you apply for your analysis in
20 Section 7?

21 MR. SCHMID: Objection. Form.
22 Legal conclusion.

23 A. I'm not sure what you mean by apply.
24 Let me answer the -- what I did.

25 I looked at the 2003 application as

1 filed. And its contents, which we've reviewed
2 here in the context of a person of ordinary
3 skill of the art and the text of the
4 specification in that application.

5 I didn't consciously opine, and I
6 don't -- I would be surprised if there's
7 anything in the declaration with respect to
8 that particular section, because my
9 understanding was that it would be person of
10 ordinary skill in the art looking at the text
11 of that application. And that person of
12 ordinary skill in the art definition would not
13 change between 2003 and 2001.

14 And I very specifically only looked
15 at that application in the context of
16 establishing whether or not certain specific
17 things were disclosed.

18 Hopefully I answered your question.

19 Q. So you didn't consider whether or
20 not your analysis was based on 2001 or 2003?

21 MR. SCHMID: Objection. Form.

22 A. I don't understand your question.

23 Q. Now your opinions in Section 7 an
24 accurate representation of your analysis?

25 MR. SCHMID: Object to form.

1 A. Absent any errors that are unknown
2 to me, my opinions have not -- my opinions in
3 my declaration have not changed. And so I
4 expect they accurately represent my -- what
5 would be my current opinions. Obviously, I
6 made a mistake earlier with citation in the
7 patent number I used.

8 So there could be other errors, but
9 right now as we speak, I'm unaware of any --
10 any additional errors.

11 Q. Okay.

12 Can you turn to the start of
13 Section 7.

14 A. Yes, I can, and I'm actually already
15 there for some reason.

16 Q. Do you see approximately five
17 sentences down in paragraph 31, the sentence
18 that starts: Consequently?

19 A. I don't think there are five
20 sentences in paragraph 31.

21 Q. I'm sorry, five lines down. Five
22 lines down.

23 A. Yes, I see the sentence that starts
24 with consequently.

25 Q. Consequently, a disclosure directed

1 to a low-cost, spread spectrum communication
2 system inherently contemplates these elements.

3 Do you see that?

4 A. Yes, I see that.

5 Q. And in the sentence above that, it
6 says: A POSA would have recognized direct
7 conversion architectures, intersymbol
8 interference, ISI, mitigation strategies, and
9 differential phase shift keying, DPSK, as
10 foundational elements of the general knowledge
11 in the art of the '047 patent.

12 A. Yes, I see that.

13 Q. Are those the elements that are
14 inherently contemplated by a low-cost spread
15 spectrum communication system?

16 MR. SCHMID: Objection. Form.

17 A. I would add to that, battery
18 operated, which I think I have done within
19 here, maybe in the next paragraph.

20 Q. I'm asking about what you said in
21 paragraph 31.

22 A. Well, specifically, only
23 paragraph 31, not including 32. That's what I
24 say: Low-cost, spread spectrum communication
25 system as contemplates these elements as they

1 represented the contemporary standard for
2 minimizing hardware complexity and optimizing
3 power efficiency in the context of the claimed
4 inventions.

5 So that actually does relate to
6 battery operated. So it's different phrasing,
7 but, yes, that's correct. It's just
8 differently --

9 Q. I'm sorry.

10 A. I was just going to say it's written
11 as optimizing power efficiency.

12 Q. Gotcha.

13 What do you mean when you say in--
14 strike that.

15 What do you mean when it says
16 inherently contemplates?

17 MR. SCHMID: Objection to form.

18 A. Well, I mean, that if you -- at
19 that -- POSA would understand reading that,
20 that if you are creating a low-cost power
21 efficient, which to me means battery operated,
22 but low-cost, power efficient spread spectrum
23 communication system in that time frame, that
24 it would necessarily include ISI. And that's
25 really more specific to the CDMA, that's

1 inherent in CDMA, DPSK, and direct conversion.

2 Q. So any low-cost, spread spectrum
3 communication system that optimizes power
4 efficiency would inherently disclose direct
5 conversion architectures, ISI mitigations
6 strategies and DPSK?

7 MR. SCHMID: Objection to form.

8 A. I can't comment on any, especially
9 not in the context of time frames. Because in
10 the 1980s, obviously, you wouldn't have -- you
11 wouldn't have these things. Well, you would
12 have some sort of ISI or CDMA or you wouldn't
13 really have CDMA.

14 But -- but certainly in the time
15 frames contemplated here, that was well known.
16 You wouldn't design a low-cost power efficient
17 system that didn't have ISI mitigation that
18 didn't have coding, obviously, that didn't have
19 DPSK and that didn't have direct conversion.

20 Q. Okay.

21 So any such system in 2001 wouldn't
22 necessarily have those elements?

23 MR. SCHMID: Objection. Form.

24 A. Well, if the subsystem existed and
25 was designed substantively earlier, then

1 certainly could exist. But if you are going to
2 design something in that time frame, which I
3 think is what you are trying to ask, then
4 that's what it would have.

5 Obviously, if you take out battery
6 operated, that low cost and other things, then
7 there might be some cases where you would use
8 something else. But if you are trying to
9 accomplish what the goals are and what's
10 claimed in the -- in this '047 patent, then
11 that's what would be understood by that
12 disclosure.

13 I should qualify that by saying that
14 the claims that include some limitation related
15 to these three elements.

16 Q. So a low-cost spread spectrum
17 communication system which optimizes power
18 efficiency that was designed around 2001 time
19 frame would necessarily have the three elements
20 that we discussed, direct conversion
21 architectures, ISI mitigation strategies and
22 DPSK?

23 MR. SCHMID: Objection. Form.
24 Compound.

25 A. I think that question is too

1 general. But with respect to CDMA spread
2 spectrum systems that used codes, which is what
3 all of the claims relate to and the
4 specification also relates to, the answer to
5 that is yes.

6 Your question, as I understood it,
7 and I should have asked you to probably restate
8 it, but I was trying to be helpful, but it's
9 more general than that.

10 And that's, when I write: In light
11 of the established technical landscape as of
12 the '047 patent, my opinions here are related
13 to what's relevant to the patent, not some
14 other sort of system designed that has nothing
15 to do with what the aims of the patent are and
16 its claims. These three patents.

17 Q. Paragraph 31 doesn't refer to codes,
18 correct?

19 MR. SCHMID: Objection. Form.

20 A. I think it could have been more
21 clear to change strategies to code. No one is
22 claiming a strategy, and I apologize for that.
23 I would change the word strategies to code.

24 But none of the claims -- claims
25 strategies, so I think it's -- it would be

1 pretty clear to someone that -- that's the
2 intent there.

3 And that is specific also to CDMA,
4 because that's the whole purpose of having
5 codes, is for intersymbol interference and
6 CDMA. You can't -- a CDMA system without
7 somehow mitigating intersymbol interference
8 doesn't seem to be a -- could be a CDMA system.

9 And this, because the inherent
10 reflections that you get, even just from a
11 single user.

12 Q. What is your understanding by what
13 is required to demonstrate inherency?

14 MR. SCHMID: Objection. Form.
15 Legal conclusion.

16 A. I think I wrote that down. And if I
17 didn't, it relates to -- can you repeat the
18 question?

19 I'm trying to understand it. I'm
20 trying to remember the question so I can
21 understand how to answer a little bit better.
22 You can repeat it just like you said or
23 clarify. It's up to you.

24 Q. You used the term inherent
25 throughout Section 7.

1 What was the definition of inherent
2 that you used in this section?

3 A. Okay. The way --

4 MR. SCHMID: Object to form.

5 A. -- I interpreted -- sorry, I
6 answered too quickly.

7 The way I interpreted it is looking
8 at it from a written description standpoint and
9 understanding of a POSITA at the time, would I
10 have understood that the patentee had disclosed
11 the use of interference -- intersymbol
12 interference coding, differential phase shift
13 keying and direct conversion within the
14 disclosures that that were made, even in cases
15 where those were not explicitly called out.
16 But that's what -- that's what was inherently
17 disclosed, not just a possibility to achieve
18 their stated goals regarding spread spectrum
19 communications in a low-cost battery operated
20 environment systems.

21 Q. So when you say inherently disclose,
22 you mean that it is necessarily -- necessarily
23 disclosed?

24 MR. SCHMID: Objection to form.

25 A. I'm not sure what you mean by those

1 two differences, but when -- I'm sorry, by the
2 distinction in that -- in that language.

3 But what I can say is when I read
4 that it's a CDMA system that's low cost,
5 battery operated, and I see that the purpose,
6 then I understand that someone in 2001 would
7 necessarily have to use intersymbol
8 interference coding because it's CDMA. And
9 would necessarily use DPSK and direct
10 conversion because using anything else would
11 just consume significant power. It would be
12 unnecessary.

13 And again, this is in 2001,
14 obviously, being different, you know, 10,
15 20 years earlier for receivers, generally. And
16 that's, you know, technology limitation in
17 terms of what could be done in silicone versus
18 nonsilicone.

19 You know, if you don't go direct
20 conversion, you have to use discreet filters,
21 soft filters, nonsilicone filters. There's no
22 way to do that cheap. And the -- if you use
23 heterodyne, then you have additional
24 oscillators.

25 Sometimes when I'm thinking out, I

1 don't look at the camera, and I know you want
2 to get a video, so I'm just thinking so I
3 sometimes close my eyes. I apologize for that.

4 Q. Do you see in paragraph 34 where you
5 -- well, strike that.

6 In paragraph 34, do you see where
7 you say: Would be the natural choice of
8 architecture. It's is the second to last line
9 of paragraph 34.

10 A. Paragraph 34 goes all the way to --
11 from page 18 to 19.

12 Can you tell me what the sentence
13 starts with, and then I can --

14 Q. The sentence starts at the top
15 page 19.

16 A. I see that sentence. Can you repeat
17 your question?

18 Q. Is -- strike that.

19 Is the natural choice of
20 architecture the only choice of architecture?

21 MR. SCHMID: Objection. Form.

22 A. For the stated goals of the patent
23 and its claims, natural choice in this context
24 means the choice. It's nature. There's -- I
25 can't -- there's not an alternative. Maybe a

1 better word for natural -- well, actually, I
2 think natural is a pretty good word. It's
3 nature. It's nature. That's how it would be
4 understood to be done. At -- in the 2001 time
5 frame.

6 So I think I answered your question.

7 Q. I'm not sure yet.

8 Is that the only choice of
9 architecture?

10 MR. SCHMID: Objection. Form.

11 A. I thought I answered that before.
12 But let me be more explicit.

13 In implementing CDMA spread
14 spectrum, you know, with codes, which is what
15 the patent is claiming, that is for the types
16 of applications disclosed, and as the overall
17 aim to be low cost, battery operated, at that
18 time, that was the only choice.

19 Q. Is low cost a requirement in the
20 2003 application?

21 MR. SCHMID: Objection. Form.

22 A. I don't know what you mean by that
23 question in terms of a requirement of an
24 application. My understanding is that issued
25 claims in a patent set out the requirements.

1 The specification certainly informs
2 those claims. And the objective, I think,
3 consistently in the three patents and in the
4 2003 application all relate to -- to low cost,
5 battery-operated systems.

6 Q. Can you look through Exhibit 7 and
7 tell me where it talks about low cost?

8 A. That's going to take me some time,
9 if you don't mind me taking it.

10 Q. Take your time on this.

11 Let me ask you a -- maybe let me ask
12 you a slightly different question.

13 Do you recall any instance of the
14 2003 application expressly discussing low cost
15 or cost overall?

16 A. I would be surprised if it didn't.
17 It may not use the keyword cost.

18 A little while ago we got into, for
19 example, a paragraph that didn't use the word
20 battery operated. But did talk about power
21 efficiency. And so those -- those are
22 essentially the same goal and mind of that
23 application.

24 Q. If cost were not a consideration,
25 would there be other options?

1 MR. SCHMID: Objection. Form.

2 A. I don't see any other option for the
3 applications. You know, for example, low --
4 for example, complexity, I think it would be
5 unreasonable for a POSA reading the 2003
6 application and the specifications of the three
7 patents that are subject of the petitions, to
8 have an understanding that the claims relate to
9 systems that where cost is not a primary
10 consideration, low complexity is not a primary
11 consideration, and -- and low or high power
12 efficiency or low power efficiency is a primary
13 consideration. And understanding that primary
14 consideration here means the only choice.

15 And I think it can be confusing when
16 I say the only choice because that suggests
17 that there's another choice. So maybe I'm not
18 sure only option actually helps. But when you
19 read the specification, when you know the
20 technologies that are being discussed, when you
21 understand it's a CDMA system using codes, and
22 all the claims require that, and you see, you
23 know, an embodiment where there's a headset
24 and, you know, a portable device, there would
25 be no reason to try to read into the 2003

1 specification that it's going to use anything
2 other than direct conversion, DPSK, and
3 intersymbol interference coding.

4 And furthermore, as I mentioned,
5 intersymbol interference coding goes hand in
6 hand with using CDMA.

7 Q. So you are telling me that if costs
8 were not a consideration, there would be no
9 other option?

10 MR. SCHMID: Objection. Form.
11 Scope.

12 MR. KAPADIA: Strike that.

13 BY MR. KAPADIA:

14 Q. Let me ask you -- let me ask a
15 better question.

16 Would there be any other way of
17 providing a battery powered transmitter if
18 costs were no option?

19 MR. SCHMID: Objection. Form.
20 Scope.

21 A. Your question is -- I'm sorry, it's
22 just not well defined.

23 Q. Okay.

24 A. What time frame? What application?

25 Q. 2001 time frame.

1 If costs were not a consideration,
2 would a battery powered transmitter require
3 direct conversion?

4 MR. SCHMID: Objection. Form.

5 Scope.

6 A. In all of my experience in designing
7 all sorts of type of systems, I've never ever
8 come across a case where someone says cost is
9 not a consideration.

10 So it's not an analysis that I did.
11 I think a person of ordinary skill in the art,
12 given the four corners of the specification,
13 would clearly understand that cost is a
14 consideration.

15 And the analysis you are asking me
16 to do, I did not do. And I don't think a
17 person of ordinary skill in the art would do
18 that. And I certainly can't comment on
19 anything -- you know, I guess, if an employee
20 was mad at their boss, they might design a
21 system that was like extremely high cost before
22 they quit.

23 But I think that's outside the scope
24 of my analysis.

25 Q. Is there anything in the 2003

1 application that includes -- strike that.

2 Other than your -- other than your
3 personal experience, do you have any other
4 basis for cost being -- strike that.

5 Do you have any basis in the 2003
6 application for your low-cost requirement?

7 MR. SCHMID: Objection. Form.
8 Scope.

9 A. I actually already answered that
10 question, so I may -- must not have answered it
11 clearly.

12 Q. Well, can you point to something
13 specifically that you cite in paragraph 34
14 through 35?

15 A. I would like to answer that there's
16 two questions pending, unless you cancelled
17 one. The first one, just off the top of my
18 head, I was going to say in the application,
19 there's figure one, but just as an example. To
20 cite other specifically to your question, I
21 would go through that.

22 And now, I think you want me to pull
23 -- put that aside and pull up Exhibit 1; is
24 that correct?

25 Q. No, I'm saying looking at

1 paragraph 34 and 35.

2 A. That's in Exhibit 1?

3 Q. Yeah, in Exhibit 1, sorry.

4 A. Okay.

5 Q. Do you cite any evidence --

6 A. Sorry, I'm not quite there.

7 Q. Sorry, that's pages 18 and 19.

8 A. Thank you. The page numbers are
9 really helpful. 18 and 19, I'm there.

10 And the question is?

11 Q. Do you cite any evidence in those
12 paragraphs which would support your requirement
13 that the design must be low cost?

14 MR. SCHMID: Objection. Form.

15 A. So I think the paragraphs you are
16 asking for 34 and 35?

17 Q. Mh-hm.

18 A. Okay. Let me review those.

19 (Document review.)

20 Q. And to be clear, is there anything
21 that you're pointing to in the 2003 application
22 for this?

23 A. Okay. I'm going to need you now to
24 restate both -- I think now there's one
25 question pending, which was your original

1 question, which I was going to --

2 Q. Yeah, let me ask you just one simple
3 question -- one question.

4 A. All right. So I'll set aside --

5 Q. Set aside.

6 A. And listen to you. Thank you.

7 Q. Do you cite anything in the 2003
8 application, in paragraphs 34 and 35, for your
9 basis as to why the architecture must be low
10 cost?

11 MR. SCHMID: Objection. Form.

12 A. This is the Section A, specifically,
13 the direct conversion module section. Those
14 two paragraphs, correct?

15 Q. Mh-hm, yeah.

16 A. Let me read them now, and then I'll
17 answer that question.

18 (Document review.)

19 A. I think the whole -- oh, wait. I
20 didn't read 35, sorry.

21 (Document review.)

22 A. Seems like the entirety of that
23 relates to low power consumption and low cost
24 designs. So --

25 Q. Where does it say low cost design?

1 MR. SCHMID: Objection to form.

2 MR. KAPADIA: Sorry, strike that.

3 BY MR. KAPADIA:

4 Q. Please continue.

5 A. In section -- in paragraph 34, the
6 second sentence says: See petition at 60. A
7 POSA would have understood that a receiver,
8 such as wireless headphones would benefit from
9 a component suitable for low power consumption
10 and low cost designs.

11 This comes from the Samsung
12 petition. So I think it's not disputed.

13 Q. Is this --

14 A. And then --

15 Q. But my question -- I want to make
16 sure that you understood my question.

17 My question was: What were you
18 pointing to in the 2003 application?

19 The question was: Do you cite
20 anything in the 2003 application in paragraphs
21 34 and 35 for your basis for why the
22 architecture must be low cost?

23 A. Right.

24 MR. SCHMID: Objection to form.

25 A. I understood the question. You just

1 interrupted me before when I was getting to
2 that part. Because there are two quotations
3 after that in order to provide the context of
4 as part of my answer. I have to start with the
5 last sentence between -- before the two
6 quotations.

7 The two quotations come from
8 Exhibit 1005, which we have established is the
9 2003 application. So that's where the
10 citations are. And the context for that, those
11 two, come from -- because that's -- those two
12 citations -- those two quotes and the citation
13 to the application are part of paragraph 34.

14 So in order to understand how to
15 interpret those quotations, it's important to
16 start by reading the first -- the sentence
17 right before the quotations. That's standard
18 practice.

19 So the quotations themselves, after
20 understanding that it relates to components
21 suitable for low power consumption and low cost
22 designs, which I say is only undisputed because
23 that came from the petition.

24 The battery operated transmitter may
25 have a transmitting antenna that may be

1 omni-directional for transmitting a coded
2 digital modulated signal to a receiving antenna
3 of a battery powered receiver that may be a
4 headphone receiver.

5 And the digital modulated signal
6 from transmit antenna may be received by
7 receiving antenna and then demodulated.

8 So the way that would be done is by
9 direct conversion. Because if you used any
10 other approach in 2001 for what the petition
11 agrees is wireless headphone for components
12 suitable for low power consumption and low
13 costs designs, it just wouldn't make any
14 engineering sense.

15 Q. Okay.

16 So a wireless headphone in 2001
17 would necessarily be -- strike that.

18 So wireless headphones in 2001 would
19 necessarily have direct conversion modules; is
20 that your testimony?

21 MR. SCHMID: Objection. Form.

22 A. No, I didn't say that --

23 Q. Okay.

24 A. -- at all. And you've done this
25 before. I think it's unintentional.

1 Specifically these would be designed
2 in 2001. There certainly could exist
3 headphones that were wireless before 2001, and
4 they could have used any number of other
5 technologies, and I've clarified that before.

6 But in the 2001 time frame, you
7 wouldn't design one reading, you know, if you
8 were following the disclosures of the 2003
9 application and you were a person of ordinary
10 skill in the art, you would use direct --
11 direct conversion.

12 There's so many design choices when
13 you are designing something. You are not going
14 to -- not use what you know is what you should
15 use. And I gave you the extreme example of a
16 disgruntled employee, but, you know, that's
17 just not within the scope of a person of
18 ordinary skill in the art. You know, reading
19 the disclosures, there would be no reason not
20 to use direct conversion.

21 Q. Are there benefits to
22 superheterodyne intermediate frequency
23 receivers?

24 MR. SCHMID: Objection. Form.

25 Scope.

1 A. Do you mean today or do you mean
2 in --

3 Q. 2001?

4 A. 2001. I think I need a more
5 specific question. Either can you restate the
6 question or just repeat it if you think it was
7 sufficiently specific?

8 Q. Are there any benefits to
9 superheterodyne intermediate frequency
10 receivers?

11 MR. SCHMID: Objection. Form.

12 A. I think in a general aspect,
13 unrelated to the patent claims and the patent
14 specification, the answer would be yes.

15 Q. What are some of the advantages?

16 MR. SCHMID: Objection. Form.
17 Scope.

18 A. So I think if you're -- and this is
19 less of an issue today, but if you were
20 designing 3G base station in 2000 time frame
21 that's handling hundreds of incoming signals on
22 a single receiver, you would have loved to have
23 done direct conversion.

24 But A to D converters did not have
25 the bit resolution or time frame to be to

1 handle that reception, so you needed to use
2 intermediate frequency signal chains.

3 And that's part of what my team
4 worked on and designed at Texas Instruments
5 when I was part of the wireless
6 infrastructure -- well, when I ran the wireless
7 infrastructure business there.

8 At that point, it was base station
9 applications, obviously, were as expensive as
10 they needed to be, but they were handling
11 receive and transmit chains for hundreds, if
12 not thousands, of users.

13 And that was just the technical
14 limitation that you would know at the time
15 because of the limitations of DACs, digital
16 analog converters, and ADCs, analog digital
17 converters.

18 But, you know, at that time frame,
19 the flip side of that being the handsets,
20 didn't -- designed at that time wouldn't
21 require intermediate oscillators.

22 I don't think I provided an opinion
23 on any of that in here.

24 Q. Okay.

25 A. But, you know, if you -- if you take

1 out, you know, battery operated device and take
2 out, you know, some like a base station is --
3 technology doesn't necessarily allow you.

4 But that's not -- that's unrelated
5 to what's being claimed in -- in these patents
6 that are subject of these three IPRs.

7 Q. So if your goals are to make a
8 device that's less expensive and requires less
9 components and complexity, those would be
10 reasons to select direct conversion?

11 MR. SCHMID: Objection. Form.

12 A. In the time frame of 2001, that's
13 what you would select.

14 And again, that's in the context of
15 CDMA using in coding in the types of
16 applications contemplated and disclosed in
17 these patents.

18 Q. Are intermediate frequency down
19 conversion components often used in 2001?

20 MR. SCHMID: Objection. Form.

21 Scope.

22 A. I think I already actually answered
23 that question.

24 I gave you an example of where they
25 would be used. Which were non battery operated

1 base stations. My analysis and my declaration
2 and opinions related to direct conversion
3 written description within the 2003 application
4 are fully and limited to the context of the
5 2003 applications disclosures, and disclosed
6 preferred embodiment.

7 And in that case, direct conversion
8 was the only -- only way that would be
9 understood by a person of ordinary skill in the
10 art in that time frame.

11 MR. KAPADIA: Actually, let's break
12 for lunch right now.

13 THE VIDEOGRAPHER: The time is
14 12:35. We are off the record.

15 (Recess is taken.)

16 THE VIDEOGRAPHER: We're back on the
17 record. The time is 1:48 p.m.

18 BY MR. KAPADIA:

19 Q. Welcome back.

20 A. Thank you.

21 Q. Let's get started. Can you open up
22 Exhibit 1 again.

23 A. I have it in front of me.

24 Q. Great.

25 Can you turn to page 20 and

1 specifically look at paragraph 38.

2 A. I'm there.

3 Q. Do you see where it says: A POSA
4 would understand intersymbol interference?

5 A. Yes.

6 Q. Is intersymbol interference
7 interference that's caused by the signal
8 itself?

9 MR. SCHMID: Objection. Form.

10 A. It can be.

11 Q. So just to clarify, does intersymbol
12 interference relate to interference caused by
13 the signal itself?

14 MR. SCHMID: Same objection.

15 A. It can. In CMI you have echos
16 basically, and those are going to be the same
17 coded signal copies, but they are displaced.
18 And so they can interfere with each other. The
19 copies.

20 Q. Okay.

21 So intersymbol interference relates
22 to echos, they interfere with each other?

23 A. I didn't say that.

24 Q. All right.

25 Maybe you could reexplain that then?

1 MR. SCHMID: Objection. Form.

2 A. If you repeat the question, that
3 would be helpful.

4 Q. Sure.

5 Does intersymbol interference relate
6 to interference caused by the signal itself?

7 MR. SCHMID: Same objection.

8 A. Yes, it can. And in the case where
9 it would, it can come from -- one example would
10 be copies of the same signal that arrive at a
11 receiver at different times.

12 Q. Okay.

13 You said it can be caused by the
14 signal itself; is that correct?

15 A. I'm not sure what you mean caused by
16 the symbol -- signal itself.

17 Q. Well, I asked does intersymbol
18 interference relate to interference caused by
19 the signal itself, and your answer was yes, it
20 can.

21 A. Yes, that's correct.

22 Q. Okay.

23 Does intersymbol interference --
24 strike that.

25 When isn't intersymbol interference

1 caused by the signal itself?

2 MR. SCHMID: Objection. Form.

3 A. That's not something I've
4 considered.

5 Q. I'm asking because you said can
6 instead of is. So if you are saying that you
7 can't think of anything else at this point,
8 that's fine. I'm just trying to understand
9 what you mean by it can?

10 MR. SCHMID: Objection. Form.

11 A. So intersymbol interference
12 generally means interference of different -- in
13 between different symbols. And the source of
14 those symbols isn't necessarily constrained to
15 echos. So that's why I said can.

16 Q. Okay.

17 So are there any sources of those
18 symbols that are not based on the original
19 signal itself?

20 MR. SCHMID: Objection. Form.

21 Scope.

22 A. I'm not sure of your context. So if
23 you want to provide me some context, I can
24 answer that question.

25 Q. I'm just trying to understand your

1 testimony.

2 You told me that intersymbol
3 interference can relate to interference caused
4 by the signal itself, and you gave me one
5 example.

6 I'm trying to understand what you
7 mean by can, because that would suggest there's
8 times when it can't, or when it isn't related
9 to interference caused by the signal itself?

10 MR. SCHMID: Object to form.

11 A. So I think you just asked me two
12 questions.

13 Q. Okay.

14 So let's take apart -- let's take
15 them one at a time.

16 A. Sure.

17 Q. Let me ask a different question.

18 Sitting here right now, can you
19 think of any example of intersymbol
20 interference that isn't caused by the signal
21 itself?

22 MR. SCHMID: Objection. Form.

23 Scope. Foundation.

24 A. I would say yes. I would say that
25 intercircuit cross paths could also lead to it.

1 Q. Okay.

2 Any other examples?

3 A. It's not something that I looked at,
4 the declaration, but it's the best I can do off
5 the top of my head. I can certainly spend more
6 time, if you would like, to see if I can come
7 up with anything. It's not something I looked
8 at.

9 Q. What did you mean by intercircuit
10 cross paths?

11 MR. SCHMID: Object. Form.

12 A. That's called cross talk. Basically
13 where a circuit is designed in such a way
14 that -- and normally it's a parasitic, it's not
15 something that's desired. But you are going to
16 have the ability for something that you do in
17 one part of the circuit to influence what you
18 are doing, what's happening in the other part
19 of the circuit.

20 And so that's strictly speaking not
21 an echo because it's on chip as opposed to
22 having already left the transmitter and then
23 combining at the receiver.

24 Again, this just off the top of my
25 head because you asked me, and that's the first

1 thing that came up.

2 Q. Okay.

3 That was helpful.

4 Can you think of any other examples
5 of intersymbol interference, but in this case
6 examples of intersymbol interference that
7 occurs after the signal has left the
8 transmitter?

9 MR. SCHMID: Objection. Form.

10 Scope.

11 A. Which transmitter?

12 Q. Well, I'm just continuing off of
13 what you said.

14 You said: It's not strictly
15 speaking an echo because it's on chip as
16 opposed to already left the transmitter. So
17 I'm just referring to the same transmitter that
18 you referred to in your own answer.

19 A. Right.

20 But I think now the new question
21 requires more information. So maybe you can
22 repeat the question again.

23 Q. Okay.

24 Does intersymbol interference, which
25 occurs after the signal has been transmitted,

1 relate to interference caused by the signal
2 itself?

3 MR. SCHMID: Objection. Form.

4 Scope.

5 A. I think I answered that several
6 times. In the context of the 2003, which is
7 what this section is and in the patents, which
8 is CDMA and coding, the encoding, which we're
9 talking about in this Section C, relates to not
10 secondary design issues on a chip but rather on
11 air and coding. And decoding at the receiver
12 and in principle, could be caused by other
13 things, other than the signal itself. So
14 that's why I said can.

15 Q. Okay.

16 So when would it not be caused by
17 the signal itself?

18 MR. SCHMID: Same objections.

19 A. So that's not -- I gave you an
20 example of an on chip, and that was not in the
21 context of -- of these patents necessarily, nor
22 the 2003 application. And I apologize if that
23 was confusing.

24 In the context of here, it's not
25 something that I looked at. And it's just not

1 particularly relevant to my conclusions.

2 But I do believe there could be
3 cases where the intersymbol interference is
4 caused by other transmitters or receivers. But
5 in the context of what we're talking about
6 here, it is within the CDMA system itself.

7 And because of that, it's required
8 to build in code and redundancies that are
9 transformed in order to manage that,
10 independent of echos or not, but echos
11 definitely one case where the -- even if you
12 have a single transmitter where you have to
13 count for that, and that's why you do the
14 combinatorial in coding and air leaving.

15 And that just means that instead of
16 just sending things out, straight line as it's
17 encoded, you transform the matrix and send the
18 transformed matrix you might write in rows but
19 then, you know, read in columns.

20 That's what that means.

21 Q. So in the context of this patent,
22 does intersymbol interference relate to
23 interference caused by the signal itself?

24 MR. SCHMID: Object to form.

25 A. I think you've asked that question

1 four times, so now it makes me think I didn't
2 understand any of the three previous questions.

3 Q. I mean, you are saying that it can
4 caused by other transmissions.

5 Is your opinion that intersymbol
6 interference can be caused by something --
7 strike that.

8 Is it your opinion that intersymbol
9 interference includes interference caused by
10 another signal sent from a different
11 transmitter?

12 MR. SCHMID: Objection. Form.

13 A. As I mentioned, that's not something
14 that I looked at. But it can be. Because I
15 haven't looked at it, I don't want to create an
16 opinion on the fly.

17 I gave you one example of a bad chip
18 design where you could have some cross talk.
19 But in the absence of that, now talking
20 specifically about the 2003 application and the
21 patents that came from this, what I can say
22 definitively is without -- if you don't
23 intersymboling code, you can't practically use
24 CDMA.

25 It's -- it's fundamental. They go

1 hand and hand.

2 Q. So sitting here today, the only
3 example you have of intersymbol interference
4 that is caused by something other than the
5 signal itself, is the on chip, bad chip design
6 example; is that correct?

7 MR. SCHMID: Objection. Form.
8 Scope. Foundation.

9 A. Yeah -- I didn't say that. That's
10 partially because your question kind of is
11 broader than what I've said.

12 So maybe you want to restate the
13 question.

14 Q. Other than the bad chip design
15 example that you provided earlier, do you have
16 any specific examples of intersymbol
17 interference that is not related to
18 interference caused by the signal itself?

19 MR. SCHMID: Same objections.

20 A. I think my answer is the same
21 basically. Unless I've written in my
22 declaration, it's not -- not something I had to
23 consider since CDMA goes hand in hand with
24 intersymbol interference.

25 And the example that I used, which

1 is to make that conclusion, I only need
2 variations of the signal itself. Because in
3 the real world, you send the signal out and
4 it's going to take multiple paths and there's
5 omni-directional antenna that's disclosed in
6 the 2003 application. So you are going to get
7 bounces back. And it's CDMA, so you are using
8 the coding, so they go hand in hand.

9 I didn't give it any other thought
10 or analysis before, and I don't think my
11 declaration -- certainly my opinions don't
12 depend on that in this case, for this inherent
13 disclosure.

14 Q. Okay.

15 Is convolution encoding a form of
16 error correction encoding?

17 MR. SCHMID: Objection to form.

18 A. I would say convolutional encoding
19 is convolutional encoding.

20 You want to change it to a different
21 type of encoding? I'm not sure what that --
22 what that means.

23 Q. Well I'm asking is it a form of
24 error correction encoding?

25 MR. SCHMID: Same objection.

1 A. I'm not sure where the Venn diagrams
2 would align on those two. So I would hesitate
3 to create an opinion here on the fly.

4 Q. So you don't know if convolutional
5 coding -- sorry, strike that.

6 So you don't know if convolutional
7 encoding is a form of error correction
8 encoding?

9 MR. SCHMID: Same objection.

10 A. I think I may have not understood
11 your previous question. Since I already
12 answered that exact same question.

13 So unless you want to highlight what
14 the difference is, I'm going to just say that
15 my answer is the same, my previous -- I stand
16 by my previous answer.

17 Q. So you don't know?

18 MR. SCHMID: Same objection.

19 A. That's a new open-ended question
20 that I cannot answer. But if you would like to
21 actually ask me a question that's more than --
22 than a statement that says, so you don't know,
23 I would be happy to try to answer a new
24 question.

25 Q. Does convolutional encoding add

1 coding gain redundancy?

2 MR. SCHMID: Objection. Form.

3 A. So gain and redundancy aren't
4 necessarily the same concept. So I guess I'm a
5 little unclear what you mean by coding gain
6 redundancy.

7 Q. You don't know if convolutional
8 encoding adds coding gain redundancy?

9 MR. SCHMID: Objection. Form.
10 Foundation.

11 A. I don't understand your question.
12 So maybe you can explain it. I understand what
13 coding gain is and I understand what redundancy
14 is.

15 In this context of the 2003 patent,
16 I'm unclear what you mean when you say coding
17 gain redundancy.

18 Q. So if you saw the words adding
19 coding gain redundancy, you wouldn't know what
20 that meant?

21 MR. SCHMID: Objection. Form.

22 A. Without context I -- I would
23 hesitate to guess.

24 If you would like to provide me some
25 context, I would be happy to.

1 Q. Sure.

2 Can you look at paragraph 39?

3 A. Sure. Yes.

4 Q. Does convolutional encoding add
5 coding gain redundancy?

6 MR. SCHMID: Objection. Form.

7 A. So I would say that what I've
8 written there, actually, which is that
9 convolutional encoding and interleaving is for
10 reduced intersymbol interference in the channel
11 by adding coding gain redundancy and improving
12 resistance to fading.

13 So the convolutional encoding
14 together with the interleaving is what's adding
15 the coding gain redundancy.

16 Q. I mean, you left off a word in that
17 paragraph. It says: A POSA would understand
18 that the disclosed convolutional encoding and
19 interleaving is for reducing intersymbol
20 interference in the channel by adding coding
21 gain redundancy and improving resistance to
22 fading, respectively.

23 MR. SCHMID: Objection to form.

24 A. I think that's fair.

25 Q. So with that understanding, does

1 convolutional encoding a form of error
2 correction encoding?

3 MR. SCHMID: Objection to form.

4 A. I'm not sure what you mean by error
5 correction. We've covered that before.

6 Q. Okay.

7 A. But this paragraph doesn't discuss
8 that.

9 Q. What is coding gain redundancy used
10 for?

11 MR. SCHMID: Same objection.

12 A. In this particular case, it is being
13 used for -- let me read it, and then I'll
14 answer it.

15 (Document review.)

16 A. So the coding gain redundancy is
17 what's used for reducing the intersymbol
18 interference.

19 Q. I'm asking what is -- I'm sorry,
20 strike that.

21 What does it mean to add coding gain
22 redundancy?

23 MR. SCHMID: Objection. Form.

24 A. So basically what it does is the
25 coding in and of itself, can't correct for

1 what's happening in the realistic channel,
2 which at minimum, as we discussed before, would
3 include echos in the same signal.

4 So it's inherent in the
5 transmission. And then by convolutional
6 encoding, you structure those bits in a way
7 that if you lose some segment, you have the
8 ability to still reconstruct the original
9 signal. And that's what convolutional encoding
10 means.

11 So in this context, that gain of
12 redundancy occurs in addition to the regular
13 spreading, you know, chipping, if you will. So
14 replacing a symbol with replacing a bit with
15 the symbol for that bit.

16 So those are the two separate
17 things. One adds redundancy because you have
18 more bits in the chip. For a given bit of the
19 original digital signal bit. And then the
20 other, the convolutional part, relates to
21 having those bits distributed through a
22 convolution in a different way, so that they
23 are more resistant to the channel interference.

24 Q. So by adding coding gain redundancy,
25 you're able to correct the received signal to

1 reconstruct original signal?

2 MR. SCHMID: Objection. Form.

3 A. I don't know what you mean by
4 correct.

5 Q. Well, setting aside correct.

6 Would you agree that by adding
7 coding gain redundancy, you are able to
8 reconstruct the original signal even if you
9 lose some segment?

10 MR. SCHMID: Objection. Form.

11 A. I'm not sure what you mean by
12 segment.

13 Q. I'm literally just reading words in
14 your answer. I mean, I'll repeat back your
15 answer.

16 By convolutional encoding, you
17 structure those bits in way that if you lose
18 some segment, you have the ability to still
19 reconstruct original signal.

20 Do you still agree with that
21 testimony?

22 MR. SCHMID: Objection to form.
23 Foundation.

24 A. I agree with what I wrote -- with
25 what I just said.

1 Q. Okay.

2 A. It was a lot. You quoted a part of
3 it. If you want to -- I don't think I said
4 anything wrong, but if you want me to review
5 all of it, I'm happy to do that.

6 Q. Do you agree with what I just said?
7 By convolutional encoding, you
8 structure those bits in a way that if you lose
9 some segment, you have the ability to
10 reconstruct original signal?

11 MR. SCHMID: Objection. Form.

12 BY MR. KAPADIA:

13 Q. And that's what convolutional
14 encoding means?

15 MR. SCHMID: Same objection.

16 A. Okay.

17 So I think it's important not to
18 read too much into that response. But I agree
19 with it.

20 If we want to dissect what is a
21 segment versus -- I could have used the word
22 portion. You know, basically it's -- it's a
23 way of preparing for transmission the signal to
24 count for channel noise.

25 And it's what's done in CDMA because

1 fundamentally even if you didn't have other
2 users and things like that, you still have in a
3 practical environment that echos that you have
4 to deal with.

5 So the coding alone, is
6 insufficient. The convolution encoding and
7 interleaving, both those two things, are what
8 you use in CDMA. But there's not -- I guess I
9 didn't give a whole -- that's so fundamental, I
10 don't think anybody would disagree with that.

11 Q. Can you look at paragraph 40.

12 A. I see that.

13 Q. Okay.

14 And do you see you quote from
15 Exhibit 1022?

16 A. Yes.

17 Q. Okay.

18 And that sentence is: Interleaving
19 the bits to be transmitted over two time slots
20 is introduced to diminish the effects of short
21 deep fades.

22 Is that correct?

23 A. Yes.

24 Q. Okay.

25 Does that sentence I just read say

1 intersymbol interference?

2 MR. SCHMID: Objection. Form.

3 A. Yes.

4 Q. The sentence I read was:

5 Interleaving the bits to be transmitted over
6 two time slots is introduced to diminish the
7 effects of short deep fades.

8 Did I just say the word intersymbol
9 interference?

10 MR. SCHMID: Objection. Form.

11 A. You actually didn't read a sentence.

12 Q. Well, do you see that the "I" has
13 been corrected to be lower case?

14 A. Yes.

15 Q. Is it your understanding that means
16 that it was originally upper case?

17 A. Yes.

18 Q. And thus would be the start of a
19 sentence?

20 MR. SCHMID: Objection. Form.

21 A. That's not my understanding.

22 My understanding is that it
23 indicates that the excerpt came from being a
24 sentence, but now is corrected to be included
25 as part of a sentence. Because there's only

1 one -- there's not a period there.

2 Q. Okay.

3 A. I mean, I'm not -- grammar is not my
4 strong suit. I apologize.

5 Q. Fair enough.

6 Is it fair to say that the words
7 intersymbol interference are not in between the
8 double quotes in paragraph 40?

9 A. Yes. That would be very -- not
10 only -- that would be extremely accurate.

11 Q. Okay.

12 Is fading the same as intersymbol
13 interference?

14 MR. SCHMID: Objection. Form.
15 Foundation.

16 A. I'm not sure why you are saying
17 fading instead of short deep fading.

18 So maybe I need clarification on
19 that question.

20 Q. Let's start with my question.

21 Are all forms of fading forms of
22 intersymbol interference?

23 MR. SCHMID: Objection. Form.

24 A. I'm not even sure what that question
25 means.

1 Q. Well, do you know what fading is?

2 A. I do know what fading is.

3 Q. Okay. Great.

4 So let's -- and do you know what
5 intersymbol interference is?

6 MR. SCHMID: Objection. Form.

7 A. Yes.

8 Q. Okay.

9 Is it your understanding that fading
10 is the same thing as intersymbol interference?

11 MR. SCHMID: Same objection.

12 A. I don't understand the question.

13 But the way it's -- it's asked, I
14 would say that they can't be actually same
15 thing, because one is talking about
16 interference and one is talking about fading,
17 which are not the same thing.

18 So I don't -- I don't understand the
19 question.

20 This paragraph 40 doesn't say that
21 they are the same thing.

22 Q. I'm just trying to ask a background
23 question to try to understand paragraph 40, and
24 I'm just trying to understand is -- strike
25 that.

1 I'm just trying to understand are
2 intersymbol interference and fading the same
3 thing?

4 MR. SCHMID: Same objection.

5 A. I think you've already asked that
6 question. And they are not synonyms for each
7 other.

8 Q. Okay. Perfect.

9 What is a short deep fade?

10 MR. SCHMID: Objection. Form.

11 A. That's not something I would want to
12 define right here. And it's not something I
13 constructed.

14 A fade is a fade, generally. The
15 short and deep qualified in terms of
16 characteristics of the fade, and I -- that's
17 all I can say right here. That's not something
18 I studied for my declaration.

19 Q. I mean, you said a fade is a fade,
20 generally.

21 I mean, what is a fade?

22 MR. SCHMID: Objection. Form.

23 A. Fading is basically a degradation --
24 from a high level, it's degradation in signal
25 strength.

1 Q. A fade would be a drop in signal
2 strength?

3 MR. SCHMID: Object to form.

4 A. That would at least be an example in
5 a general context of fading.

6 Q. Okay.

7 And a short deep fade would be
8 presumably a more severe drop?

9 MR. SCHMID: Same objection.

10 A. I think beyond what I've written
11 there, I don't have any opinion on an exact
12 meaning for that beyond what I've already
13 described.

14 Q. Do short deep fades always lead to
15 intersymbol interference?

16 MR. SCHMID: Objection. Form.

17 A. The use of CDMA will always have
18 intersymbol interference. So that's why coding
19 is inherently part of CDMA. That was
20 sufficient for my opinion. And I did not
21 shortly or longly do a deep analysis into short
22 deep fades.

23 So I don't have any opinion to offer
24 on any construction related to that term right
25 now.

1 It wasn't necessary for me to
2 conclude the inherency of reduced intersymbol
3 interference.

4 Q. So whether or not short deep fades
5 create intersymbol interference is not relevant
6 to your opinion?

7 MR. SCHMID: Objection. Form.

8 A. I didn't say that.

9 But I did say what I wrote there is
10 that interleaving coding to mitigate
11 intersymbol interference, interleaving the bits
12 to be transmitted over two time slots is
13 introduced to diminish the effects of short
14 deep fades, is what that particular reference
15 had indicated. That's all that paragraph says.
16 I wrote the one sentence, and I believe it to
17 be accurate.

18 But I did not try to construe short
19 deep fades, or do the kind of analysis that you
20 are discussing.

21 Q. Is the effect of short deep fades
22 always intersymbol interference?

23 MR. SCHMID: Objection. Form.

24 A. I would say same answer. I didn't
25 do an analysis to see if it's always that

1 because intersymbol interference is inherent
2 with the use of CDMA.

3 Q. Turning to paragraph 41, is
4 convolutional encoding used in techniques other
5 than partial response signaling?

6 A. Yes.

7 MR. SCHMID: Object to form.

8 BY MR. KAPADIA:

9 Q. Okay.
10 Turning to paragraph 42.
11 Does the 2003 application refer to
12 hopping?

13 MR. SCHMID: Objection. Form.

14 A. That's -- I don't know. I would
15 have to look through the 2003 application and
16 see if it refers to hopping.

17 Q. Please do.

18 A. Okay.

19 Q. I believe that's Exhibit 7.
20 (Document review.)

21 A. So I am now ready to answer your
22 question.

23 Just to make sure I remembered it
24 correctly, can you restate it?

25 Q. Sure.

1 Does the 2003 application refer to
2 hopping?

3 MR. SCHMID: Objection. Form.
4 Foundation.

5 A. I would say that it -- this isn't
6 something I looked at, but I just read
7 everything and you gave me the time and thank
8 you because otherwise I couldn't give you an
9 answer.

10 But in -- on page 3, which is page 5
11 of Exhibit 1005, 1037. It says: To reduce the
12 effects of channel noise, the battery power
13 transmitter 20 may use convolutional encoding
14 and interleaving -- and then the next sentence
15 is an important one -- for further noise
16 immunity, spread spectrum modulation may be
17 utilized.

18 So this isn't something I studied
19 for my opinions, but frequency hopping is a
20 form of spreading the signal across affixed
21 spectrum and would be a part of that. So I
22 would say it's not explicitly mentioned, but
23 it's not excluded by the application's
24 description.

25 Q. Does it refer to time hopping?

1 MR. SCHMID: Objection. Form.

2 A. Does what refer to time hopping?

3 Q. The 2003 application?

4 MR. SCHMID: Same objection.

5 A. No, I wasn't looking for time
6 hopping.

7 Q. I mean, I would assume if you are
8 looking for hopping, and the only instance you
9 can point to for a form of hopping is line 20
10 of page three of this 2003 application
11 specification, I would assume that there's no
12 other form -- places that refer to hopping.

13 MR. SCHMID: Objection. Form.
14 Scope.

15 A. I'm sorry, you didn't ask me a
16 question. You just stated --

17 Q. Does the 2003 application refer to
18 time hopping?

19 MR. SCHMID: Same objections.

20 A. I didn't specifically look at that
21 because generally we're talking about spreading
22 in the frequency domain and in the coding.
23 Time hopping, actually -- obviously, will
24 create all sorts of interesting things,
25 depending on -- I guess, I don't -- I didn't

1 look for it specifically, because I was -- as I
2 read it, I was looking for frequency because
3 that's how my communication brain works.

4 Time hopping is not something that I
5 considered when I read it. I don't have any
6 recollection that it -- that it discussed time
7 hopping.

8 Q. Okay.

9 Can you take Exhibit 4, which is, I
10 believe, a copy of the '047 patent.

11 A. I have it in front of me.

12 Q. Okay.

13 If you can turn to column four.

14 And look at line 60.

15 A. Column four, line what?

16 Q. Actually, let's look at line 63,
17 which starts: A direct conversion module.

18 Do you see that?

19 A. That's in claim one?

20 Q. Yup. In claim one, that is correct.

21 A. Yes. I'm there.

22 Q. Okay.

23 So this limitation recites a direct
24 conversion module configured to receive
25 wireless modulation transmissions

1 representative of said audio signal
2 representation and which have been processed to
3 intersymbol interference.

4 Do you see that?

5 A. Yes.

6 Q. Okay.

7 So these transmissions were
8 processed to reduce intersymbol interference,
9 correct?

10 MR. SCHMID: Objection to form.

11 A. That's what it says there.

12 Q. Okay.

13 And now it then says: And wherein
14 said portable spread spectrum audio receiver
15 further processes said received wireless
16 modulation transmissions for reduction of
17 intersymbol interference.

18 Do you see that?

19 A. I see that, yes.

20 Q. Is there any mention of a receiver
21 which further processes transmissions to reduce
22 intersymbol interference in the 2003
23 application?

24 MR. SCHMID: Objection to form.

25 (Document review.)

1 A. It's just the inverse of what I
2 already mentioned in my declaration. I don't
3 have any further opinions outside of what's
4 been the declaration regarding the inherent
5 disclosure of intersymbol interference of
6 coding, which would occur at the transmitter,
7 and would occur in the inverse at the receiver.

8 Q. So did you point to anything in your
9 declaration that indicates that -- that the
10 2003 application discloses intersymbol
11 interference that occurs at the receiver --
12 sorry, strike that.

13 So is there anything in your
14 declaration that indicates that the 2003
15 application discloses the reduction of
16 intersymbol interference based on something
17 that occurs at the receiver?

18 MR. SCHMID: Objection. Form.

19 A. I would have to look. But the only
20 way they communicate is by doing the inverse.
21 So if you don't -- if you encode at a
22 transmitter, in order for the receiver to
23 receive the signal --

24 May I look at my declaration?

25 Q. Sure. Please.

1 A. Then a person of ordinary skill in
2 the art would understand that you would have to
3 decode at the receiver, whatever you encoded at
4 the transmitter.

5 I'm looking for that. I'll find it
6 quickly. My declaration is pretty short.

7 (Document review.)

8 A. So the end of paragraph 38 says:
9 The digital modulated signal is coded for
10 private reception.

11 And that would be understood to at
12 least remove multiple copies of signal
13 interference from transmitters is one example
14 of referring to the receiver.

15 Q. Wouldn't that be something that
16 you've done to the -- to the transmission --

17 A. Sorry.

18 Q. Wouldn't that mean that the
19 transmission is coded to remove multiple copies
20 of intersymbol interference?

21 MR. SCHMID: Objection. Form.

22 BY MR. KAPADIA:

23 Q. That doesn't refer to something that
24 the receiver is doing.

25 Doesn't that refer to something that

1 the transmitter does?

2 A. I'm unclear on your question. It
3 sounds like you kind of jumped around.

4 If you just want to restate a
5 question, that would be great.

6 Q. Just to set the context, claim one,
7 as we just read earlier, it refers to wireless
8 modulation transmissions that have been
9 processed to reduce intersymbol interference,
10 and it states that the receiver further
11 processes said received wireless modulation
12 transmissions for reduction of intersymbol
13 interference.

14 Do you understand that to refer to
15 the same thing, or is this referring to two
16 different reductions of intersymbol
17 interference?

18 MR. SCHMID: Objection. Form.
19 Scope. Compound.

20 A. I'm not sure if there's an either or
21 response to that. I think that whenever you
22 encode in the transmitter, if you want to
23 receive it, then you have to decode it.

24 So the coding -- they are
25 interrelated to each other. You can't decode a

1 signal unless you know how it was encoded.

2 Q. So is it your opinion -- sorry,
3 continue.

4 A. So right here, I don't have an
5 opinion beyond this. I'm just -- what's in my
6 declaration, I'm just trying to understand this
7 scenario. Because it's not something that I
8 considered for my declaration.

9 Q. So you didn't consider whether the
10 2003 application inherently disclosed or
11 explicitly disclosed a receiver, which further
12 processes received wireless modulation
13 transmission for reduction of intersymbol
14 interference?

15 MR. SCHMID: Objection. Form.

16 A. What I can say is I only focused on
17 whether or not the disclosures in the 2003
18 application were sufficient to understand that
19 the only option in a CDMA based system for --
20 for the application and resulting patents,
21 included intersymbol interference coding, which
22 would also -- when people in the art say
23 coding, a lot of times it's a short way of
24 saying encoding and decoding.

25 Because the -- they go in pairs,

1 basically. If you encode, your receiver has to
2 be able to decode.

3 So for my opinion, I focused on
4 whether or not intersymbol interference coding,
5 which that means encoding, decoding in this
6 context is disclosed, and it's inherent because
7 it's CDMA. And CDMA, I'm not aware of how you
8 get around that in the time frame of the 2001
9 reading -- I mean 2003 application reading --
10 reading it in the eyes of a person of ordinary
11 skill in the art.

12 Q. To be clear, in paragraphs 38
13 through 42 of your declaration, which is the
14 section titled: Disclosure of reduced
15 intersymbol interference in the 2003
16 application, this section does not say that
17 reduction of intersymbol interference is
18 inherent because it's CDMA, correct?

19 MR. SCHMID: Objection to form.

20 A. I'm not sure if it does, but you
21 asked me a question, and I answered it. And
22 that was the answer to your question.

23 Q. Is -- strike that.

24 Do you refer to CDMA in paragraphs
25 38 through 42?

1 A. Let me take a look.

2 Q. All right.

3 (Document review.)

4 A. Yes, oddly enough, I inherently
5 referred to it because that's what the
6 application is about. It's not talking about
7 some other sort of approach.

8 All the claims of all the patents
9 include CDMA and the application of CDMA. So I
10 could have been more clear about that, but the
11 application is about CDMA.

12 So everything is about CDMA. And I
13 didn't put it there in those paragraphs, but
14 it's -- I think that's everything about
15 application and everything about these patents
16 that I reviewed. Any -- and all the claims
17 relate to CDMA. So I didn't really consider
18 this outside of that context.

19 I think it could have been more
20 clear if I had put that in there. But I don't
21 know what else I would have put in there since
22 that's what everything is about.

23 Q. Okay.

24 So it's not there, but you could
25 have put it in there?

1 A. I said it's inherently --

2 MR. SCHMID: Object to form.

3 THE WITNESS: Sorry.

4 A. It's inherently there because the
5 whole discussion is about CDMA. But I don't
6 see the word CDMA in there. I certainly
7 could've added it.

8 It's -- but I don't think there's
9 any dispute that all the claims of all of these
10 three patents all require CDMA.

11 Q. All right.

12 Can you go back to page 14 of
13 Exhibit 4.

14 A. I don't have a page 14.

15 Q. Of exhibit -- oh, I'm sorry. My
16 apologies.

17 Can you turn to page 14 of
18 Exhibit 1, which is your declaration for the
19 '047 patent.

20 A. I am there.

21 Q. Okay.

22 And do you see the construction for
23 the term independent in the context of
24 independent CDMA communication?

25 A. Yes.

1 Q. Okay.

2 And that construction is performed
3 independent of any central control, correct?

4 A. Correct.

5 Q. Okay.

6 And that's the same construction you
7 applied for all three declarations, correct?

8 A. Yes, that's correct.

9 Q. Okay.

10 Does this construction require the
11 absence of a base station in the system?

12 MR. SCHMID: Objection. Form.

13 A. That's a pretty general question. I
14 would need more context. It depends on what
15 the base station is doing.

16 Q. So the inclusion of a base station
17 doesn't necessarily mean that a system is not
18 independent of any central control. Put it
19 another way -- let me ask a better question.

20 Is it possible for there to be a
21 base station and have independent CDMA
22 communication?

23 MR. SCHMID: Objection. Form.

24 Scope.

25 A. I think I answered the question.

1 It depends on what the base station
2 is doing. You are introducing a hypothetical
3 without any context.

4 Q. What does control mean in the
5 context of performed independent of any central
6 control?

7 MR. SCHMID: Objection. Form.
8 Foundation.

9 A. I didn't construe that term. But
10 generally my read is that in that construction,
11 that there is a central entity that is at least
12 assigning the CDMA codes and ensuring that
13 the -- or orthogonality amongst though codes is
14 preserved amongst its users.

15 Q. Is 80211 a system that's independent
16 of any central control?

17 MR. SCHMID: Objection. Form.
18 Scope. Foundation.

19 A. That's not something I studied or
20 opined on.

21 Q. So you don't know if 80211 is
22 independent of any central control?

23 MR. SCHMID: Same objections.

24 A. Without studying the standard,
25 understanding is it, you know, what's involved

1 between 80211 B, 80211 BE, 80211 AC, that's not
2 something that I studied, researched, used,
3 unrelated -- it's completely unrelated to any
4 of my opinions in my declaration.

5 Q. If a system -- strike that.

6 If a device in a CDMA system could
7 choose its code, would that be independent of
8 any central control?

9 MR. SCHMID: Objection. Form.

10 Scope.

11 A. It's not something I studied, and
12 the hypothetical is too ill defined to provide
13 you with a live response.

14 Q. Does CDMA require orthogonal codes?

15 MR. SCHMID: Objection. Form.

16 A. In the context of these patents, it
17 does require it. When I say these patents, I
18 mean, the Woolfork patents, the patents that
19 are subject of these petitions. Because it's
20 code division, multiple access, it does require
21 orthogonality between the codes.

22 Q. Outside of these patents, does CDMA
23 require orthogonal codes?

24 MR. SCHMID: Objection. Form.

25 Foundation.

1 A. There could be some applications
2 where someone would want to use the same code
3 in a receiver, for example, in military
4 snooping devices. Maybe law enforcement
5 devices where you want to -- are more likely
6 military where you wanted to basically use a
7 plethora of codes and/or receiver in order to
8 receive and decode signals that weren't
9 intentionally intended for that entity as a
10 recipient.

11 So I can at least conceive of that.
12 That's not a -- I don't see how it's related to
13 my declaration. But I think I've answered your
14 question, hopefully.

15 Q. Can CDMA be asynchronous?

16 MR. SCHMID: Objection. Form.

17 A. That's not something that I studied
18 for my declaration. I would need to review
19 that and also get some context in terms of
20 what's meant by asynchronosity.

21 Q. Do you know what an N sequence is?

22 MR. SCHMID: Objection. Form.

23 A. Off the top of my head, I don't
24 think I can define an N sequence.

25 Q. What about PM codes?

1 MR. SCHMID: Same objection.

2 A. I do know what those are, yes.

3 Q. Do PM codes have zero cross
4 correlation?

5 MR. SCHMID: Same objection.

6 A. They are supposed to.

7 Q. Do they have to?

8 MR. SCHMID: Same objection.

9 A. They have to if you want the system
10 to work as intended. They have to be
11 orthogonal.

12 MR. KAPADIA: Are we up to
13 Exhibit 9, now?

14 BY MR. KAPADIA:

15 Q. I'm handing you a copy of
16 Exhibit 2001 from IPR 2021-00284, which is for
17 U.S. patent number 10468047. And it is the
18 declaration of Joseph C. McAlexander in support
19 of patent owners preliminary response to
20 petition for interparties review of U.S. patent
21 number 10468047.

22 (Exhibit 9, Exhibit 2001 from IPR
23 2021-00284, which is for U.S. patent number
24 10468047, marked for identification.)

25 BY MR. KAPADIA:

1 Q. Have you seen this document before?

2 A. I have no recollection of ever
3 seeing this document before.

4 Q. Okay.

5 A. I think I answered that earlier as
6 well. But this confirms it.

7 Q. Okay.

8 MR. KAPADIA: That would be fine.

9 THE VIDEOGRAPHER: The time is 3:15.
10 We are off the record.

11 (Recess is taken.)

12 THE VIDEOGRAPHER: We're back on the
13 record. The time is 3:29.

14 BY MR. KAPADIA:

15 Q. Okay.

16 So I believe you have Exhibit 9 in
17 front of you. Which is the declaration of
18 Joseph muck Al; is that correct?

19 A. Yes.

20 Q. Okay.

21 Can you turn to page 8.

22 A. I am there.

23 Q. Okay.

24 And look at the section where it
25 says orthogonality and independent CDMA.

1 A. I'm at that section.

2 Q. Paragraph 14, it starts there with:
3 The hand reference contains the following
4 disclosure.

5 A. I see that.

6 Q. Okay.

7 And then on the next page, after the
8 citation, there's a sentence that starts: With
9 a personal of ordinary skill in the art.

10 Do you see that?

11 A. I do.

12 Q. Okay.

13 It says: A person of ordinary skill
14 in the art would understand that sharing time
15 synchronous and maintaining orthogonality
16 referred to specific subspecies of CDMA,
17 parenthetical, such as the synchronous
18 orthogonal CDMA used in the mid to late 1990s
19 in IS 95, end parenthetical, and do not refer
20 to attributes common to all CDMA.

21 Do you see that?

22 A. I see that.

23 Q. Okay.

24 And the next sentence says: For
25 example, CDMA can be asynchronous, and in

1 parens, transmissions not times synchronized,
2 closed parens, or nonorthogonal, paren, code
3 cross correlations greater than zero.

4 Do you see that?

5 A. I do.

6 Q. Do you disagree with either of those
7 two sentences?

8 MR. SCHMID: Objection. Form.
9 Foundation. Scope.

10 A. I have no opinion on them. I would
11 have to read the whole declaration and
12 understand the context for what is being said
13 there. This is the first time I've ever seen
14 this.

15 Q. Is orthogonality a requirement of
16 centralized control?

17 MR. SCHMID: Objection. Form.
18 Scope.

19 A. I think that the claim construction
20 is that for independent CDMA is that
21 independent means -- I would have to see it to
22 answer the question. I want to make sure I'm
23 consistent with the claim construction.

24 Q. Sure.

25 A. Can I look that up?

1 Q. Yeah. Absolutely.

2 (Document review.)

3 A. Yeah, the CDMA is performed
4 independent of any central control. Okay.

5 What's your question?

6 Q. Is orthogonality a requirement for
7 centralized control?

8 MR. SCHMID: Same objection.

9 A. My understanding is in the context
10 of the patents that are subject to the IPR,
11 that independent CDMA is performed independent
12 of any central control.

13 So maybe ask the question now again
14 that --

15 Q. Sure.

16 Does independent CDMA require
17 orthogonality?

18 MR. SCHMID: Objection. Form.
19 Foundation.

20 A. My understanding is that in the
21 context of the patent, it -- it does, and
22 that's why the unique user codes are used.

23 Q. So is it your opinion that if a user
24 code is unique, it's independent of any central
25 control?

1 MR. SCHMID: Objection. Form.

2 Scope.

3 A. That's not my opinion. It would
4 depend on how it's assigned.

5 Q. It's your opinion that if a code is
6 orthogonal, then it may not be -- strike that.

7 An orthogonal code does not require
8 central control?

9 MR. SCHMID: Objection. Form.

10 A. So the -- the codes can be
11 orthogonal. And they could be assigned and the
12 orthogonality can be maintained centrally or
13 not.

14 Q. So if orthogonality is not
15 maintained centrally, then it would be
16 independent of any central control?

17 MR. SCHMID: Objection. Form.

18 A. I think that's fair. I didn't get
19 into all of the intricacies of this because in
20 the petition and in declarant's response, they
21 don't go into any detail in terms of what they
22 understand perform independent of any central
23 control to mean.

24 In my view as a person of ordinary
25 skill in the art, I interpret that as a central

1 entity that assigns the codes to ensure and
2 maintains orthogonality.

3 Q. So if an entity dictates what code a
4 device uses, that would be central control?

5 MR. SCHMID: Objection to form.

6 A. That's a vague question, that I
7 can't answer generally.

8 Q. If a device forces another device --
9 strike that.

10 If there's a device in a system that
11 assigns the code that each device must use,
12 that would be central control?

13 MR. SCHMID: Objection. Form.
14 Foundation.

15 A. I would need to look at the system
16 more carefully.

17 So just to give you context, I
18 looked at Miyake disclosed system for many
19 hours before I made a determination, and that
20 included reviewing the petition and Mr. Davies'
21 declaration, which were very silent on central
22 control.

23 I remember searching Mr. Davies'
24 declaration for central control, and I think
25 it's just mentioned in terms of what the claim

1 construction for the term was.

2 So then in my view, I'm adding
3 beyond what the petitioner mentioned to provide
4 that understanding of what I understand the
5 person of ordinary skill in the art would
6 understand CDMA to be when performed
7 independent of any central control.

8 Q. Okay.

9 But then you created requirements
10 for what needs to be shown in order for it to
11 be independent of any central control, correct?

12 MR. SCHMID: Objection to form.

13 A. That's incorrect. I didn't create
14 requirements.

15 Q. Oh.

16 Where did those requirements come
17 from?

18 MR. SCHMID: Same objection.

19 A. I'm not aware of any requirements.
20 I don't know what you're referring to by
21 requirements.

22 Q. Well you said that independent of
23 any central control, requires some central
24 system to assign orthogonal codes to the
25 different devices?

1 A. So that statement is not outside of
2 context because the claim that's being -- the
3 claim language that's construed is not
4 independent. It's the term independent in the
5 context of independent CDMA communication.

6 So in addition to something being
7 performed independent of any central control,
8 the context in the claim term in its
9 construction is that it's CDMA communication.

10 The patent itself and the claims
11 make that clear that that involves use of a
12 unique user code and the spreading. That's in
13 all -- my recollection is that's in every claim
14 limitation independent CDMA.

15 Q. I just don't know where you are
16 pulling independent assignment of user codes
17 from just construction? Is that the only
18 requirement for independent of any central
19 control?

20 MR. SCHMID: Objection to form.

21 A. I do not know what all the
22 requirements are off the top of my head,
23 because I was rebutting basically nonexistent
24 explanations for why the declarant believed
25 that Miyake disclosed independent CDMA as being

1 performed independent of any central control,
2 when it was clear that the CDMA, the code
3 division multiple access, was being performed
4 by central control via the entity that was
5 assigning the user codes and maintaining
6 orthogonality between the multiple users of the
7 system.

8 I didn't study arbitrary
9 hypothetical or other systems that weren't
10 proposed by the petition, the petitioner's
11 declarant.

12 Q. So your basis that -- strike that.

13 So you believe independent of any
14 central control, in the context of the
15 challenged claims, means assigned independent
16 of any central control?

17 MR. SCHMID: Objection. Form.

18 A. No, I believe what I actually
19 already said, which is that the term
20 independent is in the context of independent
21 CDMA communication, so performed independent of
22 any central control is referring to the CDMA
23 communication.

24 And the CDMA communication, person
25 of ordinary skill in the art, I believe would

1 interpret that construction to mean assignment
2 of the unique user codes and maintenance of
3 orthogonality. Those being fundamental to
4 CDMA.

5 Q. So orthogonality is fundamental to
6 CDMA?

7 MR. SCHMID: Objection to form.

8 A. If you don't maintain orthogonality,
9 I can give you an example, if you would like.

10 Would you like me to do that?

11 Q. Yeah, I would like an example.

12 A. So in Walley, for example, one of
13 the situations he provides for is using single
14 bit or no bit at all, which doesn't spread the
15 signal at all. So it turns it into not CDMA at
16 all. It wouldn't be orthogonal to anything
17 else.

18 So that's an example of disclosure
19 that doesn't address what's fundamental about
20 CDMA, which is the code assignments and
21 maintenance of orthogonality between the codes.

22 You don't get orthogonal code just
23 by saying codes are orthogonal. You have to
24 ensure that they are, in fact, orthogonal. And
25 that the orthogonality of the codes is

1 maintained.

2 Q. So, again, is it your opinion that
3 CDMA requires orthogonal codes?

4 MR. SCHMID: Objection. Form.

5 A. My opinion is that a person of
6 ordinary skill in the art, would understand
7 that code division multiple access means that
8 codes are used that are orthogonal.

9 Q. So CDMA requires central control?

10 MR. SCHMID: Objection. Form.

11 A. I did not say that.

12 Independent CDMA is a form of CDMA.
13 For example, which is what this patent makes
14 use of, these three patents that are the
15 subject of the IPRs, makes use of in claims.

16 That was the innovation in Woolfork
17 that makes it unique when compared to the
18 combinations of Miyake and Walley that were
19 proposed by the petitioner.

20 Q. I'm going to stamp as Exhibit 10.

21 (Exhibit 10, Samsung Exhibit 1015
22 and IPR 2025-01516, marked for
23 identification.)

24 MR. KAPADIA: A copy of Samsung
25 Exhibit 1015 and IPR 2025-01516. Which is

1 the Walley reference.

2 BY MR. KAPADIA:

3 Q. And that should already be in the
4 exhibit share.

5 And I will stamp Exhibit 1016 from
6 IPR 2025-01516, which is the Miyake reference.
7 And this is Exhibit 11.

8 (Exhibit 11, Exhibit 1016 from IPR
9 2025-01516, marked for identification.)

10 BY MR. KAPADIA:

11 Q. Does Miyake recite any of the
12 following terms inside it -- let me give you a
13 list.

14 A. Do you want me to write them down?
15 How long is your list? I don't have a pencil
16 or anything, but.

17 Q. I'll give you my pen. Actually,
18 here. You can use -- that's fine. Use that.
19 Okay.

20 A. Just sounded like the list might be
21 longer than one.

22 Q. Base station, central control,
23 central controller, centralized, central
24 authority, central database, and central
25 station.

1 A. So you want to know if these
2 specific words are in there? Or do you want to
3 know if independent CDMA is disclosed?

4 Q. I want to know if those words are
5 present in this specification of claims?

6 MR. SCHMID: Objection to the form.
7 Compound.

8 A. I can search through here manually.
9 I can certainly tell you that without looking,
10 that the functions that we've been describing
11 regarding central control are without a doubt
12 in Miyake.

13 But I'll start reading this to see
14 if those terms are in there, since this is what
15 you asked me to do.

16 (Document review.)

17 A. Can I mark on the exhibit?

18 Q. Go ahead. Please do.

19 (Document review.)

20 BY MR. KAPADIA:

21 Q. And to be clear, you are looking for
22 the exact terms that you -- correct?

23 A. I am.

24 MR. SCHMID: Objection to form.

25 A. At the same time, I'm anticipating

1 you might have a question but I relate it to
2 the equivalence of these things, but I don't
3 have to mark anything unless it's those terms.
4 And if we can go back to them if we need to,
5 I'll do that.

6 Q. Yeah, why don't you use red if you
7 find those specific terms, and then you can
8 mark what you would like with blue.

9 A. Mark what with blue?

10 Q. Whatever you were marking in blue,
11 you can continue doing. But if you see the
12 terms that I specifically asked you about, you
13 can mark them in red.

14 A. It'll be faster if I look for these
15 terms that you've asked for.

16 Q. Yes, that is what I'm asking for.

17 A. I had only started the more general
18 analysis. I'm on the first sentence of the
19 abstract, so I didn't get very far. It won't
20 waste my time.

21 Q. If it helps, those were terms that
22 were used in your declaration.

23 A. Yes, they refer to the function of
24 assigning the codes to multiple users.

25 Q. But those terms themselves were not

1 literally in --

2 A. I don't know.

3 Q. -- Miyake?

4 A. I'm going to check that now because
5 you asked me to do that, so.

6 (Document review.)

7 BY MR. KAPADIA:

8 Q. Actually, while you are doing that,
9 let me give you six more terms.

10 TDMA, time division multiple access,
11 time slot, power control, closed loop.

12 (Document review.)

13 A. That's a lot to keep track of, but I
14 will do my best.

15 (Document review.)

16 Q. What column are you up to now?

17 A. I'm in two. Almost at the end of
18 it, 59.

19 Q. All right.

20 (Document review.)

21 BY MR. KAPADIA:

22 Q. Why don't you finish up that column.

23 A. I just finished.

24 Q. All right.

25 To your knowledge, are any of those

1 terms specifically recited in this
2 specification of Miyake?

3 MR. SCHMID: Objection to form.

4 A. Yeah, I would say that all of base
5 station, central control, central controller
6 centralized, central authority, central
7 station, I omitted there in your centrals,
8 central database, are disclosed in two, column
9 2, at least in column 2, 25 to 38 --

10 Q. Just to be fair, when you say
11 disclosed, do you mean recited?

12 A. I'm answering the question.

13 Q. Well, I asked you a question, and I
14 think you are giving me a different answer.

15 I asked you if they are specifically
16 recited, and then you changed a word to
17 disclosed.

18 A. What do you mean by specifically
19 recited? Maybe I misunderstand what --

20 Q. Are those words literally in Miyake?

21 MR. SCHMID: Object to form.

22 A. Literally -- everything I just
23 mentioned, with the exception of central
24 database, are within Miyake. The actual words,
25 I did not find in up to the second column. I

1 did circle something in a figure, but it was
2 temporary, so I'll cross it out. Because I
3 needed to read what the -- it was just the
4 space holders. So I remembered to read
5 Figure 9 description when I got to it, but I
6 didn't get to it because it was after -- so
7 I'll cross this out. Just because I didn't get
8 to verify it.

9 So all of those things are there.
10 If you mean is the word used there, I didn't
11 find it up through column two.

12 Q. I will represent that none of those
13 words are literally, as stated on that list,
14 are in Miyake. I will --

15 A. Okay. That's fine.

16 Q. Okay.

17 Can you go to Section 8B of your
18 declaration. This is --

19 A. Sorry.

20 Q. -- Exhibit 1.

21 A. I'm in -- I have Exhibit 1. Can you
22 say again where you want me to go?

23 Q. Go to page 24 that is start of
24 Section 8B.

25 A. I am there.

1 Q. Okay.

2 Can you go to paragraph 50, that's
3 on the next page?

4 A. I am there.

5 Q. Can you read that paragraph?

6 A. Would you like me to read it out
7 loud?

8 Q. You can read it to yourself.

9 A. Okay.

10 (Document review.)

11 A. I am there. I've read it, sorry.

12 Q. Okay.

13 Do you see, 1, 2 -- six lines down
14 in paragraph 50 there's a sentence that says:
15 This is a clear indication that Miyake's base
16 station, paren, transmission station, based
17 spread spectrum communication system is not
18 independent code division multiple access?

19 A. Yes.

20 Q. Okay.

21 Base station is not a term that's
22 actually used in Miyake, is it?

23 MR. SCHMID: Objection. Form.

24 A. Base station, those two words aren't
25 used. But as I was trying to explain earlier,

1 the function that's described is that of a base
2 station, in columns 2, 25 through 38. And as
3 far as I had gotten in columns 2, 48
4 through 58, because they assigned a unique user
5 codes to each of the users of the system.

6 And that's because a person of
7 ordinary skill in the art reading Miyake would
8 understand that that function is the function
9 of a base station in Miyake.

10 Q. So you are characterizing the
11 transmission station to be a base station?

12 A. Only --

13 MR. SCHMID: Object to form.

14 A. -- as a base station because it is a
15 base station.

16 I ran the wireless infrastructure
17 business at Texas Instruments, as I mentioned
18 before, and the emphasis of that group was to
19 provide systems, subsystems and components for
20 base stations, and that's what a base station
21 in a CDMA system does.

22 Now when it's centrally controlled
23 because the base station is doing it, then it's
24 not independent CDMA.

25 Q. If the codes were preassigned to

1 each device, would they be centrally
2 controlled?

3 MR. SCHMID: Objection. Form.
4 Foundation.

5 A. That's not something that I relied
6 upon for my declaration. It would depend on if
7 the CDMA was independent, which would mean it's
8 performed in the absence -- or performed
9 without any central control. I flipped, so I
10 don't have the language, but it's performed
11 independent of any central control.

12 Q. So if a base station had assigned a
13 code to each device before the devices were
14 used for communication, would that be
15 independent of central control if that base
16 station had no further role?

17 MR. SCHMID: Same objections and
18 scope.

19 A. That's not something I considered
20 regarding my -- my opinions. So I would have
21 to study that scenario.

22 My -- really, you know, outside of
23 what's disclosed in Miyake and Walley, my
24 opinions were rebutting what was about a
25 paragraph where the petitioner, who I

1 understand has the burden, didn't go beyond
2 that. Didn't even cite anything in these
3 references, so I didn't have much to go on.

4 But I tried to inform the board more
5 than the petitioner did in terms of my
6 understanding of performed independent of any
7 central control in the context of these two
8 references.

9 Q. Yeah. What I'm trying to understand
10 is what you mean by independent central control
11 still. Because you referred to the assignment
12 of codes, and I'm trying to understand does --
13 how that assignment has to occur for it to be
14 central control.

15 Does the device that assigns the
16 codes have to be a part of the system as it
17 operates, or can that device provide the codes
18 ahead of time?

19 A. That's not something I considered.
20 I can tell you Miyake has a central control
21 because it explicitly discloses assigning of
22 the codes to each of the users.

23 So a person of ordinary skill in the
24 art would understand that those assigned codes
25 would be orthogonal and would remain orthogonal

1 since they are not not changing in length, as
2 they are in Walley.

3 Q. The terms that Miyake uses,
4 transmission station, receiving station,
5 transmitter side and receiver side.

6 Are those the terms that he uses to
7 refer to the devices in the system?

8 MR. SCHMID: Objection. Form.

9 A. I'm unclear as to your question.
10 The base station I've described in Miyake is
11 very clearly articulated in the sections I
12 already highlighted and that's what assigns the
13 unique user codes.

14 Q. I'm asking about what Miyake
15 specifically states. I'm not asking for your
16 characterization. I'm asking what terms does
17 Miyake literally use?

18 It literally uses the term
19 transmission station to refer to what you call
20 the base station, correct?

21 MR. SCHMID: Object to form.

22 A. You represented that all of these
23 words weren't in there. I guess -- let me
24 clarify.

25 When I'm looking at these patents,

1 I'm looking at them from the perspective of a
2 person of ordinary skill in the art. By
3 utilizing my experience, as I mentioned in the
4 early part of the declaration, so that such a
5 person would not reasonably read an entity
6 that's assigning unique user codes to a
7 multitude of devices in a CDMA system as not
8 being centrally controlled.

9 Q. So, again, I'm asking you a specific
10 question.

11 I'm not asking you for to interpret
12 what Miyake says at this stage. I'm asking
13 what does it literally say.

14 And it literally uses the terms:
15 Transmission station, receiving station,
16 transmitter side, and receiver side, correct?

17 A. I actually don't know because that's
18 not what I was asked to do when I was looking
19 at it.

20 Can I pull Miyake up, if you want
21 to --

22 Q. Yeah.

23 A. I have my declaration because we
24 shifted gears.

25 (Document review.)

1 A. Wait, this isn't Miyake. I think I
2 got them mixed up. It's 11. Oh, it's labeled
3 at the bottom. That's why I missed it, sorry.
4 Okay.

5 Maybe this would be helpful for you.
6 I think I can now answer your question or at
7 least help you get over where I think you might
8 be stuck, which is Miyake appears to have
9 originated from a foreign application, which
10 I'm guessing was written in Japanese. And
11 probably was translated.

12 I don't know the history of Miyake
13 in terms of that. But as a person of ordinary
14 skill in the art and an expert, I don't need to
15 know that when the -- the structure and the
16 operation that's disclosed within Miyake is
17 that of a base station that assigns the codes
18 used in spreading and would thus in a CDMA
19 system to maintain orthogonality.

20 Q. Again, you are not answering the
21 question I'm asking.

22 I understand what you -- how you are
23 interpreting Miyake. I'm asking a simple
24 question. And if the answer is you don't know
25 without going through the specification, that's

1 fine.

2 But do you have any reason to
3 believe that the terms that are actually used
4 in Miyake are transmitter -- I'm sorry --
5 transmitter side, receiving side, transmission
6 station, and receiving station?

7 MR. SCHMID: Objection. Form.

8 A. I mean, if you say that they are not
9 used, I don't see how it's relevant. But I'll
10 accept that they are not used.

11 When I read --

12 Q. I'm asking --

13 A. -- a person of ordinary skill in the
14 art --

15 Q. I'm asking for what words are in
16 your reference. I'm not asking for your
17 interpretation yet.

18 A. I appreciate that.

19 Q. One step at a time.

20 A. I'm looking at physical documents.
21 I cannot search them. If you want to represent
22 that those specific words are not in there, I
23 have no objection to that. It doesn't impact
24 my declaration or my opinions in any way.

25 Q. Can you turn to column 7, line 12?

1 A. We're back to Miyake?

2 Q. Yes.

3 A. I'm going to kind of put these up
4 otherwise I'm going to get them all confused.

5 Exhibit 11?

6 Q. Yes.

7 A. And remind me column and line?

8 Remind me, please, the column and line?

9 Q. Column seven, line -- so it's always
10 hard to tell when it's -- we will say 12. At
11 the end of line it should say to properly.

12 A. Okay, the sentence that starts with
13 to properly or the sentence before that?

14 Q. No, the sentence that starts with,
15 to properly.

16 So I'm just asking you a question
17 about what is stated in lines 12 through the
18 end of that paragraph, okay?

19 (Document review.)

20 A. I see that. I've read that. I
21 agree with that.

22 Q. Okay.

23 So limiting your answer to just what
24 is said in that sentence, is Miyake requiring
25 that the code set up one transmitter must match

1 the code at one receiver?

2 MR. SCHMID: Objection. Form.

3 A. No, I would say that's more general
4 than what's being said there.

5 Q. Okay.

6 Well did you see -- in that
7 sentence, is it saying that the code at the
8 transmitter side should match the code at the
9 receiver side?

10 MR. SCHMID: Same objection.

11 A. Yes, that's exactly what that says.

12 Q. Okay.

13 A. Which is different from what you had
14 asked.

15 Q. Okay.

16 A. So.

17 Q. And starting where it says, in
18 addition, that portion of the sentence states
19 that the spreading code that was set should be
20 different than the code for the other channel
21 users in the system; is that correct?

22 MR. SCHMID: Objection.

23 A. I don't see where that in addition
24 -- I just didn't find it fast enough.

25 But can you direct me to where the

1 in addition starts?

2 Q. Sorry. I think I typed something
3 wrong.

4 It's where it says, and that those,
5 on line --

6 A. I see that.

7 Q. And that those spreading codes
8 should differ from those for the other channel
9 user who also use this communication system.

10 A. It says that.

11 Q. Okay.

12 And that's saying that the spreading
13 code should be different than the code that's
14 being used by the other channel users?

15 MR. SCHMID: Objection. Form.

16 BY MR. KAPADIA:

17 Q. Correct?

18 A. I think I should clarify what it's
19 saying. Because I think there may be some
20 confusion.

21 Miyake is not saying that every user
22 has its own transmitter. That's not how Miyake
23 works. It's saying that every user has its own
24 code.

25 So person of ordinary skill in the

1 art reading Miyake would understand that the
2 entity that's assigning the codes and
3 communicating with each of the users is not
4 using -- it was just so, I don't mean to laugh,
5 it's just to me, this is so basic.

6 A base station doesn't have a
7 transmitter for every mobile phone that's out
8 there. CDMA base stations -- and reason we
9 discussed earlier today, that originally they
10 didn't use direct conversion is because their
11 each transmitter is handling many, many, users
12 just like as described in Miyake.

13 So on the transmit side, there isn't
14 a single transmitter for each user. When that
15 transmitter or transmitters of a base station
16 are used to support multiple users, they just
17 quickly switch between the different codes and
18 each of the users can then isolate that.

19 That's a very specific example of
20 the type of system that Miyake would apply to
21 back in the time frame of Miyake.

22 Q. So once again, you answered a
23 different question than I asked.

24 I asked, whether that portion of the
25 sentence is saying that the spreading code that

1 was referred to at the beginning of the
2 sentence should be different from the code
3 that's being used by the other channel users?

4 A. I actually think I answered that
5 exact question.

6 Q. I mean --

7 A. Because unless you just want me to
8 read the sentence, and I agree -- actually, I
9 already agreed with what the sentence says.

10 Q. Do you agree that it says: This
11 spreading code set on the transmitter side
12 should coincide with the spreading code set on
13 the receiver side.

14 You agree it says that?

15 A. I thought I just explained how that
16 works.

17 Q. I understand your interpretation of
18 how things are assigned.

19 I'm asking as to what does that
20 sentence literally say.

21 Does that sentence literally say
22 that this spreading code set on the transmitter
23 side should coincide with the spreading code
24 set on the receiver side?

25 MR. SCHMID: Objection. Form.

1 A. I disagree with the premise of your
2 question. But I can respond to the second part
3 of your statement, which is that it does say
4 there transmitter side should coincide with the
5 spreading code set on the receiver side.

6 My explanations were exactly on
7 target explaining --

8 Q. I'm not asking about your
9 explanation.

10 A. -- as a person of ordinary skill in
11 the art. So if you want me to read this and
12 answer your questions as a grammar and language
13 student, I'm happy to do that for you. But I
14 want to make sure that my responses are clear.
15 Because my work has always been from the
16 vantage point of a person of ordinary skill in
17 the art, using my background as an expert, not
18 reading words without interpreting those words.

19 And I've explained why I think that
20 would be a mistake in this particular case.
21 Because it looks -- because of the odd wording,
22 maybe it was translated from Japanese.

23 But the function that it describes
24 is very clear in how it accomplishes that is
25 very clear to me, as a person of ordinary skill

1 in the art, with someone of experience. I
2 never claimed to be a grammar or English
3 expert.

4 Q. Can you go to column nine.

5 A. I am there.

6 Q. Okay.

7 Look at lines 13 through 17. That's
8 the paragraph that starts with, although.

9 (Document review.)

10 A. I see that, yeah.

11 Q. I just want to make sure that I am
12 accurately reading what is said here.

13 Miyake states: Although it has not
14 been clearly described in the above explanation
15 of specific embodiments, it is needless to say
16 that each of the stations of the transmitter
17 side and receiver side may comprise both of a
18 transmission circuit modulator and a reception
19 circuit demodulator.

20 Did I accurately read that?

21 A. Yes, I can explain it, but it sounds
22 like you don't want me to.

23 Q. And just, this is an embodiment of
24 Miyake, correct?

25 MR. SCHMID: Objection. Form.

1 Foundation.

2 Q. I'm not asking for your
3 characterization. I'm just -- this is
4 something disclosed within Miyake, correct?

5 MR. SCHMID: Objection. Form.

6 A. I can only answer that question
7 because you are restricting me not to answer it
8 as a person of ordinary skill in the art or an
9 expert by saying that the words that you read
10 are the words that are written there.

11 If you want me to answer a question
12 with what they mean, to help you and the board,
13 I am totally happy to do that.

14 Q. Can you look at lines 20 through 47
15 of column nine.

16 A. I am there, and I will read those as
17 directed.

18 (Document review.)

19 A. I've read it.

20 Q. Okay.

21 Do you agree that this is disclosing
22 a single device?

23 MR. SCHMID: Objection. Form.

24 A. I would have to read it again, with
25 that question in mind.

1 Would you like me to do that?

2 Q. Please do.

3 A. I don't -- I don't remember citing
4 this or the petitioner citing it, so if you can
5 refresh --

6 Q. I'm asking you about this just --

7 A. I don't know that I formed an
8 opinion on this embodiment.

9 Q. Do you agree that this embodiment
10 recites a single CPU?

11 MR. SCHMID: Objection. Form.

12 Q. 85?

13 MR. SCHMID: Foundation.

14 A. I wouldn't agree with that, I would
15 need to analyze it. But the petition maybe
16 would have some interpretation that I could
17 refer to. Generally in patents, there's the
18 concept of a CPU could be one or more CPUs, and
19 so that would require more than just reading
20 this.

21 When I do my rebuttal declaration, I
22 really focus on what the petitioner is saying
23 is disclosed and the declarant, and then what
24 arguments are made based on that.

25 Q. Well --

1 A. And that takes a long time.

2 Q. I'm just going to ask you what is --

3 A. If that was then and it's in my
4 declaration, I would be happy to have you
5 refresh my opinion. Otherwise, I'm not
6 prepared to provide opinions on Figure 9 right
7 here on the spot.

8 Q. I'm just going to ask you--

9 A. If I have done it already --

10 Q. -- what's recited.

11 A. What's recited is what's written
12 there.

13 Q. Does it recite an embodiment which
14 includes a microphone 89?

15 You can see it at line 43 of column
16 nine.

17 (Document review.)

18 A. It says: Third control for
19 outputting audio signals inputted from a
20 microphone 89.

21 Q. And then it says starting on line
22 44: And a fourth control for outputting audio
23 signals received by the reception circuit 82 to
24 a loud speaker 90.

25 MR. SCHMID: Objection to form.

1 A. I see that.

2 MR. SCHMID: Scope.

3 BY MR. KAPADIA:

4 Q. And you see at line 29, it says: To
5 control Section 85 is connected to a key input
6 Section 86, display device 87 and a memory 88?

7 A. I do.

8 Q. Okay.

9 So this embodiment includes a
10 memory, a key input section, a display device,
11 a microphone, and a speaker?

12 A. That's what it says.

13 Q. Okay.

14 Sitting here right now, does that
15 describe a user terminal?

16 MR. SCHMID: Objection. Form.

17 Foundation. Scope.

18 A. So user terminal, base stations have
19 user terminals. And this to me sounds like a
20 base station because right after that it says:
21 As described above, transmitter side performs a
22 spreading process with the first spreading code
23 assigned to each user.

24 And the second spreading code
25 assigned in accordance with an attribute and

1 modulates the signal obtained through the
2 spreading process.

3 I realize a lot of people don't
4 actually see base stations, but I've actually
5 seen base stations.

6 And they do have all of those
7 things.

8 Q. So when this device connects to
9 another embodiment to Figure 9, they would both
10 have microphones, correct?

11 MR. SCHMID: Objection. Form.

12 A. That's not something that I've
13 looked at.

14 Q. And they would both have speakers,
15 correct?

16 MR. SCHMID: Same objection.

17 A. I am not aware of any such
18 implementation. I haven't looked at it, and
19 the petitioner didn't propose it. So I have no
20 opinion.

21 Q. So if you look at claim one of
22 Miyake, you see it recites a transmission
23 station and a receiving station, correct?

24 MR. SCHMID: Objection. Form.

25 BY MR. KAPADIA:

1 Q. It says transmission station at
2 line 7 and receiving station around line 18.

3 A. I see that.

4 Q. Okay.

5 So the transmission station could be
6 a Figure 9 embodiment, correct?

7 MR. SCHMID: Objection. Form.
8 Scope.

9 A. That's not something petitioner
10 mentioned nor Mr. Davies.

11 What I can say is that there's no
12 dispute that Miyake assigns -- centrally
13 assigns codes, because that's what was used in
14 the petition and in the declaration by
15 Mr. Davies as the source for the unit user
16 code.

17 Q. So is it your opinion that the
18 transmission station in claim one of Miyake
19 cannot be the Figure 9 embodiment?

20 MR. SCHMID: Objection to form.

21 A. I have not analyzed claim one
22 because the petition had no opinion -- the
23 declaration had no opinion with respect to the
24 meaning of claim one with respect to Figure 9
25 in Miyake.

1 Q. Okay.

2 So you have no opinion as to whether
3 or not the Figure 9 embodiment could be the
4 transmission station?

5 MR. SCHMID: Objection to form and
6 scope.

7 BY MR. KAPADIA:

8 Q. You just said you didn't have an
9 opinion. I just want to clarify that's what
10 you said?

11 MR. SCHMID: Objection. Compound.
12 Form.

13 A. What I said is that my opinions are
14 within my declaration. And I have no
15 recollection of rebutting anything related to
16 claim one and Figure 9, and I have not done the
17 analysis in order to be able to answer your
18 question.

19 Q. So you haven't considered whether
20 the Figure 9 embodiment is consistent with your
21 read of Miyake?

22 MR. SCHMID: Objection. Form.
23 Foundation.

24 A. I don't know how to answer your
25 question.

1 Q. Well --

2 A. I can tell you exactly what I did.
3 And if you want to keep asking the question
4 different ways, maybe you'll ask it in a way
5 that I can answer it. And I'm happy to answer
6 it.

7 Q. Well, let me ask you maybe a more
8 simple question.

9 If you do not talk about the
10 transmission station in claim one of Miyake,
11 with respect to the Figure 9 embodiment, is it
12 safe to say that you do not have an opinion in
13 your declaration as to whether or not the
14 Figure 9 embodiment could be the transmission
15 station?

16 MR. SCHMID: Objection. Form.
17 Scope.

18 A. To the extent that the declarant
19 didn't site Figure 9 or a relationship between
20 claim one and claim nine, I would be surprised
21 if I had an opinion in my declaration with
22 respect to it because, generally, my understand
23 -- I understand my job is to re -- rebut
24 allegations made by the petitioner and the
25 declarant.

1 And sitting here today, I really
2 would be surprised if the declarant had said
3 anything about claim one of the 424 Miyake,
4 because the -- the declaration was very, very
5 bare in terms of how the Miyake allegedly
6 disclosed independent CDMA, and that's what I
7 focused on in my declaration.

8 Q. So same question with respect to the
9 receiving station of claim one.

10 If you did not talk about the
11 receiving station of claim one in Miyake with
12 respect to the Figure 9 embodiment, is it safe
13 to say that you don't have an opinion in your
14 declaration as to whether or not the Figure 9
15 embodiment could be the receiving station of
16 claim one?

17 MR. SCHMID: Objection. Form.

18 Scope. Foundation.

19 A. I have no recollection of petitioner
20 or the declarant making use of Figure 9 or
21 claim one in any way with respect to alleging
22 obviousness of the combination of Miyake with
23 Walley, and so that's not -- not something I
24 looked at.

25 Q. So if the petitioner or declarant

1 did not specifically recite claim one of Miyake
2 or Figure 9 of Miyake, and your declaration
3 does not refer to him, then would it be safe to
4 say that you don't have an opinion as to
5 whether or not the transmission station could
6 be met by the Figure 9 embodiment?

7 MR. SCHMID: Same objections.

8 A. I -- it's not in my declaration.
9 And it's not in the petition. And it's not in
10 the declarant's, then it's not something that I
11 would have spent time on.

12 Q. Okay.

13 And the same question for the
14 receiving --

15 A. If it is, then I would have. And I
16 just don't offhand -- I -- I really don't
17 think -- my recollection is petitioner and
18 declarant didn't mention claim one of Miyake at
19 all and certainly didn't go through it
20 limitation by limitation. They -- they really
21 didn't say much.

22 Q. Can you turn to column eight of
23 Miyake.

24 A. I'm there.

25 Q. Okay.

1 A. Oh, wait. No, I'm not there. It's
2 double sided, sorry. I'm on column eight of
3 Miyake.

4 Q. All right.

5 Do you see starting at line 15, at
6 the very end of line 15, this is a start of a
7 new sentence with the word, the.

8 The sentence goes: The spreading
9 code generator 62 shown in Figure 6.

10 Do you see that sentence?

11 A. Yes.

12 Q. Okay.

13 Continuing on it says: That it
14 comprises a first spreading code generator 62A
15 for generating spreading codes specific to
16 users.

17 Do you see that?

18 A. Yes, I see it.

19 Q. And then it says second to fourth
20 spreading code generator 62B to 62D for
21 respectively generating different attribute
22 oriented spreading codes.

23 Do you see that?

24 A. Yes, I see that.

25 Q. And then it says: A switching

1 circuit, 62E, for selecting one of the second
2 to fourth spreading code generators, 62B to
3 62D.

4 A. Yes, I see that.

5 Q. And then it finishes with: In
6 accordance with an operation of an external
7 manual switch 63.

8 Do you see that?

9 A. I do.

10 Q. Going down to line 34.

11 Do you see the sentence again that
12 starts with the word, the spreading code
13 generator?

14 Let's continue: The spreading code
15 generator 64 shown in Figure 7.

16 A. Yes, I see it.

17 Q. Okay.

18 And that comprises a first spreading
19 code generator 64 for generating spreading code
20 specific to users, correct?

21 A. Yes.

22 Q. And it also includes a second
23 spreading code generator 64B for generating
24 attribute oriented spreading codes, correct?

25 A. I see that, yes.

1 Q. And it also includes a first to
2 third spreading code memories, 64C to 64E, for
3 respectively storing different attributes
4 spreading codes, correct?

5 A. Yeah, I see that, yes.

6 Q. And then it says: A switching
7 circuit, 64F, for connecting one of the first
8 to third spreading code -- a -- let me just
9 start it again.

10 It includes a switching circuit 64F
11 for connecting one of the first to third
12 spreading code memory 64C to 64E to the second
13 spreading code generator 64B, according to the
14 operation of an external manual switch 65.

15 Do you see that?

16 A. I do.

17 Q. Okay.

18 So in these two embodiments, do you
19 agree that there is a switch which lets a user
20 select between different codes?

21 MR. SCHMID: Objection. Form.
22 Compound.

23 A. That's not something that I've
24 looked at. So the question, I'm happy to read
25 it again, to see if I can give you an analysis

1 on the spot.

2 Can you repeat the question and then
3 I'll read the description, and then I'll flip
4 over to Figure 7 because all those letters.

5 Q. Let's go back to Figure 6.

6 A. Figure doesn't mean anything -- oh,
7 Figure 6? Okay.

8 Q. Yeah.

9 And this might make things easier.
10 Okay.

11 Do you see that?

12 A. I see Figure 6. I'm trying to go
13 see Figure 6 because this is double sided, but.

14 Q. Okay.

15 So I'm just going to read -- okay.
16 What -- column eight refers to a switching
17 circuit 62E.

18 Do you see 62E? It's off on the
19 left.

20 A. Yes.

21 Q. Okay.

22 A. To the mixer.

23 Q. And then it says: Switching circuit
24 62E for selecting one of the second to fourth
25 spreading code generators 62B to 62D in

1 accordance with the operation of an external
2 manual switch 63.

3 Do you see now on the bottom you'll
4 see 63?

5 Do you see that, the switch?

6 A. I do.

7 Q. Yup.

8 And then you see the second spread
9 code generator 62B, the third spread code
10 generator 62C, and the fourth code spread
11 generator 62D.

12 Do you see that?

13 A. I do.

14 Q. Okay.

15 And this external switch 63 it says:
16 Can be used to toggle 62E to select between the
17 second, third, or fourth spread code
18 generators, correct?

19 A. I think that's what it says.

20 Q. Okay.

21 So at least in this embodiment, the
22 user can select a spreading code?

23 MR. SCHMID: Objection.

24 BY MR. KAPADIA:

25 Q. That's ultimately used, correct?

1 MR. SCHMID: Objection. Form.

2 Foundation. Scope.

3 A. I don't know where it says that, so
4 maybe you can redirect me again where the user
5 is selecting this.

6 What user?

7 Q. Well, it's saying the device has an
8 external manual switch, correct?

9 MR. SCHMID: Objection. Form.

10 A. 63 is indicated to be an external
11 manual switch.

12 Q. Correct?

13 A. That's what it says there.

14 Q. Yup.

15 So the switch could be switched or
16 used to switch between the different spreading
17 code generators, correct?

18 MR. SCHMID: Objection. Form.

19 A. My understanding is that the
20 position of that switch 63 -- let me just read
21 that -- the sentence.

22 (Document review.)

23 A. It's unclear to me just looking at
24 it here live --

25 Q. Okay.

1 A. -- what that means. Again --

2 Q. I can point to something else and
3 maybe this will help.

4 A. My analysis was limited to rebutting
5 the petition and the declarant. So to the
6 extent Figure 6 was used with respect to ICMA,
7 there should be something in my declaration
8 associated with it.

9 Q. If you --

10 A. If there is not, then it's not
11 something that I would've spent a lot of time.

12 Q. Can you look at column 8, line 54.
13 The sentence which begins at the end of that
14 line, starts with: When the demodulating
15 circuit is arranged as stated above.

16 Do you see that?

17 A. I see that sentence.

18 Q. Okay.

19 It continues: Attribute oriented
20 codes to be supplied to the mixer of 48 of
21 Figure 4 can be switched by operating the
22 manual switch 63 or 65.

23 Do you see that?

24 A. I do.

25 Q. And then it says: Therefore, when a

1 plurality of transmission stations or
2 broadcasting different information programs, it
3 is possible for the user to select and receive
4 any of these programs.

5 Do you see that?

6 A. It says that, yes.

7 Q. Okay.

8 So you agree this lets -- that
9 switch is something that the user can operate,
10 correct?

11 MR. SCHMID: Objection. Form.

12 A. It says there yes, the user to
13 select and receive any of these programs.

14 Q. Okay.

15 And in this instance, it's the user
16 who's determining what spreading code will
17 ultimately be used by the user's device?

18 MR. SCHMID: Objection. Form.

19 A. I don't have a specific opinion as
20 to that. But I can say that it does say that
21 that switch -- it is possible for the user to
22 select and receive any of these programs and
23 that that is done -- I'm going back to read
24 what it says.

25 (Document review.)

1 A. Well that relates to the attribute
2 codes, not to the user codes. This is the
3 problem that I'm jumping to specific lines and
4 looking at figures that weren't used in the
5 petition and trying to come up with live
6 opinions.

7 I don't have any opinions on any of
8 this that aren't in my declaration, but I'm
9 trying to be helpful to you. And you can see
10 that the attribute code, not the user code, is
11 what's referenced before the use of that -- of
12 that toggle.

13 It would be odd if the user could
14 change the unique -- the user code. This is
15 saying that the program -- programming is
16 selectable by the attribute code.

17 Q. But the spreading code that's
18 ultimately used by the device, is the
19 combination of the two, correct?

20 MR. SCHMID: Objection. Form.

21 A. Yeah, what Miyake discloses is that
22 what would be the orthogonal codes are a
23 combination of the attribute code together with
24 the user code. That's the essence of the
25 invention.

1 Q. So just spreading code that's used
2 is a combination of the two codes?

3 MR. SCHMID: Objection. Form.

4 A. I don't have context for that
5 question. What spreading code that's used is
6 the combination of -- generally in Miyake, yes
7 --

8 Q. But the spreading code -- sorry,
9 strike that.

10 Let me -- the device will combine
11 the code, the user code, with the attribute
12 code in Figure 6 and Figure 7, correct?

13 A. Looking at Figure 6 and Figure 7,
14 it's showing that -- this is just live -- but
15 it's not showing -- and this is probably why
16 the petitioner didn't refer to it. But it's
17 not showing that the user is setting -- their
18 user -- the user part of their code, it's
19 showing that they can select the attribute
20 part, which would be like what organization
21 it's a part of or what location it's in.

22 That would be set at the receiver,
23 which would presumably, I guess, be some sort
24 of IT person. Because if you look in both
25 figures, the first spread code generator is not

1 what's being changed, which would be the unique
2 user code that would be assigned by the base
3 station in Miyake. That's probably why they
4 didn't refer to that. Why I didn't look at it
5 before.

6 Q. I mean, if you look at Figure 4, the
7 output of mixer 54 -- well, strike that. Let's
8 move on.

9 Can you go to column one of Miyake.

10 THE WITNESS: I don't need a
11 bathroom break now, but within the next
12 20 minutes or so, I will need a bathroom
13 break. I'm telling you that so you can get
14 to a place that's convenient for you to
15 stop. I don't want to break your train of
16 thought.

17 MR. KAPADIA: We should be at a good
18 place soon.

19 BY MR. KAPADIA:

20 Q. Can you turn to page 27 of your
21 declaration. But also keep column one up.

22 A. Of Miyake available?

23 Q. In front of you, yes.

24 A. And we're still looking at the 1516
25 declaration?

1 Q. Correct.

2 A. Okay.

3 And I'm supposed to go to where?

4 Q. Page 27.

5 A. I am there.

6 Q. Okay.

7 And you see here, you refer to lines
8 13 through 14 of Miyake, correct?

9 A. Yes.

10 Q. Okay.

11 And those lines recite a spread
12 spectrum communication system permits a
13 plurality of users to perform communication
14 while sharing one wide frequency band on a time
15 and spatial basis.

16 Do you see that?

17 A. I do.

18 Q. Okay.

19 And then you used that description
20 to say that in the context of Miyake's system,
21 Miyake's system would require the involvement
22 of a central controller to perform the
23 requisite allocation of respective time slots,
24 paren, time basis to the different users in
25 what would be understood to be a time division

1 multiple access TDMA communication method.

2 Correct?

3 A. I'm not sure, frankly, I understand
4 my own words there. So let me go back and see
5 what I was thinking there.

6 So normally I would think of CDMA as
7 a code basis. Perform communication while
8 sharing one --

9 (Document review.)

10 A. Sharing a frequency band times.

11 (Document review.)

12 A. I was reading to myself. Mumbling,
13 sorry. I'll try to read to myself without
14 saying anything.

15 (Document review.)

16 A. Okay. I've read that.

17 Q. Okay.

18 A. I'm not sure why I'm saying that
19 because it's somewhat irrelevant to independent
20 CDMA. Because as we talked earlier, it's
21 performed independent of any central control,
22 but it's still CDMA.

23 So I think it's fair to say what's
24 there. I'm just not sure from that paragraph
25 how it's relevant to independent CDMA.

1 Q. Okay.

2 A. But it doesn't contradict that the
3 conclusions, which is that Miyake doesn't
4 disclose independent CDMA.

5 Q. Okay.

6 This section, though, that we just
7 looked at, this is in the background of the
8 invention, correct?

9 A. Yes, yes, yes.

10 Q. This is not specifically describing
11 Miyake?

12 MR. SCHMID: Objection. Form.

13 A. It's relevant. Or it wouldn't have
14 been in the background, but it's not specific
15 to the invention.

16 Q. In fact, it's --

17 A. Miyake -- it's not specific to the
18 invention. It's setting the context of the
19 invention.

20 Q. And, in fact, the section we read is
21 under the sub header description of the related
22 art, correct?

23 A. Correct, yes. That's what I
24 intended to say in my response.

25 Q. Okay.

1 Is CDMA the same as TDMA?

2 A. No.

3 Q. No.

4 Does that paragraph -- strike that.

5 Does that sentence that I had
6 recited that referred to a time and spatial
7 basis, did that refer to any time slots?

8 MR. SCHMID: Objection. Form.

9 A. It's in the background section. I'm
10 not sure why I cited it, as I mentioned.

11 Q. Okay.

12 A. But it does not have those words.

13 Q. And it doesn't talk about how any
14 time slots are assigned, correct?

15 MR. SCHMID: Same objection.

16 A. Honestly, like I mentioned, I'm not
17 sure what I wrote in that paragraph, reading it
18 now. It doesn't impact my conclusions, but
19 it's confusing even to me.

20 Q. Does it --

21 A. What I was really doing was noting
22 that the time in actual space wasn't specific
23 to coding. But, you know, most of the
24 discussion in my disclosure in Miyake is
25 related to coding because they -- the whole

1 point of Miyake is to assign a code that
2 consist of two parts, which is the unique --
3 the user code.

4 And the attribute code and that
5 code, as we just established looking at those
6 other figures, is one that the second part of
7 that code is one that can be shared amongst
8 multiple users.

9 Q. Okay.

10 A. Which is the attribute code. The
11 code together of Miyake remains unique because
12 of -- it has the user part of that.

13 THE VIDEOGRAPHER: The videographer
14 needs to change media in five minutes.

15 MR. KAPADIA: What?

16 THE VIDEOGRAPHER: I need to change
17 the media file in five minutes.

18 MR. KAPADIA: I should be done in
19 about two. Okay.

20 BY MR. KAPADIA:

21 Q. Can you turn to column four?

22 A. Column four?

23 Q. Yup.

24 A. Let's see. I'm there.

25 Q. Okay.

1 Can you look at that first paragraph
2 and just read it to yourself.

3 (Document review.)

4 A. I've read it. I'm very familiar
5 with that paragraph.

6 Go ahead.

7 Q. Okay.

8 Does this paragraph discuss a lot of
9 time slots?

10 MR. SCHMID: Objection. Form.

11 A. I don't believe that it does. I'd
12 have to read it again in that -- in that
13 context. But generally, my familiarity with it
14 when I said I was very familiar with it is that
15 it's what allows the determination of the
16 number of users that can use the spread
17 spectrum system in Miyake.

18 Q. Okay.

19 MR. KAPADIA: Let's take a break.

20 THE WITNESS: Sure.

21 THE VIDEOGRAPHER: The time is 5:25.

22 We are off the record.

23 (Recess is taken.)

24 THE VIDEOGRAPHER: We're back on the
25 record. The time is 5:31.

1 BY MR. KAPADIA:

2 Q. All right.

3 Can you turn to page 28 of
4 Exhibit 1.

5 A. Yes.

6 Would you like me to leave Miyake
7 open?

8 Q. You can set that aside now.

9 A. Okay.

10 Q. It's probably worthwhile for you to
11 take out Walley, which is Exhibit 10. Yeah,
12 10.

13 Let me know when you're ready.

14 A. Can I leave this notebook or put it
15 under, unless we need it?

16 MR. SCHMID: I can take it.

17 A. I want to use the space here. I've
18 got Exhibit 10 out and Exhibit 1. And you
19 asked me to look somewhere in Exhibit 1.

20 Q. Page 28 of Exhibit 1.

21 A. I am there.

22 Q. Okay.

23 (Document review.)

24 BY MR. KAPADIA:

25 Q. Oh, sorry. One second. Can you

1 look at paragraph 57.

2 Do you see that paragraph?

3 A. Yes, I was starting to read it,
4 sorry. I was jumping ahead, probably. I see
5 it. I'm there.

6 Q. All right.

7 Would you agree that Walley does not
8 explain how orthogonality is maintained when
9 spreading code lengths are varied?

10 A. I definitely agree with that because
11 some of his claims and examples it would be
12 impossible to maintain orthogonality.

13 Q. Okay.

14 And Walley doesn't state that
15 central control is required to preserve
16 orthogonality.

17 You inferred that from your read of
18 Walley, correct?

19 MR. SCHMID: Objection. Form.

20 A. Walley is a circuit. And in no
21 circumstance does it describe what a person of
22 ordinary skill in the art or expert would
23 understand to be independent CDMA based on its
24 disclosures, which is what I referred to here
25 in my declaration.

1 So in order to maintain
2 orthogonality and what Walley describes in
3 varying a code --

4 Q. I'm asking --

5 A. You have to --

6 Q. I think you are answering another
7 question, which I may ask, but my question was:
8 Walley doesn't state that central control is
9 required to preserve orthogonality, correct?

10 MR. SCHMID: Objection. Form.

11 BY MR. KAPADIA:

12 Q. We can get to the next part later.
13 I'm asking does it specifically
14 refer to central control?

15 MR. SCHMID: Same objection.

16 A. I don't recall if it specifically
17 uses the word central control. But if you say
18 it does not, then I accept that it does not use
19 those words.

20 Q. Does Walley explicitly state that a
21 central controller must assign codes anywhere?

22 MR. SCHMID: Same objection.

23 A. I don't think that it would since
24 it's just an interface circuit.

25 Q. Okay.

1 Does Walley ever state that it
2 requires central control to operate?

3 MR. SCHMID: Same objection.

4 A. I don't think it would, because it's
5 just an interface circuit. And the petitioner
6 relied on Miyake for the assignment of the
7 codes.

8 Q. Do you recall if Walley even says
9 the word independent?

10 A. I have no recollection if the word
11 independent is within the Walley specification
12 or claims or abstract.

13 Q. Can you turn to the claims in
14 Walley, and specifically look at claim 11.

15 A. I'm looking at it. Did you want me
16 to read it?

17 Q. Are you at that part?

18 A. Yeah, I flipped to that page.

19 Q. Okay.

20 Do you see the last element of claim
21 11 is a transmit controller?

22 A. I see that.

23 Q. Okay.

24 A. That's no longer CDMA, but I see it.

25 Q. Do you see on the next page, claim

1 17?

2 Do you see claim 17?

3 A. Yes.

4 Q. Okay.

5 And do you see as the third element
6 in that apparatus of claim 17 where it says: A
7 variable transmit duty cycle controller?

8 A. Yes.

9 Q. Okay.

10 A. Controlling the -- the one that
11 says: A variable transmit duty cycle
12 controller for controlling a time division --
13 sorry -- time division duplex protocol.

14 Q. Yeah.

15 So this variable transmit duty cycle
16 controller of claim 17, that's a component of
17 the claimed apparatus, right?

18 MR. SCHMID: Objection. Form.
19 Foundation.

20 A. That's what it looks like, just
21 looking at claim 17.

22 Q. Okay.

23 A. Right now, which I don't recall
24 petitioner or declarant referring to.

25 Q. And then looking at claim 11 again,

1 you see the beginning of claim 11 recites an
2 apparatus?

3 A. Yes.

4 Q. And the transmit controller we
5 talked about earlier is the component of this
6 apparatus, correct?

7 MR. SCHMID: Objection. Form.
8 Foundation. Scope.

9 A. Claim 11 is not a CDMA apparatus.

10 Q. Well, I'm asking you a different
11 question.

12 A. Okay.

13 Q. Is the transmit controller a
14 component of the apparatus of claim 11?

15 MR. SCHMID: Same objections.

16 A. So I'm going to read it out loud: A
17 transmit controller whereby a pan code
18 generator control is generated, wherein the
19 spreading code generator generates a spreading
20 code of one, thereby eliminating the effect of
21 the spreading code generator.

22 So that apparatus, which is not a
23 CDMA apparatus, because it no longer has a
24 spreading code has a transmitter -- that is
25 that transmit controller.

1 Q. Okay.

2 A. Did I answer your question?

3 Q. I asked is the apparatus of -- does
4 the apparatus of claim 11 include a transmit
5 controller?

6 MR. SCHMID: Objection. Form.

7 A. I think I just said that it does
8 because I read the whole limitation. A
9 transmit controller whereby -- so the apparatus
10 at claim 11, the last limitation is a transmit
11 controller whereby a pan code generator control
12 is generated, wherein the spreading code
13 generator generates a spreading code of one,
14 thereby eliminating the effect of the spreading
15 code generator.

16 Claim 11 is not one I don't think
17 anybody is referring to because it gets rid of
18 the CDMA. There's no spreading.

19 Q. Let's look at claim 12.

20 Is claim 12 directed to an
21 apparatus?

22 MR. SCHMID: Objection. Form.

23 A. It is.

24 Q. Does this apparatus include a
25 transmit controller?

1 MR. SCHMID: Same objection.

2 A. One of the limitations begins by a
3 transmit controller whereby a pan code
4 generator control is generated.

5 Q. In fact, if you look at claims 13,
6 14, 15, if you look at all of those claims,
7 each of those recites a transmit controller
8 within the claimed apparatus, correct?

9 MR. SCHMID: Objection to form.
10 Compound.

11 A. I will look at those now.
12 (Document review.)

13 A. I'm looking at these particular
14 claims now for the first time as directed
15 because they hadn't been in the petitioner or
16 the declarant's declaration for petitioner. I
17 can see that each one claims an apparatus and
18 that each one has a limitation of a transmit
19 controller. I think they might be the same
20 limitation.

21 Well, I didn't mean to say --
22 suggest the claims are the same, just that the
23 limitation. I can see 13 is a time division
24 duplex. 14 says: Transmit controller whereby
25 pan code generator control signal is generated.

1 It appears to be the same limitation
2 in each one of those apparatus claims of
3 Walley.

4 Q. Okay.

5 So except for claim 11, which you
6 said had a transmit controller that rendered a
7 non-CDMA?

8 MR. SCHMID: Objection. Form.

9 A. I don't think you asked me a
10 question.

11 Q. When you say each of those apparatus
12 claims, you mean claims 12, 13, 14, and 15,
13 correct?

14 MR. SCHMID: Same objection.

15 BY MR. KAPADIA:

16 Q. Those are the ones that have the
17 same limitation.

18 A. The transmit controller described by
19 each of those claims has the same words, which
20 I understand to mean they have the same
21 limitation. I don't know how it's used in the
22 context of the overall claim by the transmit
23 controller.

24 So those claims may ascribe other
25 restrictions, limitations to the transmit

1 controller that are different. But at least
2 with respect to that particular line, that line
3 is identical.

4 Q. Can you look at Figure 8 of Walley.

5 A. I see that.

6 Q. Okay.

7 And Figure 8 shows a transmit
8 controller 805 in the center of variable length
9 PN code generator 807 at the bottom and a data
10 input controller 801 off to the left, and then
11 data -- sorry -- data transmit Q 803 to the
12 right of that.

13 Do you see all of that?

14 MR. SCHMID: Objection. Form.

15 A. I see all of those numbers, but I'm
16 not looking at the description. Some of those
17 are labeled, others are not.

18 Q. Okay.

19 A. I'm looking at the figures --

20 Q. All right.

21 Can you turn to column eight of
22 Walley.

23 A. Yeah.

24 (Document review.)

25 A. I'm there.

1 Q. Actually, if you look at column
2 nine, it identifies 803 as the data transmit Q,
3 correct?

4 A. Yes, that's correct.

5 Q. Okay.

6 And all of those components are all
7 part of a single device for apparatus, right?

8 MR. SCHMID: Objection to form.

9 A. They are all a part of a circuit
10 that is intended to be within an apparatus and
11 as such, I guess they are an apparatus. What I
12 mean by that is that Walley is not intended to
13 provide the apparatus, its innovation and what
14 it discloses is a circuit with flexibility that
15 could be used in -- in different types of
16 application.

17 Q. Okay.

18 Can you look at Figure 2.

19 A. I'm there.

20 Q. Here we see data input 201 going
21 into data Q 203, and below that you see a PN
22 code generator 209?

23 A. Yes, I see that.

24 Q. Okay.

25 And all that ultimately goes to 217,

1 which is connected to antenna 219, correct?

2 A. Yes, via two antenna media
3 components, it does.

4 Q. Okay.

5 These are all components that would
6 be within an apparatus or device, correct?

7 MR. SCHMID: Object to form.

8 A. In Walley, they would be in an
9 interface circuit that's intended to be used in
10 different types of devices.

11 Q. Correct.

12 But all of these components will be
13 in a single device together, not separated into
14 two different devices -- well, strike that.

15 Can you look at column four and
16 specifically look at line 54.

17 A. I'm at the right place. It's a
18 brief description of the drawings of Figure 1.

19 Q. 54 starts the description for
20 Figure 2 and states that Figure 2 is a blocked
21 diagram illustrating a spread spectrum
22 transmitter.

23 A. Yes.

24 Q. Okay.

25 A. That's what it says.

1 Q. Okay.

2 And a spread spectrum transmitter
3 would be one of the components that would be in
4 a device?

5 MR. SCHMID: Objection.

6 BY MR. KAPADIA:

7 Q. That transmits using spread
8 spectrum.

9 A. Yes.

10 Q. Okay.

11 A. That's fair.

12 Q. Yeah.

13 A. I think the question was answered in
14 the question, but that's fine.

15 Q. So let's go to column nine.

16 A. I'm at column nine.

17 Q. Okay.

18 And look at -- starting at line 57.

19 A. I'm there.

20 Q. Okay.

21 A. Would you like me to read that?

22 Q. Not yet.

23 So had you previously considered

24 Figure 9?

25 MR. SCHMID: Object to form. Scope.

1 A. I believe I have, but I -- can I
2 look at the figure, that might be easier?

3 Q. Yeah.

4 (Document review.)

5 A. Yes, I looked at that.

6 Q. Okay.

7 A. And I considered that.

8 Q. All right.

9 A. I don't know if it was particularly
10 relevant to my declaration, but I understand
11 the figure.

12 Q. Would it be fair to say that this
13 describes a transmit controller which is --
14 adjusts the code size based on factors such as
15 Q length 827, data receive rate 811,
16 interference level 813, and signal strength
17 815?

18 A. I'm sorry, you had me until you
19 started referring to the other figure numbers.

20 Q. Okay.

21 A. I can look at them both, actually.
22 Someone decided to print this on two sides, but
23 I can actually see Figure 8 and Figure 9, if
24 you want to read your question and I can look
25 at both of them at the same time.

1 Q. Actually, you know what, let's set
2 that aside for now.

3 So all of the controllers that we've
4 discussed thus far, they've been controllers
5 that have been within various devices, correct?

6 MR. SCHMID: Object to form.
7 Foundation.

8 A. I don't know what -- all the
9 controllers we discussed thus far today?

10 Q. With respect to Walley.

11 All of the controllers we've just
12 gone through in Walley have been controllers
13 that are within a particular device, correct?

14 Like we just went through --

15 MR. SCHMID: Same objection.

16 BY MR. KAPADIA:

17 Q. -- claims 12 through 15, and you saw
18 a transmit controller within an apparatus,
19 correct?

20 MR. SCHMID: Same objection.

21 A. Yes, so you've intermixed -- you
22 used the word a particular device, and then you
23 used the word an apparatus, and to me, those
24 are two totally different things. So I want to
25 make sure -- because the apparatus is what we

1 went through was claimed.

2 Q. Yes.

3 A. And the device would, you know,
4 could be the same apparatus or it could be a
5 device that uses the apparatus of the claim,
6 and those aren't the same thing.

7 Q. Okay.

8 A. I just want to make sure I'm
9 understanding the question.

10 Q. None of the controllers that we've
11 -- no. Set that aside.

12 Can you go to column ten of Walley.

13 A. I am there at column ten of Walley.

14 Q. Okay.

15 And go look at the embodiment that
16 starts on line 23.

17 (Document review.)

18 A. I'm there.

19 Do you want me to read it?

20 Q. No, no, not yet.

21 This is a portable telephone
22 embodiment, correct?

23 A. That's what it says there.

24 MR. SCHMID: Objection. Form.

25 Foundation.

1 A. Sorry.

2 I think your question is referring
3 to column ten, approximately Row 23.

4 Q. Yes.

5 A. And it says: The first preferred
6 embodiment comprises a portable telephone, such
7 as illustrated using Figure 9.

8 Q. Okay.

9 If you look down around line 45.

10 A. I am there.

11 Q. Actually, you know what, look at
12 line 46. At the end of that line is a sentence
13 that starts with: In the present.

14 A. I'm there.

15 Q. And then it continues: The signal
16 being received by the base unit is very strong.
17 Do you see that?

18 A. Yes, I see that. In the present,
19 the signal being received by the base unit is
20 very strong.

21 Q. Okay.

22 And then it says: The portable
23 telephone unit can then signal the base unit
24 that it will switch to an 8-bit spreading code,
25 correct?

1 A. The portable telephone unit. The
2 word -- the sentence says what you said. It's
3 part of a process to get to that point, but
4 because other things have to happen first.

5 But just reading that you've told me
6 to read, it says: The portable telephone unit
7 can signal the base station unit that it will
8 switch to 8-bit spreading code.

9 Q. Okay.

10 If you look at line 60, do you see
11 the sentence that says: At that point?

12 A. What line?

13 Q. Actually, look at line 57.

14 A. At .915 that's --

15 Q. Column -- I'm sorry, column 10,
16 line 57. The very last word of that line is
17 the.

18 A. The computer can transmit more data
19 so the transmit controller increases the duty
20 cycle until it reaches .917 on the graph of
21 Figure 9. 90 percent transmit duty cycle.

22 Q. Okay. Yup.

23 And then after that it says: At
24 that point, more data capacity can still -- can
25 still be used by the computer, which is

1 transmitting data to the handset.

2 Do you see that?

3 A. Yes.

4 Q. And then it says: The system then
5 queries the base unit and finds out that the
6 signal being received is very strong.

7 Do you see that?

8 A. Yes.

9 Q. And then it says: The portable
10 telephone unit then signals the base unit that
11 it will switch off to a spreading code or
12 equivalently uses a spreading code of one.

13 Do you see that?

14 A. Yes, it shuts off CDMA.

15 Q. Yup.

16 A. I see that.

17 Q. Yeah.

18 So the portable telephone unit is
19 what's making the decision and informing the
20 base unit.

21 MR. SCHMID: Object to form.

22 A. That it wants to turn off CDMA is
23 what I gather from the selection of the
24 sentences that you had me read.

25 Q. Right.

1 It's what selected, the spreading
2 code length and whether or not to switch off
3 the spreading code, correct?

4 MR. SCHMID: Same objection.

5 A. And this embodiment, it's a circuit,
6 and it's not described how it is CDMA. I would
7 have to infer it from here. But I can tell you
8 that it's at least not CDMA, unless there's
9 some method of -- of managing the code so that
10 there are orthogonal because this is just the
11 circuit.

12 Q. Okay.

13 Let's look at -- well, actually, I
14 just want to, you know, make sure I close the
15 loop on that.

16 In both of those instances when the
17 spreading code was set to 8-bit or when it was,
18 quote, switched off, it was the portable
19 telephone unit that made that decision,
20 correct, not the base unit?

21 MR. SCHMID: Object to form.

22 A. Now you are using base unit, I
23 think, as if it were a base station that
24 assigned codes that were unique, which isn't
25 disclosed in Walley.

1 So in Miyake, we spent a lot of
2 time -- I tried to explain that Miyake, even
3 though it didn't use the word base station, the
4 functions I described as assigning codes, which
5 are consistent with what the petitioner said
6 that they were, is what maintain the
7 orthogonality of the system as well as
8 assigning the codes. Now this --

9 Q. I'm just asking --

10 A. I'm trying to answer the question,
11 actually, but if you want to stop me, I'll
12 stop.

13 Q. Yeah, I can ask you a question about
14 Miyake, but I'm asking you a question about
15 Walley.

16 A. I understand that. I was trying to
17 answer the question about Walley.

18 Q. Well, you were trying to talk about
19 Miyake, and I'm literally asking you about
20 Walley.

21 MR. SCHMID: Ask another question,
22 ask another question.

23 BY MR. KAPADIA:

24 Q. So Walley discloses a portable
25 telephone unit that will signal to a base unit

1 that it'll switch to an 8-bit switching code --
2 sorry, strike that.

3 Walley discloses a portable
4 telephone unit which can signal the base unit
5 that it will switch to an 8-bit spreading code
6 and additionally discloses that the portable
7 telephone unit can signal the base unit that it
8 will switch off the spreading code, correct?

9 A. If you are reading from what it
10 says, and that's what it says, then I would not
11 disagree with it. If you want --

12 Q. Okay.

13 A. -- the actual answer, then I have to
14 explain what a base unit is. And when you say
15 it discloses, you are going beyond literal
16 citations of text language. You are asking
17 what a person of ordinary skill in the art
18 would understand those words to mean.

19 If I am wrong, and please tell me
20 it's wrong, but when it says disclosing, you
21 told me earlier in the deposition when I
22 answered a question about reciting and I said
23 it discloses, you said, well, I didn't ask
24 about disclosing. And now, I thought your
25 question was actually asking about disclosing

1 when you were using words that were related to
2 reciting.

3 Because of that, I thought it was
4 important to bring in the understanding of a
5 person of ordinary skill in the art to be
6 consistent. Because when we treated the other
7 reference, which I'm not going to mention, it
8 was about reciting the specific text, not about
9 what it disclosed to a person of ordinary skill
10 in the art.

11 In this case, I'm understanding that
12 you're having me read the words and then asking
13 me what's disclosed. And so those are two
14 different exercises.

15 And so in order to preserve the
16 record of consistency, I wanted to make sure
17 that -- that it's clear, that when we talk
18 about the other reference, it was about the
19 words. And now when we're talking about this
20 one -- if I misunderstood your question, I
21 apologize -- you are asking what it discloses,
22 not what the words say.

23 I hope that helps. So I'm not
24 trying to make this last 20 days, I'm just
25 trying to get clear responses on record to

1 clear questions.

2 Q. So in the portion of Walley that we
3 were discussing, do you agree that the portable
4 telephone unit is what decides whether to
5 switch to an 8-bit spreading code?

6 MR. SCHMID: Object to form.

7 A. I would have to read that to answer
8 your --

9 Q. That would be on lines --

10 A. I would have to actually read the
11 entirety of it. Unless you -- because I think
12 you asked disclose or did you ask recite in the
13 question you just asked?

14 Q. I said do you agree that the
15 portable telephone unit is what decides whether
16 to switch to an 8-bit spreading code?

17 A. Okay.

18 I understand that requires
19 interpretation. So I think unless there's a
20 specific line that says that, I'll take a quick
21 look at that and answer your question.

22 This is Figure 9, correct?

23 Q. This is column 10, line 48. The
24 sentence starts: The portable telephone unit
25 can then signal the base unit that it will

1 switch to an 8-bit spreading code.

2 (Document review.)

3 A. I see that. And that's at that
4 point after whatever has happened before that,
5 that's a signal it's making to what in Walley
6 is not the base unit that's alleged to assign
7 codes and manage orthogonality.

8 Q. Okay.

9 And can you go to column 11.

10 A. I am there.

11 Q. Okay.

12 And do you see the last paragraph
13 that's on the bottom that starts on line 61?

14 A. Yes, I am there.

15 Q. And that paragraph ends on column
16 12, line 14.

17 A. Yes, I see that.

18 Q. And this describes a PDA or a
19 programmable digital assistant embodiment.

20 A. Yes, I see that.

21 MR. SCHMID: Object to form.

22 If you are going to ask him about an
23 entire paragraph, I'm sorry, can you let
24 him read the paragraph before you ask him
25 what a paragraph describes?

1 Go ahead, continue.

2 A. Would you like me to read the
3 paragraph or just repeat your question.

4 Q. Does the paragraph that starts on
5 column 11, line 61 describe an embodiment that
6 is a PDA or a programmable digital assistant?

7 A. Yes, it does.

8 Q. And do you see that it includes its
9 own base unit 1011?

10 MR. SCHMID: Object to form.

11 A. I can see where it says the base
12 unit 1011.

13 Q. Okay.

14 And to be clear, when I say include,
15 this paragraph refers to a base unit that
16 communicates with the PDA.

17 MR. SCHMID: Same objection.

18 A. Let me read that, that part.

19 (Document review.)

20 A. It does say the PDA 1001 would
21 establish communications with a base unit 1011.

22 Q. Do you see it says at the top of --
23 of column 12, there's a sentence that starts:
24 The base unit would then reply with a message
25 1009.

1 A. Yes, I see that. The base unit
2 would then reply with a message --

3 Q. Actually --

4 A. -- 1009.

5 Q. Let's -- can you read column 11,
6 lines 64 through column 12, line 12?

7 A. Yes, would you like me to read that
8 to myself or quiet on the record?

9 Q. Yes, to yourself.

10 A. Okay.

11 (Document review.)

12 A. I see that. I read that.

13 Q. All right.

14 Would you agree that the base unit
15 described here is not a base station assigning
16 a code to a device?

17 MR. SCHMID: Object to form.
18 Foundation.

19 A. I would -- I sort of agree. It's
20 definitely not a base station that assigns
21 unique PN codes to anything.

22 I will say as far as this base unit
23 goes, which is, as I mentioned, not the base
24 station that's pointed to by petitioner, the
25 declaring of petitioner, petitioner or myself,

1 that this particular embodiment requires first
2 that the base unit transmit to the PDA.
3 Because it says the process could then be
4 reversed -- and thank you for letting me read
5 the whole paragraph, because when we jump
6 around from sentence here to sentence there,
7 sometimes it's easy to come to an incorrect
8 conclusion.

9 So at least in this description, the
10 disclosure says that first the base station
11 must communicate, and then the process could be
12 reversed. Where the non -- what he calls base
13 unit, is talking to, is receiving information
14 from -- from the other side, the PDA.

15 Q. So this discloses a situation in
16 which the PDA instructs the base unit as to
17 which code to use, correct?

18 MR. SCHMID: Object to form.

19 A. It says the PDA 1001 could then --
20 could then instruct the base unit 1011 as to
21 which PN code was the minimum size needed to
22 accurately receive the messages, correct.

23 Q. Okay.

24 Do any of these PN code selection
25 decisions that we've discussed thus far with

1 respect to Walley disclose a situation in which
2 a central controller selected the specific PN
3 code that was used?

4 MR. SCHMID: Object to form.
5 Compound.

6 A. Well, because Walley is a circuit
7 intended to be used as part of a greater
8 system, it provides the handles, if you will,
9 for setting the duty cycle, sending the link of
10 the PN code. Walley is completely silent on
11 how orthogonality is managed, other than a
12 suggesting it's not managed in the sense that
13 the code could be set to one, meaning there
14 would be no orthogonal codes. So there
15 wouldn't be CDMA.

16 Q. Again, do any of the PN code
17 selection decisions that we've discussed thus
18 far with respect to Walley disclose a situation
19 in which a central controller selected the
20 specific PN code that was used?

21 MR. SCHMID: Same objections.

22 A. The specific PN code that was used,
23 according to the petition, came from Miyake.

24 Q. I'm asking what does Walley
25 disclose?

1 A. Walley discloses nothing --

2 MR. SCHMID: Object to form.

3 A. -- about how orthogonality would be
4 maintained in its PN codes, which is
5 fundamental to code division multiple access.

6 Q. Again, I'm not asking you about
7 orthogonality.

8 I'm asking specifically about
9 whether any of the PN code selection decisions
10 that we've discussed thus far, with respect to
11 Walley, discloses a situation in which a
12 central controller selected the specific PN
13 code that was used? And again, I'm asking with
14 respect to Walley.

15 MR. SCHMID: Object to form.

16 Compound.

17 BY MR. KAPADIA:

18 Q. You can talk about combinations
19 afterwards. I'm asking with respect to Walley.

20 A. Walley is silent on how PN codes are
21 assigned and how orthogonality would be
22 maintained.

23 Q. Is -- are you making a distinction
24 between selection in assignment, because I
25 asked you about PN code selection decisions?

1 MR. SCHMID: Object to form.

2 A. It would be helpful if you would
3 tell me what your distinction is between
4 selecting and assignment, because I don't
5 understand the question.

6 Q. I mean, we just discussed an
7 embodiment in which PDA 1001 could instruct the
8 base unit 1011 as to which PN code was the
9 minimum side needed to accurately receive the
10 messages.

11 MR. SCHMID: Object to form.

12 A. I see that. And there's
13 insufficient context because there's nothing
14 that explains how orthogonality is maintained
15 in Walley.

16 Q. Okay.

17 Could orthogonality be maintained by
18 a manufacturer of the devices?

19 MR. SCHMID: Object to form.

20 Foundation. Scope.

21 A. Manufacturer of what devices?

22 Q. If the devices in this spread
23 spectrum system were each assigned and
24 manufactured on a unique code, would that
25 maintain orthogonality?

1 MR. SCHMID: Same objections.

2 BY MR. KAPADIA:

3 Q. If the manufacturer assigned a
4 different code to each device?

5 MR. SCHMID: Same objections.

6 A. I'm unclear as to the question
7 because the patents we were discussing and the
8 petitions all relate to a unique user code.
9 And it's unclear to me how you can change code
10 lengths and manage orthogonality of encodes,
11 which is a requirement for CDMA, unless
12 whatever system makes use of the circuits in
13 Walley would have some way of doing that, and
14 the only way that's been proposed is Miyake.

15 Q. Well, you said that Walley was
16 silent. And I'm asking you if this is one
17 possibility?

18 MR. SCHMID: Object to form.

19 A. If what is one possibility?

20 Q. An assignment of a unique code to
21 each device of Walley?

22 MR. SCHMID: Same objection.

23 A. I think I've already answered that
24 question in the context of user codes, which is
25 what's relevant to the patents and relevant to

1 the petition and the declaration. Those
2 assignments didn't come from Walley. They came
3 from Miyake. That's what the petition says. I
4 was asked to rebut the petition.

5 So I'm not sure why you're
6 constraining me to Walley, but there's no
7 mechanism in Walley to manage orthogonality of
8 PN codes that are disclosed and allows the PN
9 code to go down to one, so it's, you know, it's
10 not something that would be part of the
11 circuit, that would be part of the system. And
12 that's why both myself as well as the petition
13 and Mr. Davies, you know, pulled in Miyake.

14 The only problem with that is Miyake
15 uses central control to manage the assignment
16 of those codes and maintain modulation --
17 orthogonality of those codes and its system.

18 I mean, it's not a problem. It's
19 just the reality. And that's why Miyake and
20 Walley don't combine to make the patents, the
21 Woolfork patents obvious.

22 Q. I'm only asking you about what
23 Walley discloses, and because you injected that
24 with your own declaration. So you said that
25 it -- that Walley requires central control to

1 maintain orthogonality, so I'm asking you if
2 there's another way of doing it.

3 And instead, you are not answering
4 my question, so I'll ask you the question
5 again.

6 In paragraph 59 of your declaration,
7 you state: Walley does not teach a one-to-one
8 relationship and requires central control to
9 maintain orthogonality.

10 Do you see that?

11 A. Yes, I do see that.

12 Q. What I'm asking you is: Instead of
13 central control, could a manufacturer assign a
14 unique code for each device of Walley?

15 MR. SCHMID: Object to form.

16 Foundation. Scope.

17 A. I don't see how that would be
18 relevant to the patent claims or the petition.

19 But to answer your question as best
20 I can understand it, Walley makes no effort to
21 maintain orthogonality because it's completely
22 silent and goes to the extreme of allowing the
23 code to be so small that you would have no
24 orthogonality. And that's because it's a
25 circuit that's intended to be used in different

1 apparatuses by a manufacturer.

2 And it would be that manufacturer,
3 that I think you are referring to, that would
4 incorporate that within an additional -- within
5 a device, that a Miyake is a base station that
6 assigns the codes and maintains the
7 orthogonality.

8 Q. Again --

9 A. Everyone is going to a different
10 source because it's not in Walley. And that's
11 what I'm explaining here in my paragraph 59.

12 Q. I'm not saying that it's in Walley.
13 I'm asking -- you say -- you're the one who is
14 saying that Walley requires something.

15 And I'm asking you if it could
16 instead, since you said that it's silent as to
17 how it maintains orthogonality, I'm asking you
18 if Walley could maintain orthogonality by a
19 manufacturer's specified code?

20 MR. SCHMID: Object to form. Scope.
21 Foundation.

22 A. The only way I can think of that
23 Walley could maintain orthogonality without a
24 central control is if Walley had had the
25 benefit of reading the disclosures and claims

1 of the Woolfork patent. Because that's where
2 independent CDMA comes through. Walley has no
3 disclosure about independent CDMA.

4 Someone at the time of Walley, based
5 on the disclosures of Walley alone, would
6 understand that it would be a system with a
7 central controller, to the extent that CDMA was
8 used in a way that assigned orthogonal codes
9 and maintained that orthogonality.

10 Q. Did the definition of independent
11 CDMA come from the disclosure in the 2003
12 application?

13 MR. SCHMID: Object to form.

14 A. I think I made it very clear that it
15 came from what I was assumed, which I believe
16 came from the court claim construction order.
17 But I -- I -- you probably know better than I
18 do. So that was back in -- in my declaration,
19 but it's in the petition and other declaration
20 and probably in the patent response. I don't
21 remember.

22 I at least know that unique user
23 code did, and I believe that the independent
24 CDMA also came from a court --

25 Q. Okay.

1 A. -- order, but I could be wrong about
2 that. But that's what I've assumed. So that's
3 where the definition came from.

4 Once you have a claim construed, my
5 understanding is I, as a person of ordinary
6 skill in the art or expert, don't have the
7 freedom to deviate from what that term means.

8 Q. Okay.

9 Does the phrase orthogonal variable
10 spreading factor appear in the text of Walley?

11 A. No.

12 Q. Okay. All right.

13 A. I should have said, I really don't
14 think so.

15 Q. If it did, you probably mentioned
16 it.

17 A. My belief is, no -- yeah, exactly.
18 Thank you.

19 Q. And Walley was filed on June 3rd,
20 1999?

21 MR. SCHMID: Object to form.

22 A. If you asked me a question, I will
23 look to see these cover page --

24 Q. Was Walley filed on June 3rd, 1999?

25 MR. SCHMID: Object to form.

1 A. That's what it says on the cover
2 page, filed June 3, 1999, for Walley,
3 Exhibit 10.

4 Q. Okay.

5 Can you pull up Miyake and turn to
6 column nine.

7 Are you there?

8 A. Sorry, just that that exhibit was at
9 the bottom. Now I'm on Exhibit 11, which is
10 Miyake.

11 Q. Yup.

12 Are you there?

13 A. Yes, I thought I said I was. Yes,
14 I'm there.

15 Q. So starting from the top, roughly
16 halfway through the top line, do you see where
17 it starts: In modulator 71, modulates a
18 carrier signal having an appropriate frequency
19 by a transmission signal, for example, e.g.,
20 digital data or analog signal using e.g., a
21 digital modulation scheme such as PSK.

22 A. Yes, I see that.

23 Q. Is DPSK a form of PSK?

24 MR. SCHMID: Object to form.

25 A. I actually don't, off the top of my

1 head, recall what PSK is. But if I said it in
2 my declaration, that'll refresh my memory.

3 I don't think I referred to that in
4 my declaration.

5 Q. So you don't know if differential
6 phase shift keying is a form of phase shift
7 keying?

8 MR. SCHMID: Object to form.

9 A. Off the top of my head, I don't know
10 what PSK there in that line is intended to
11 refer to. It's not something that I had
12 analyzed previously.

13 Q. Okay.

14 So if -- do you know what phase
15 shift keying is?

16 MR. SCHMID: Object to form.

17 A. It's not a version that I'm used to
18 seeing, so that's what I was trying to answer
19 already. And I don't know how Miyake is using
20 that term, phase shift keying. I just don't
21 immediately have any recollection either of
22 that -- maybe look that up.

23 Q. Is differential phase shift keying a
24 digital modulation scheme?

25 MR. SCHMID: Object to form.

1 A. Differential phase shift keying is a
2 modulation that uses differences in a string of
3 bits --

4 (Reporter clarification.)

5 A. I usually stay up pretty late, so
6 I'm good.

7 And it uses the -- basically it keys
8 on the differences between prior -- the prior
9 bit, if you will, from the current bit.

10 But the phase part of it means it's
11 really doing that by altering the phase that
12 would correspond to that difference.

13 Q. And how is it altering the phase?
14 Is it altering it by 180 degrees?

15 MR. SCHMID: Object to form.

16 A. In differential phase shifting or on
17 this PSK thing?

18 Q. Differential.

19 A. I don't remember what the actual
20 degrees are, but it is -- it is doing it as a
21 difference. And when there's one bit involved,
22 then it would make the most sense for it to be
23 180 degrees difference between the phases
24 because that would give you the most
25 separation.

1 Q. Okay.

2 So sitting here today, you don't
3 know if when it's -- when Miyake says that
4 modulator 71 modulates a carrier signal using
5 e.g., a digital modulation scheme such as PSK,
6 you don't know if that inherently discloses
7 DPSK?

8 MR. SCHMID: Object to form.

9 A. That's not something that I looked
10 at or considered. And I'm unclear on what
11 Miyake means by PSK, because this isn't
12 something that was in the petition or
13 declaration or that I relied upon for my
14 declaration. I have no recollection of that.
15 If it's in there, it would be a big surprise to
16 me.

17 Q. Okay.

18 A. I've been surprised before, but I
19 would be really, really surprised.

20 Q. All right.

21 Does Walley disclose a code tree?

22 MR. SCHMID: Object to form. Scope.

23 A. Walley, in its circuit, that doesn't
24 disclose how codes are assigned or how
25 orthogonality is maintained. And so that would

1 include the biggest issue in this combination
2 that's proposed, which is that when you shorten
3 codes, you invariably create orthogonality
4 problems.

5 So even though in the background
6 section it says, PN codes are orthogonal,
7 that's an assumption that doesn't carry through
8 if you start shortening or changing the links
9 of codes.

10 Q. But it doesn't ever recite the
11 phrase, code tree?

12 MR. SCHMID: Object to form.

13 A. Correct. That -- well, I would be
14 surprised if it -- if it did. Because we've
15 already gone through some areas where Walley
16 comprehends that things aren't orthogonal.

17 We switched back to Walley. I have
18 Miyake in front of me. Did you want me to
19 get --

20 Q. No, that's fine.

21 MR. KAPADIA: I think we can take a
22 break right now. I might just be done.

23 THE WITNESS: How long of a break
24 would you like?

25 THE VIDEOGRAPHER: The time is 6:46.

1 We are off the record.

2 (Recess is taken.)

3 THE VIDEOGRAPHER: We're back on the
4 record. The time is 6:52.

5 MR. KAPADIA: All right. No further
6 questions.

7 MR. SCHMID: I don't have any
8 redirect for the witness either.

9 THE VIDEOGRAPHER: Time to go off
10 the record. The time is 6:53. We are off
11 the record.

12 (Time Noted: 6:53 p.m.)

13

14

15

16

DR. JOSE LUIS MELENDEZ

17

18 Subscribed and sworn to before me

19 this day of 2026.

20

21

22

23

24

25

C E R T I F I C A T E

[illegible]

I, LISA M. MURACO, a Notary Public
within and for the State of New York, do
hereby certify:

That DR. JOSE LUIS MELENDEZ, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage; and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto
set my hand this 22nd day of August, 2026.

Lisa M. Muraco

LISA M. MURACO

1

2

I N D E X

3

4

WITNESS

PAGE

5

DR. JOSE LUIS MELENDEZ

6

MR. KAPADIA

7

7

8

E X H I B I T S

9

DESCRIPTION

PAGE

10

Exhibit 1-6, premarked

8

11

12

Exhibit 7, first 20 pages of
Exhibit 1005 from IPR 2025-01516

58

13

14

15

Exhibit 8, Exhibit 1004 from IPR
2025-01516

62

16

17

Exhibit 9, Exhibit 2001 from IPR
2021-00284, which is for U.S. patent
number 10468047

149

18

19

20

Exhibit 10, Samsung Exhibit 1015 and
IPR 2025-01516

160

21

22

23

Exhibit 11, Exhibit 1016 from IPR
2025-01516

161

24

25

1

2

ERRATA SHEET FOR THE TRANSCRIPT OF:

3

Case Name: Samsung Electronics CO., LTD. V.
One-E-Way, Inc.

4

Dep. Date: THURSDAY, AUGUST 20, 2026
Deponent: DR. JOSE LUIS MELENDEZ

5

CORRECTIONS:

6

Pg.	Ln.	Now Reads	Should Read	Reason
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Signature of Deponent

21

SUBSCRIBED AND SWORN BEFORE ME

22

THIS ____ DAY OF _____, 2026.

23

24

25

(Notary Public) MY COMMISSION EXPIRES: _____

WORD INDEX

< 0 >

0 21:2**000** 8:21 21:3, 22

38:13 40:11, 18

75:19 77:5

003 20:1**01540** 6:18**01541** 6:18**027** 69:18, 22**047** 8:8, 11 9:21

16:22 17:2, 7, 15, 19,

24 18:2, 12, 13, 19, 23

20:4, 15, 19, 25 21:1,

14, 20 23:7 27:16

38:12 59:1 75:18

77:5 83:11 86:10

87:12 136:10 144:19

062 39:21, 24 40:7,

13

< 1 >

1 8:3, 6 9:13 16:11

21:15 29:13 55:24

56:6, 11 63:8 69:12

73:10 97:23 98:2, 3

107:22 144:18

166:20, 21 167:13

209:4, 18, 19, 20

220:18 253:1 254:1

1,307 67:6**1:48** 107:17**10** 16:22 21:10

29:15, 19, 24 69:18,

22 90:14 160:20, 21

209:11, 12, 18 226:15

232:23 246:3 253:1

254:1

10,468,047 1:12**10:41** 55:15**10:54** 55:19**1001** 234:20 236:19

239:7

10017 3:7**10027391** 62:3, 12

77:14

1004 62:16, 19 63:3,

7, 8 253:1

1004-0001 63:5**1005** 58:17, 20, 24

59:24 60:2, 10, 25

64:7, 13, 16 66:5

67:4 77:17 101:8

134:11 253:1

1009 234:25 235:4**1011** 234:9, 12, 21

236:20 239:8

10129627 7:18 9:7

20:2

1015 160:21, 25

253:1

1016 161:5, 8 253:1**1022** 126:15**1037** 63:20 65:2

67:11 134:11

10468047 7:13 9:5

149:17, 21, 24 253:1

10648012 60:3**11** 63:12, 20 64:2

161:7, 8 173:2 175:5

212:14, 21 213:25

214:1, 9, 14 215:4, 10,

16 217:5 233:9

234:5 235:5 246:9

253:1 254:1

12 73:13 174:25

175:10, 17 215:19, 20

217:12 223:17

233:16 234:23 235:6

253:1 254:1

12:35 107:14**13** 30:21, 25 55:25

56:10, 11 64:20

181:7 203:8 216:5,

23 217:12 253:1

254:1

14 144:12, 14, 17

151:2 203:8 216:6,

24 217:12 233:16

253:1 254:1

149 253:1**15** 16:12 19:25 20:1

21:8, 25 22:1 24:22

64:15, 22 65:4 66:5

192:5, 6 216:6

217:12 223:17 253:1

254:1

1516 202:24**1540** 8:16 24:22**1541** 24:22**16** 24:22 253:1

254:1

1-6 8:4 253:1**160** 253:1**161** 253:1**17** 181:7 213:1, 2, 6,

16, 21 253:1 254:1

18 39:14 91:11 98:7,

9 187:2 253:1 254:1

180 248:14, 23**19** 39:20 40:15 74:2,

6 91:11, 15 98:7, 9

253:1 254:1

196 62:24 67:25

70:21 71:4 78:13

79:11

1978 44:13**1980s** 85:10**1990** 47:19**1990s** 151:18**1994** 43:25**1997** 45:8 46:18**1999** 245:20, 24

246:2

< 2 >

2 9:13 21:7, 17

29:13 39:11, 14 40:2

165:9 167:13 168:2,

3 219:18 220:20

253:1 254:1

20 1:17 2:3 5:2

13:9 58:17, 19, 23

60:7, 10 90:15

107:25 134:13 135:9

182:14 202:12

231:24 253:1 254:1

2000 104:20**2001** 44:22 75:21

76:14, 19 77:4, 14, 19

79:10, 15, 19, 21

81:13, 20 85:21

86:18 90:6, 13 92:4

95:25 102:10, 16, 18

103:2, 3, 6 104:3, 4

106:12, 19 142:8

149:16, 22 253:1

2002 72:22**2003** 32:17 33:13

34:9, 22 59:8, 16

60:4, 12, 15, 20 61:4,

7, 15, 17 63:14 64:17

65:15 66:7, 15, 21, 25

67:13, 17, 23 69:2, 3

70:1, 8 77:16 78:11,

21, 22 79:10, 15, 20

80:5, 25 81:13, 20

92:20 93:4, 14 94:5,

25 96:25 97:5 98:21

99:7 100:18, 20

101:9 103:8 107:3, 5

114:6, 22 116:20

118:6 120:15 133:11,

15 134:1 135:3, 10,

17 137:22 138:10, 14

141:10, 17 142:9, 15

244:11

2005-ish 72:24**201** 219:20**2011** 42:17 52:19

54:13

2015 43:11 52:19**2016** 20:1**2017** 43:22 52:20**2018** 44:9 52:20**2019** 44:19 52:20**2020** 45:7 46:18, 24**2021** 46:15, 17, 21**2021-00284** 25:2

149:16, 23 253:1

2021-00285 25:8**2022** 46:15**2023** 47:14 52:21**2024** 51:8 52:21

54:20

2025-01516 5:9 7:12

8:10 58:18, 20 62:17,

19 160:22, 25 161:6,

9 253:1

2025-01540 7:17 8:18**2025-01541** 7:23 8:23**2025-0516** 6:18**2026** 1:17 2:3 5:2

251:19 252:21 254:1

203 219:21**209** 219:22**21** 20:1 63:25 77:13,

19 253:1 254:1 217 219:25 219 220:1 22 253:1 254:1 22nd 252:21 23 224:16 225:3 253:1 254:1 24 47:19 166:23 253:1 254:1 242 20:1 25 165:9 168:2 253:1 254:1 26 60:4 61:7 27 202:20 203:4 28 209:3, 20 29 185:4 2C 73:16 < 3 > 3 9:13 29:13 30:4 40:12 63:12 64:2, 12 65:1, 2 66:4 134:10 246:2 253:1 254:1 3:15 150:9 3:29 150:13 31 82:17, 20 83:21, 23 87:17 32 83:23 34 40:16 91:4, 6, 9, 10 97:13 98:1, 16 99:8 100:5, 21 101:13 193:10 35 97:14 98:1, 16 99:8, 20 100:21 350 3:13 37 67:6 38 108:1 139:8 142:12, 25 165:9 168:2 39 121:2 391 69:18, 22 3C 73:11, 14 3G 104:20 3rd 245:19, 24 < 4 > 4 9:3, 4, 13 19:8 30:22 31:2, 5, 7 55:25 136:9 144:13	198:21 202:6 253:1 254:1 40 126:11 128:8 129:20, 23 41 133:3 42 133:10 142:13, 25 424 190:3 43 184:15 44 184:22 45 225:9 46 225:12 47 182:14 48 168:3 198:20 232:23 < 5 > 5 9:3, 6, 13 31:19 134:10 253:1 254:1 5:25 208:21 5:31 208:25 50 167:2, 14 5185766 47:17 50:14 518577 47:15 54 198:12 202:7 220:16, 19 57 210:1 221:18 226:13, 16 57717 1:25 58 168:4 253:1 59 164:18 242:6 243:11 < 6 > 6 8:3 9:3, 8, 14 63:9 192:9 195:5, 7, 12, 13 198:6 201:12, 13 253:1 254:1 6:46 250:25 6:52 251:4 6:53 251:10, 12 60 100:6 136:14 226:10 61 233:13 234:5 62 192:9 253:1 627 8:17 20:6 21:11, 21 22:4 38:12 39:10 40:6 75:19 77:5 62A 192:14 62B 192:20 193:2	195:25 196:9 62C 196:10 62D 192:20 193:3 195:25 196:11 62E 193:1 195:17, 18, 24 196:16 63 19:13 136:16 193:7 196:2, 4, 15 197:10, 20 198:22 64 193:15, 19 235:6 64B 193:23 194:13 64C 194:2, 12 64E 194:2, 12 64F 194:7, 10 65 194:14 198:22 66 38:8, 9, 16, 18 < 7 > 7 32:7 58:16, 19 59:12 60:19 61:8 63:11 64:14 69:12 80:15, 20 81:23 82:13 88:25 93:6 133:19 174:25 187:2 193:15 195:4 201:12, 13 253:1 254:1 7000 3:13 71 246:17 249:4 78731 3:14 7A 32:11, 15 39:9, 16, 17 < 8 > 8 62:15, 16, 22 67:25 69:5, 21 70:2, 10, 22 150:21 198:12 218:4, 7 222:23 253:1 254:1 801 218:10 80211 146:15, 21 147:1 803 218:11 219:2 805 218:8 807 218:9 811 222:15 813 222:16 815 222:17 82 184:23 827 222:15	85 183:12 185:5 86 185:6 87 185:6 88 185:6 89 184:14, 20 8B 35:7 166:17, 24 8-bit 225:24 226:8 228:17 230:1, 5 232:5, 16 233:1 < 9 > 9 16:12 37:17, 22 39:5 63:20 73:12 149:13, 22 150:16 166:5 184:6 186:9 187:6, 19, 24 188:3, 16, 20 189:11, 14, 19 190:12, 14, 20 191:2, 6 221:24 222:23 225:7 226:21 232:22 253:1 254:1 9:00 2:4 9:22 5:3 90 184:24 226:21 910700 7:24 9107000 9:9 915 226:14 917 226:20 95 151:19 < A > a.m 2:4 5:3 ability 112:16 123:8 124:18 125:9 able 123:25 124:7 142:2 188:17 absence 38:19 116:19 145:11 169:8 absent 49:12 82:1 Absolutely 153:1 abstract 63:14 65:11 163:19 212:12 AC 147:1 accept 54:7 59:3 174:10 211:18 access 51:11 54:25 147:20 158:3 160:7 164:10 167:18 204:1 238:5
--	--	--	---

accomplish 86:9	aim 92:17	answered 26:16, 25	63:14 64:18 65:15,
accomplishes 180:24	aims 87:15	29:10 57:20 81:18	20 66:21, 25 67:13,
accurate 59:25 64:2	air 114:11 115:14	89:6 92:6, 11 97:9,	17, 23, 24 69:3, 22
81:24 128:10 132:17	al 43:14, 25 54:15	10 106:22 114:5	70:1, 9 72:11 75:22
accurately 41:9, 20	150:18	119:12 142:21	76:7 77:14, 15, 16
82:4 181:12, 20	Alexander 26:17	145:25 148:13 150:5	78:5, 11, 21, 23 79:12
236:22 239:9	align 119:2	178:22 179:4 221:13	80:6, 25 81:4, 11, 15
achieve 89:17	allegations 189:24	230:22 240:23	92:20, 24 93:4, 14, 23
action 252:17	alleged 233:6	answering 36:25	94:6 95:24 97:1, 6,
actual 75:20 165:24	allegedly 190:5	165:12 173:20 211:6	18 98:21 99:8
206:22 230:13	alleging 190:21	242:3	100:18, 20 101:9, 13
248:19	allocation 203:23	answers 10:19 11:11	103:9 107:3 114:22
ADCs 105:16	allow 106:3	antenna 101:25	116:20 118:6 133:11,
add 83:17 119:25	allowed 78:7	102:2, 6, 7 118:5	15 134:1 135:3, 10,
121:4 122:21	allowing 242:22	220:1, 2	17 137:23 138:10, 15
added 144:7	allows 208:15 241:8	anticipates 71:4	141:10, 18, 20 142:9,
adding 120:18	altering 248:11, 13, 14	anticipating 162:25	16 143:6, 9, 11, 15
121:11, 14, 20 123:24	alternative 91:25	anybody 126:10	173:9 219:16 244:12
124:6 156:2	amended 66:6	215:17	applications 92:16
addition 123:12	amendments 61:16,	apart 111:14	94:3 105:9 106:16
157:6 176:18, 23	25	apologies 75:15	107:5 148:1
177:1	analog 105:16 246:20	144:16	application's 134:23
additional 82:10	analysis 24:25 31:16	apologize 87:22 91:3	applied 78:9 145:7
90:23 243:4	67:1 78:19 79:6	114:22 128:4 231:21	apply 80:12, 14, 19,
additionally 230:6	80:15, 19 81:20, 24	apparatus 213:6, 17	23 178:20
address 6:11 159:19	96:10, 15, 24 107:1	214:2, 6, 9, 14, 22, 23	appreciate 174:18
adds 120:8 123:17	118:10 131:21	215:3, 4, 9, 21, 24	approach 102:10
adjusts 222:14	132:19, 25 163:18	216:8, 17 217:2, 11	143:7
administer 4:12	188:17 194:25 198:4	219:7, 10, 11, 13	appropriate 246:18
administers 6:2	analyze 66:15 183:15	220:6 223:18, 23, 25	approximately 82:16
administrative 28:3	analyzed 187:21	224:4, 5	225:3
advanced 44:11	247:12	apparatuses 243:1	April 47:19
advantages 104:15	and/or 148:7	apparently 67:6	arbitrary 158:8
affixed 134:20	answer 10:25 11:7, 8,	APPEAL 1:2	architecture 91:8, 20
ago 12:14 49:8	14 24:10 53:2, 5	appear 31:13 32:3	92:9 99:9 100:22
93:18	54:9 68:20, 23 72:17,	33:5 38:23 245:10	architectures 83:7
agree 65:13 69:25	18 80:24 87:4 88:21	appearances 5:19	85:5 86:21
70:5 124:6, 20, 24	97:15 99:17 101:4	appears 34:3, 18	areas 250:15
125:6, 18 175:21	104:14 109:19	35:6 36:4 59:15	argued 45:14
179:8, 10, 14 182:21	110:24 113:18	173:8 217:1	argument 15:22
183:9, 14 194:19	117:20 119:15, 16, 20,	appellate 58:9	71:16
199:8 210:7, 10	23 122:14 124:14, 15	Apple 25:14 26:13,	arguments 10:14
232:3, 14 235:14, 19	132:24 133:21 134:9	23 28:24 29:5	47:12 71:10 183:24
AGREED 4:1, 5, 9	142:22 152:22 155:7	applicant 17:18, 25	arranged 198:15
179:9	165:14 173:6, 24	18:11 61:2	arrive 109:10
agreement 13:2, 3	175:23 180:12 182:6,	application 19:13, 22,	art 31:20 37:5
agrees 102:11	7, 11 188:17, 24	25 32:18 33:13 34:9,	50:20 74:13, 20 75:6
ahead 162:18 170:18	189:5 215:2 229:10,	23 59:8, 16, 22 60:3,	79:3, 18, 20, 23 81:3,
208:6 210:4 234:1	17 230:13 232:7, 21	11, 12, 16, 20 61:1, 3,	10, 12 83:11 96:11,
	242:19 247:18	4, 5, 7, 15 62:2, 11, 25	17 103:10, 18 107:10

139:2 141:22 142:11 151:9, 14 154:25 156:5 158:25 160:6 168:7 170:24 172:2 173:14 174:14 178:1 180:11, 17 181:1 182:8 205:22 210:22 230:17 231:5, 10 245:6 article 51:12, 17 53:14 54:14, 21 articles 54:4 articulate 44:16 articulated 171:11 arts 48:20 ascribe 217:24 aside 56:5 68:18 97:23 99:4, 5 124:5 209:8 223:2 224:11 asked 17:22 37:6 53:3 56:9, 14, 19 57:3, 6, 8 58:6 59:17 61:10 62:7, 25 66:19 67:15 68:13, 20 71:1, 10 77:9, 11 78:10 79:5, 7, 10, 21 80:4 87:7 109:17 111:11 112:25 115:25 129:13 130:5 142:21 162:15 163:12, 15 164:5 165:13, 15 172:18 176:14 178:23, 24 209:19 215:3 217:9 232:12, 13 238:25 241:4 245:22 asking 9:23 80:11, 17, 18 83:20 96:15 98:16 110:5 118:23 122:19 163:16 171:14, 15, 16 172:9, 11, 12 173:21, 23 174:12, 15, 16 175:16 179:19 180:8 182:2 183:6 189:3 211:4, 13 214:10 229:9, 14, 19 230:16, 25 231:12, 21 237:24 238:6, 8, 13, 19 240:16 241:22	242:1, 12 243:13, 15, 17 aspect 104:12 aspects 45:18 assign 156:24 207:1 211:21 233:6 242:13 assigned 50:4, 8, 9 154:4, 11 158:15 168:4 169:12 170:24 179:18 185:23, 25 202:2 206:14 228:24 238:21 239:23 240:3 244:8 249:24 assigning 146:12 158:5 163:24 170:21 172:6 178:2 229:4, 8 235:15 assignment 157:16 159:1 170:11, 13 212:6 238:24 239:4 240:20 241:15 assignments 159:20 241:2 assigns 155:1, 11 170:15 171:12 173:17 187:12, 13 235:20 243:6 assistant 233:19 234:6 associated 17:7 198:8 assume 10:25 56:14, 19 57:3, 6, 12 58:6 59:22 135:7, 11 assumed 57:7, 23 58:1, 5, 11, 14 244:15 245:2 Assuming 23:15 assumption 250:7 asynchronosity 148:20 asynchronous 148:15 151:25 attached 42:8, 9, 15 49:19 53:21, 25 attachment 48:1 attachments 44:7 attention 49:1 Attorneys 3:5, 12 4:2 attribute 185:25 192:21 193:24	198:19 200:1, 10, 16, 23 201:11, 19 207:4, 10 attributes 151:20 194:3 audio 45:22 72:9 137:1, 14 184:19, 22 August 1:17 2:3 5:2 60:4 61:7 252:21 254:1 Austin 3:14 author 44:5 authority 161:24 165:6 authorized 4:11 authors 51:12 available 51:4 202:22 Avenue 3:6 aware 15:6 29:4, 11 30:7 31:5, 22 32:4 33:21 36:14 40:20 42:1 57:10 59:18 61:14 66:3, 5 67:22 70:19, 24 80:8 142:7 156:19 186:17 < B > back 17:17, 25 18:10 39:9 47:18 55:18, 22 72:16 107:16, 19 118:7 124:14 144:12 150:12 163:4 175:1 178:21 195:5 199:23 204:4 208:24 244:18 250:17 251:3 background 63:17 65:8 129:22 180:17 205:7, 14 206:9 250:5 backwards 12:14 bad 116:17 117:5, 14 band 203:14 204:10 bandwidth 51:9 54:23 bare 190:5 base 104:20 105:8 106:2 107:1 145:11, 15, 16, 21 146:1 161:22 165:4 167:15, 21, 24 168:1, 9, 11, 14,	15, 20, 23 169:12, 15 171:10, 20 173:17 178:6, 8, 15 185:18, 20 186:4, 5 202:2 225:16, 19, 23 226:7 227:5, 10, 20 228:20, 22, 23 229:3, 25 230:4, 7, 14 232:25 233:6 234:9, 11, 15, 21, 24 235:1, 14, 15, 20, 22, 23 236:2, 10, 12, 16, 20 239:8 243:5 based 27:13 49:5 51:3, 19, 21 52:5 70:21 77:12 81:20 110:18 138:16 141:19 167:16 183:24 210:23 222:14 244:4 basic 178:5 basically 108:16 112:12 117:21 122:24 125:22 130:23 142:1 148:6 157:23 248:7 basis 50:18 97:4, 5 99:9 100:21 158:12 203:15, 24 204:7 206:7 bathroom 202:11, 12 battery 83:17 84:6, 21 86:5 89:19 90:5 92:17 93:20 95:17 96:2 101:24 102:3 106:1, 25 134:12 battery-operated 93:5 beginning 179:1 214:1 begins 198:13 216:2 belief 245:17 believe 6:14, 16 8:13, 19 40:12, 25 41:4 46:17 59:6, 7 60:6 68:4 69:11 73:13 79:4 115:2 132:16 133:19 136:10 150:16 158:13, 18, 25 174:3 208:11 222:1
---	--	--	---

244:15, 23 believed 157:24 bell 61:18 benefit 100:8 243:25 benefits 103:21 104:8 best 112:4 164:14 242:19 better 10:24 14:18 88:21 92:1 95:15 145:19 244:17 beyond 131:10, 12 141:5 156:3 170:1 230:15 big 249:15 biggest 250:1 bind 28:18 bit 49:16 57:9 68:18 88:21 104:25 123:14, 15, 18, 19 159:14 248:9, 21 bits 123:6, 18, 21 124:17 125:8 126:19 127:5 132:11 248:3 Bless 38:14 blocked 220:20 blood 252:17 blue 163:8, 9, 10 BOARD 1:2 170:4 182:12 book 54:5 boss 96:20 bottom 63:4 64:7 173:3 196:3 218:9 233:13 246:9 bounces 118:7 bound 27:15 28:16 boy 35:8 brain 136:3 break 11:2 12:1, 7 55:13 107:11 202:11, 13, 15 208:19 250:22, 23 brief 63:18 65:9 220:18 Briefly 13:13 31:9 bring 231:4 broadcasting 199:2 broader 117:11 build 115:8 burden 170:1	business 105:7 168:17 < C > call 8:7 171:19 called 6:4 72:23 89:15 112:12 calls 236:12 camera 91:1 cancelled 97:16 capacity 226:24 careful 49:14 carefully 155:16 carrier 246:18 249:4 carry 250:7 Case 1:12 5:8 25:18 28:1 78:4 96:8 107:7 109:8 113:5 115:11 118:12 122:12 127:13, 16 180:20 231:11 254:1 cases 86:7 89:14 115:3 catching 40:8 cause 12:1 caused 108:7, 12 109:6, 13, 15, 18 110:1 111:3, 9, 20 114:1, 12, 16 115:4, 23 116:4, 6, 9 117:4, 18 CCR-NJ 1:24 2:10 CDMA 35:13 36:8 84:25 85:1, 12, 13 87:1 88:3, 6, 8 90:4, 8 92:13 94:21 95:6 106:15 114:8 115:6 116:24 117:23 118:7 125:25 126:8 131:17, 19 133:2 141:19 142:7, 18, 24 143:9, 11, 12, 17 144:5, 6, 10, 24 145:21 146:12 147:6, 14, 22 148:15 150:25 151:16, 18, 20, 25 152:20 153:3, 11, 16 156:6 157:5, 9, 14, 25 158:2, 21, 22, 24 159:4, 6, 15, 20 160:3, 9, 12 162:3 168:21,	24 169:7 172:7 173:18 178:8 190:6 204:6, 20, 22, 25 205:4 206:1 210:23 212:24 214:9, 23 215:18 227:14, 22 228:6, 8 237:15 240:11 244:2, 3, 7, 11, 24 center 218:8 centered 64:9 central 145:3, 18 146:5, 11, 16, 22 147:8 153:4, 12, 24 154:8, 16, 22, 25 155:4, 12, 21, 24 156:7, 11, 23 157:7, 18 158:1, 4, 14, 16, 22 160:9 161:22, 23, 24 162:11 165:5, 6, 8, 23 169:9, 11, 15 170:7, 10, 14, 20 203:22 204:21 210:15 211:8, 14, 17, 21 212:2 237:2, 19 238:12 241:15, 25 242:8, 13 243:24 244:7 centralized 152:16 153:7 161:23 165:6 centrally 154:12, 15 168:22 169:1 172:8 187:12 centrals 165:7 certain 19:5 45:17 66:20 81:16 certainly 10:13 21:6 24:5 27:9, 12 42:22 44:6 45:10 48:17, 19 49:21 52:7 72:4, 7 76:4 85:14 86:1 93:1 96:18 103:2 112:5 118:11 144:6 162:9 191:19 certify 252:9, 15 chains 105:2, 11 challenged 71:5 158:15 change 79:24 81:13 87:21, 23 118:20	200:14 207:14, 16 240:9 changed 11:11 79:25 82:3 165:16 202:1 changes 78:7 changing 171:1 250:8 channel 121:10, 20 123:1, 23 125:24 134:12 176:20 177:8, 14 179:3 channels 44:21 characteristics 130:16 characterization 171:16 182:3 characterize 10:10 characterizing 168:10 cheap 90:22 check 164:4 chip 112:21 113:15 114:10, 20 116:17 117:5, 14 123:18 chipping 123:13 Cho 47:22 50:11 choice 91:7, 19, 20, 23, 24 92:8, 18 94:14, 16, 17 choices 103:12 choose 147:7 circle 166:1 circuit 112:13, 17, 19 181:18, 19 184:23 193:1 194:7, 10 195:17, 23 198:15 210:20 211:24 212:5 219:9, 14 220:9 228:5, 11 237:6 241:11 242:25 249:23 circuits 240:12 circumstance 210:21 citation 36:25 37:9, 10 49:9 82:6 101:12 151:8 citations 32:3 37:3, 25 38:2 41:19 68:16 101:10, 12 230:16 cite 42:11 46:17 52:10 97:13, 20 98:5,
---	--	---	---

11 99:7 100:19 170:2 cited 41:19 42:22 43:6, 18 44:25 46:19 48:3 49:3 52:7 55:2 67:12, 17 78:14 206:10 citing 183:3, 4 claim 16:2 24:6 27:25 30:4, 12, 23 31:2 45:12 56:14, 18, 21 136:19, 20 140:6 152:19, 23 155:25 157:2, 3, 8, 13 186:21 187:18, 21, 24 188:16 189:10, 20 190:3, 9, 11, 16, 21 191:1, 18 212:14, 20, 25 213:2, 6, 16, 21, 25 214:1, 9, 14 215:4, 10, 16, 19, 20 217:5, 22 224:5 244:16 245:4 claimed 84:3 86:10 106:5 181:2 213:17 216:8 224:1 claiming 87:22 92:15 claims 38:25 61:5 63:19 64:1 65:11, 14 71:5 86:14 87:3, 16, 24 91:23 92:25 93:2 94:8, 22 104:13 143:8, 16 144:9 157:10 158:15 160:15 162:5 210:11 212:12, 13 216:5, 6, 14, 17, 22 217:2, 12, 19, 24 223:17 242:18 243:25 clarification 128:18 248:4 clarified 103:5 clarify 36:22 41:11 46:9, 13 60:24 64:3, 10 88:23 108:11 171:24 177:18 188:9 clear 52:17 53:8 59:23 68:19 80:17 87:21 88:1 98:20 142:12 143:10, 20 157:11 158:2 162:21	167:15 180:14, 24, 25 231:17, 25 232:1 234:14 244:14 clearly 96:13 97:11 171:11 181:14 close 53:9 91:3 228:14 closed 152:2 164:11 CMI 108:15 CMOS 43:2 53:16 54:16 code 57:12 58:10 87:21, 23 115:8 116:23 147:7, 20 148:2 152:2 153:24 154:5, 7 155:3, 11 157:12 158:2 159:20, 22 160:7 167:18 169:13 175:25 176:1, 7, 8, 19, 20 177:13, 24 178:25 179:2, 11, 12, 22, 23 180:5 185:22, 24 187:16 192:9, 14, 20 193:2, 12, 14, 19, 23 194:2, 8, 12, 13 195:25 196:9, 10, 17, 22 197:17 199:16 200:10, 14, 16, 17, 23, 24 201:1, 5, 8, 11, 12, 18, 25 202:2 204:7 207:1, 3, 4, 5, 7, 10, 11 210:9 211:3 214:17, 19, 20, 21, 24 215:11, 12, 13, 15 216:3, 25 218:9 219:22 222:14 225:24 226:8 227:11, 12 228:2, 3, 9, 17 230:1, 5, 8 232:5, 16 233:1 235:16 236:17, 21, 24 237:3, 10, 13, 16, 20, 22 238:5, 9, 13, 25 239:8, 24 240:4, 8, 9, 20 241:9 242:14, 23 243:19 244:23 249:21 250:11 coded 102:1 108:17 139:9, 19 codes 87:2, 17 88:5 92:14 94:21 146:12, 13 147:14, 21, 23	148:7, 25 149:3 153:22 154:10 155:1 156:24 157:16 158:5 159:2, 21, 23, 25 160:3, 8 163:24 168:5, 25 170:12, 16, 17, 22, 24 171:13 172:6 173:17 177:7 178:2, 17 187:13 192:15, 22 193:24 194:4, 20 198:20 200:2, 22 201:2 211:21 212:7 228:24 229:4, 8 233:7 235:21 237:14 238:4, 20 240:24 241:8, 16, 17 243:6 244:8 249:24 250:3, 6, 9 coding 44:20 45:23 85:18 89:12 90:8 95:3, 5 106:15 114:8, 11 115:14 118:8 119:5 120:1, 5, 8, 13, 16, 19 121:5, 11, 15, 20 122:9, 16, 21, 25 123:24 124:7 126:5 131:18 132:10 135:22 138:6 140:24 141:21, 23 142:4 206:23, 25 coincide 179:12, 23 180:4 collection 44:12 column 136:13, 15 164:16, 22 165:8, 9, 25 166:11 174:25 175:7, 8, 9 181:4 182:15 184:15 191:22 192:2 195:16 198:12 202:9, 21 207:21, 22 218:21 219:1 220:15 221:15, 16 224:12, 13 225:3 226:15 232:23 233:9, 15 234:5, 23 235:5, 6 246:6 columns 115:19 168:2, 3	combination 39:2, 6 190:22 200:19, 23 201:2, 6 250:1 combinational 115:14 combinations 160:18 238:18 combine 201:10 241:20 combined 9:20 combining 112:23 come 37:24 96:8 101:7, 11 109:9 112:6 156:16 200:5 236:7 241:2 244:11 comes 100:11 244:2 comment 85:8 96:18 COMMISSION 254:1 Commoca 72:23 73:8 C-O-M-M-O-C-A 73:8 common 151:20 communicate 138:20 236:11 communicates 234:16 communicating 178:3 communication 43:3, 12, 23 51:11 53:16 54:17 83:1, 15, 24 84:23 85:3 86:17 136:3 144:24 145:22 157:5, 9 158:21, 23, 24 167:17 169:14 177:9 203:12, 13 204:1, 7 Communications 45:8 46:16 54:25 89:19 234:21 company 14:3 72:23 73:6 comparable 67:5 compared 29:6 160:17 comparison 38:19 complete 59:22 completely 147:3 237:10 242:21 completeness 25:7 41:4 complexity 84:2 94:4, 10 106:9
---	--	--	---

component 100:9 213:16 214:5, 14	consideration 93:24 94:10, 11, 13, 14 95:8 96:1, 9, 14	115:5, 21 120:15, 22, 25 123:11 131:5	223:18 226:19 237:2, 19 238:12 244:7
components 101:20 102:11 106:9, 19 168:19 219:6 220:3, 5, 12 221:3	considered 23:20 66:25 67:3 110:4 136:5 141:8 169:19 170:19 188:19 221:23 222:7 249:10	140:6 142:6 143:18 144:23 145:14 146:3, 5 147:16 148:19 152:12 153:9, 21 155:17 157:2, 5, 8 158:14, 20 170:7 201:4 203:20 205:18 208:13 217:22 239:13 240:24	controllers 223:3, 4, 9, 11, 12 224:10 Controlling 213:10, 12
composition 42:13	consist 207:2	continuation 19:25 61:21, 23 62:1, 11 65:21 66:1, 12, 14 69:4, 9, 14 70:1, 17 77:18	convenient 202:14 conversion 32:17 83:7 85:1, 5, 19 86:20 89:13 90:10, 20 95:2 96:3 99:13 102:9, 19 103:11, 20 104:23 106:10, 19 107:2, 7 136:17, 24 178:10
Compound 47:1 52:23 55:6 76:16 77:8 86:24 140:19 162:7 188:11 194:22 216:10 237:5 238:16	consistency 231:16	continuations 66:13	converters 104:24 105:16, 17
comprehends 250:16	consistent 152:23 188:20 229:5 231:6	continue 100:4 141:3 163:11 193:14 234:1	convolution 118:15 123:22 126:6
comprise 181:17	consistently 93:3	continues 198:19 225:15	convolutional 118:18, 19 119:4, 6, 25 120:7 121:4, 9, 13, 18 122:1 123:5, 9, 20 124:16 125:7, 13 133:4 134:13
comprises 192:14 193:18 225:6	consolidated 6:23	contradict 205:2	copies 108:17, 19 109:10 139:12, 19
computer 43:12 226:18, 25	constrained 110:14	control 145:3, 18 146:4, 6, 16, 22 147:8 152:16 153:4, 7, 12, 25 154:8, 16, 23 155:4, 12, 22, 24 156:7, 11, 23 157:7, 19 158:1, 4, 14, 16, 22 160:9 161:22 162:11 164:11 165:5 169:9, 11, 15 170:7, 10, 14, 20 184:18, 22 185:5 204:21 210:15 211:8, 14, 17 212:2 214:18 215:11 216:4, 25 241:15, 25 242:8, 13 243:24	copy 62:18 136:10 149:15 160:24
conceive 148:11	constraining 241:6	controlled 168:22 169:2 172:8	corners 74:11, 18 75:4 96:12
concept 120:4 183:18	constructed 58:5 130:13	controller 161:23 165:5 203:22 211:21 212:21 213:7, 12, 16 214:4, 13, 17, 25 215:5, 9, 11, 25 216:3, 7, 19, 24 217:6, 18, 23 218:1, 8, 10 222:13	correct 7:21 20:20 22:9 23:24 24:1 28:9 32:19 35:14 39:2 41:5, 7 50:14 52:12 59:13 62:10 63:15 68:17 84:7 87:18 97:24 99:14 109:14, 21 117:6 122:25 123:25 124:4, 5 126:22 136:20 137:9 142:18 145:3, 4, 7, 8 150:18 156:11 162:22 171:20 172:16 176:21 177:17 181:24 182:4 186:10, 15, 23 187:6 193:20, 24 194:4 196:18, 25 197:8, 12, 17 199:10 200:19
concepts 66:20	construction 16:2 24:6 27:25 28:4 30:5, 12 57:13 58:12 131:24 144:22 145:2, 6, 10 146:10 152:19, 23 156:1 157:9, 17 159:1 244:16		
conclude 132:2	constructions 30:23 31:2, 16 56:15, 18, 22 57:2, 6, 14, 16, 18 58:4		
conclusion 27:19 69:7 70:4 71:8 74:22 76:24 80:22 88:15 118:1 236:8	construe 132:18 146:9		
conclusions 115:1 205:3 206:18	construed 157:3 245:4		
conditions 11:24	consume 90:11		
configured 136:24	consumption 99:23 100:9 101:21 102:12		
confined 74:11, 17 75:4	contains 151:3		
confirm 21:19 33:25 34:16 36:19 37:2 40:14 59:13	contemplated 83:14 85:15 106:16		
confirms 150:6	contemplates 83:2, 25 84:16		
confused 8:13 175:4	contemporary 84:1		
confusing 94:15 114:23 206:19	content 38:1 67:10		
confusion 177:20	contents 81:1		
connected 73:4 185:5 220:1	context 41:10 42:14 54:8 75:14 78:8 81:2, 15 84:3 85:9 91:23 101:3, 10 106:14 107:4 110:22, 23 114:6, 21, 24		
connecting 194:7, 11			
connects 186:8			
consciously 81:5			
Consequently 82:18, 24, 25			
consider 81:19 117:23 141:9 143:17			

201:12 203:1, 8	152:3 166:2, 7	41:18 42:7, 23 43:6,	definitely 115:11
204:2 205:8, 22, 23	current 82:5 248:9	18, 20 44:4, 25 45:16,	210:10 235:20
206:14 210:18 211:9	currently 12:20	17, 19 46:19 47:7, 8	definition 79:2, 24
214:6 216:8 217:13	cycle 213:7, 11, 15	48:3, 6 49:15 52:2, 8,	81:12 89:1 244:10
219:3, 4 220:1, 6, 11	226:20, 21 237:9	11 55:2 56:1 59:9	245:3
223:5, 13, 19 224:22	< D >	60:12 66:16 68:17	definitively 116:22
225:25 228:3, 20	DACs 105:15	70:14 72:6 78:9, 15	degradation 130:23,
230:8 232:22 236:17,	DANIEL 3:15 5:24	79:9, 17 80:2, 9, 16	24
22 250:13	dash 19:25	81:7 82:3 107:1	degrees 248:14, 20, 23
corrected 127:13, 24	data 19:13, 22 43:12	112:4 117:22 118:11	demodulated 102:7
correction 118:16, 24	44:11 218:9, 11	130:18 138:2, 4, 9, 14,	demodulating 198:14
119:7 122:2, 5	219:2, 20, 21 222:15	24 139:6 141:6, 8	demodulator 181:19
CORRECTIONS	226:18, 24 227:1	142:13 144:18 147:4	demonstrate 88:13
254:1	246:20	148:13, 18 149:18	demonstration 44:11
correctly 133:24	database 161:24	150:17 152:11	Dep 254:1
correlation 149:4	165:8, 24	155:21, 24 163:22	depend 118:12
correlations 152:3	date 5:2 44:5 76:14,	166:18 169:6 172:4,	154:4 169:6
correspond 248:12	19 79:15 80:10, 11,	23 174:24 183:21	depending 135:25
corresponding 26:23	14, 19 254:1	184:4 187:14, 23	depends 145:14
cost 86:6 90:4	dates 76:8 79:6	188:14 189:13, 21	146:1
92:17, 19 93:4, 7, 14,	Davies 15:11 16:5	190:4, 7, 14 191:2, 8	Deponent 254:1
15, 17, 24 94:9 96:8,	26:20 45:14, 18 47:7	198:7 200:8 202:21,	deposed 6:17
13, 21 97:4 98:13	155:20, 23 187:10, 15	25 210:25 216:16	DEPOSITION 1:15
99:10, 23, 25 100:10,	241:13	222:10 241:1, 24	2:7 4:10 5:5, 10
22 101:21	day 68:13 251:19	242:6 244:18, 19	7:10 11:9 13:7, 21,
costs 95:7, 18 96:1	252:21	247:2, 4 249:13, 14	22 14:14, 21 230:21
102:13	days 13:8 231:24	declarations 9:19	252:11, 13
could've 72:9 144:7	deal 126:4	13:24 15:1 23:24	describe 185:15
Counsel 5:18 9:16	December 77:13, 19	24:17, 21 25:24 26:3,	210:21 234:5
11:5 13:14 14:1	decide 28:9 71:18	4, 19, 21 27:2 30:8,	described 131:13
15:12 71:17	decided 222:22	15, 18 31:6, 24 32:20,	168:1 171:10 178:12
count 115:13 125:24	decides 232:4, 15	23 33:19, 24 34:6, 13,	181:14 185:21
COUNTY 252:5	decision 227:19	21 35:1, 17 36:13, 15	217:18 228:6 229:4
couple 12:12	228:19	37:18, 22 40:21	235:15
Court 4:14 5:14, 15,	decisions 236:25	42:17 49:4 56:5	describes 180:23
16 12:19 16:8 26:23	237:17 238:9, 25	60:16 67:18 145:7	211:2 222:13 233:18,
28:18 58:8, 9 244:16,	declarant 157:24	declaring 235:25	25
24	158:11 183:23	decode 139:3 140:23,	describing 162:10
cover 245:23 246:1	189:18, 25 190:2, 20,	25 142:2 148:8	205:10
covered 23:9 122:5	25 191:18 198:5	decoding 114:11	description 63:18, 19
CPU 183:10, 18	213:24	141:24 142:5	65:10 73:18 74:17
CPUs 183:18	declarant's 154:20	deep 126:21 127:7	75:3, 17 76:4, 5, 22
create 116:15 119:3	191:10 216:16	128:17 130:9, 15	77:3, 20 80:3 89:8
132:5 135:24 156:13	declaration 8:7 9:21,	131:7, 14, 21, 22	107:3 134:24 166:5
250:3	22 10:1, 13 12:13	132:4, 14, 19, 21	195:3 203:19 205:21
created 156:9	14:13 15:18, 22 19:6	defer 76:9	218:16 220:18, 19
creating 84:20	21:4 22:13, 14, 22	define 130:12 148:24	236:9 253:1
cross 111:25 112:10,	24:13 25:4, 16 26:11	defined 17:6 95:22	design 43:24 44:11
12 116:18 149:3	27:10, 23 39:10	147:12	85:16 86:2 96:20
			98:13 99:25 103:7,

12 114:10 116:18 117:5, 14 designated 17:10 designed 71:21 72:1, 3, 13, 19 79:25 85:25 86:18 87:14 103:1 105:4, 20 112:13 designing 72:5, 8 96:6 103:13 104:20 designs 99:24 100:10 101:22 102:13 desired 112:15 detail 154:21 detailed 63:19 65:10 details 12:22 detection 43:24 determination 155:19 208:15 determine 66:19 determining 199:16 developments 43:1 53:15 54:15 deviate 245:7 device 73:3 94:24 106:1, 8 147:6 155:4, 8, 10, 11 169:1, 13 170:15, 17 182:22 185:6, 10 186:8 197:7 199:17 200:18 201:10 219:7 220:6, 13 221:4 223:13, 22 224:3, 5 235:16 240:4, 21 242:14 243:5 devices 148:4, 5 156:25 169:13 171:7 172:7 220:10, 14 223:5 239:18, 21, 22 diagram 220:21 diagrams 119:1 dictates 155:3 differ 177:8 difference 31:22 37:9, 10 38:5, 15, 17 70:16 79:1 119:14 248:12, 21, 23 differences 9:25 10:4, 11 29:4, 11 30:8 31:4, 21 32:2, 5	36:14 37:21 76:1 80:10 90:1 248:2, 8 different 6:17 15:7 28:24 33:1 37:7 49:17 55:10 64:4 84:6 90:14 93:12 109:11 110:12, 13 111:17 116:10 118:20 123:22 140:16 156:25 165:14 176:13, 20 177:13 178:17, 23 179:2 189:4 192:21 194:3, 20 197:16 199:2 203:24 214:10 218:1 219:15 220:10, 14 223:24 231:14 240:4 242:25 243:9 differential 33:9, 12 83:9 89:12 247:5, 23 248:1, 16, 18 differently 84:8 Digital 43:23 102:2, 5 105:15, 16 123:19 139:9 233:19 234:6 246:20, 21 247:24 249:5 diminish 126:20 127:6 132:13 DiNOVO 3:11 5:25 direct 9:25 32:16 83:6 85:1, 4, 19 86:20 89:13 90:9, 19 95:2 96:3 99:13 102:9, 19 103:10, 11, 20 104:23 106:10 107:2, 7 136:17, 23 176:25 178:10 directed 82:25 182:17 215:20 216:14 disagree 126:10 152:6 180:1 230:11 disclose 85:4 89:21 205:4 232:12 237:1, 18, 25 249:21, 24 disclosed 66:20 81:17 89:10, 17, 23 92:16 106:16 107:5 118:5 121:18 141:10,	11 142:6 155:18 157:25 162:3 165:8, 11, 17 169:23 173:16 182:4 183:23 190:6 228:25 231:9, 13 241:8 discloses 138:10, 15 170:21 200:21 219:14 229:24 230:3, 6, 15, 23 231:21 236:15 238:1, 11 241:23 249:6 disclosing 182:21 230:20, 24, 25 Disclosure 32:16 33:9, 11 34:7 65:11 82:25 86:12 118:13 138:5 142:14 151:4 159:18 206:24 236:10 244:3, 11 disclosures 67:13 78:22 89:14 103:8, 19 107:5 141:17 210:24 243:25 244:5 discreet 90:20 discuss 122:7 208:8 discussed 40:22 52:18 54:21 65:21 86:20 94:20 123:2 136:6 178:9 223:4, 9 236:25 237:17 238:10 239:6 discussing 29:7 41:15 70:20 71:6 75:18 77:5 93:14 132:20 232:3 240:7 discussion 144:5 206:24 disgruntled 103:16 displaced 108:17 display 185:6, 10 dispute 56:21 57:2, 18 58:13 144:9 187:12 disputed 100:12 disputing 57:24 dissect 125:20 distinction 78:25 90:2 238:23 239:3 distributed 123:21	District 12:19 16:8 26:23 28:18 58:7, 8 division 147:20 158:3 160:7 164:10 167:18 203:25 213:12, 13 216:23 238:5 Document 16:18 18:24 20:25 21:13 22:2, 17 30:24 31:12 32:1, 12 33:4 34:2, 17 35:5, 22, 25 36:3, 21 38:4, 19, 22 39:4, 22 41:6 44:10 48:2, 12, 14 51:21, 25 52:1 59:10, 14 80:6 98:19 99:18, 21 122:15 133:20 137:25 139:7 143:3 150:1, 3 153:2 162:16, 19 164:6, 12, 15, 20 167:10 172:25 175:19 181:9 182:18 184:17 197:22 199:25 204:9, 11, 15 208:3 209:23 216:12 218:24 222:4 224:17 233:2 234:19 235:11 documents 27:7 46:10 51:6 52:3 54:3 174:20 doing 72:15 112:18 138:20 139:24 145:15 146:2 163:11 164:8 168:23 206:21 240:13 242:2 248:11, 20 domain 135:22 double 128:8 192:2 195:13 doubt 162:11 DPSK 33:12 83:9 85:1, 6, 19 86:22 90:9 95:2 246:23 249:7 DR 1:16 2:7 5:5 6:7 7:1 10:8 251:16 252:10 253:1 254:1 drawing 61:5 drawings 63:19
--	---	--	---

65:10, 14 220:18	eliminating 214:20 215:14	error 49:12 118:16, 24 119:7 122:1, 4	45:6, 7 46:7, 14, 15, 17, 18, 24 47:2, 3, 14, 23, 25 48:1 51:8 52:19, 20, 21 53:2 54:13, 14, 19, 20 55:24 56:6, 11 58:16, 17, 19, 20, 24 59:12, 24 60:2, 8, 10, 19, 25 61:8 62:15, 16, 19, 22 63:3, 5, 7, 8, 11 64:7, 13, 14, 16, 25 65:2, 5 66:5 67:5, 25 69:5, 12, 21 70:2, 10, 22 73:10 77:17 93:6 97:23 98:2, 3 101:8 107:22 126:15 133:19 134:11 136:9 144:13, 15, 18 149:13, 16, 22 150:16 160:20, 21, 25 161:4, 5, 7, 8 162:17 166:20, 21 175:5 209:4, 11, 18, 19, 20 246:3, 8, 9 253:1
drop 131:1, 8	embodiment 94:23 107:6 181:23 183:8, 9 184:13 185:9 186:9 187:6, 19 188:3, 20 189:11, 14 190:12, 15 191:6 196:21 224:15, 22 225:6 228:5 233:19 234:5 236:1 239:7	errors 49:9 82:1, 8, 10	Exhibits 8:3 9:3, 11, 13 29:13 42:2, 6, 15 48:9 49:4, 5, 19 52:11, 18, 24 53:10, 13, 20 55:2 56:3
drove 13:16	embodiments 181:15 194:18	especially 85:8	exist 86:1 103:2
due 11:7	emphasis 168:18	ESQ 3:8, 15	existed 85:24
duly 6:4 252:12	employee 96:19 103:16	essence 200:24	expect 28:15 31:10 37:4 42:11 61:24 67:11 70:15 82:4
duplex 213:13 216:24	encode 138:21 140:22 142:1	essentially 93:22	expected 76:5
duty 213:7, 11, 15 226:19, 21 237:9	encoding 114:8 118:15, 16, 18, 19, 21, 24 119:7, 8, 25 120:8 121:4, 9, 13, 18 122:1, 2 123:6, 9 124:16 125:7, 14 126:6 133:4 134:13 141:24 142:5	establish 234:21	expensive 105:9 106:8
< E >	ends 233:15	established 77:4 87:11 101:8 207:5	experience 28:5 72:5 96:6 97:3 172:3 181:1
e.g 246:19, 20 249:5	encoded 115:17 139:3 141:1	establishing 81:16	expert 15:7, 9 25:17, 24 26:3, 4, 5, 6, 9, 19 27:3, 5, 13 28:17 67:17 78:8 173:14 180:17 181:3 182:9 210:22 245:6
earlier 26:13 57:9	encodes 240:10	et 43:14, 25 54:15	experts 14:12, 19, 24
62:2 68:13, 20 82:6	encoding 114:8 118:15, 16, 18, 19, 21, 24 119:7, 8, 25 120:8 121:4, 9, 13, 18 122:1, 2 123:6, 9 124:16 125:7, 14 126:6 133:4 134:13 141:24 142:5	Ethernet 73:5	EXPIRES 254:1
85:25 90:15 117:15	ensure 41:19 49:15 155:1 159:24	evaluating 75:22	
140:7 150:5 167:25	ensuring 146:12	Everest 5:14, 16	
178:9 204:20 214:5 230:21	entire 22:17 233:23	evidence 98:5, 11	
early 172:4	entirety 60:19 64:17 66:24 99:22 232:11	exact 9:23 119:12 131:11 162:22 179:5	
easier 195:9 222:2	entitled 73:18	exactly 17:12 18:21 20:12 42:10 176:11 180:6 189:2 245:17	
easy 236:7	entity 146:11 148:9 155:1, 3 158:4 172:5 178:2	EXAMINATION 7:4	
echo 112:21 113:15	enumerated 63:13	examined 6:5	
echos 108:15, 22 110:15 115:10 123:3 126:3	environment 89:20 126:3	example 21:2 27:25 48:21 50:3, 23 93:19 94:3, 4 97:19 103:15 106:24 109:9 111:5, 19 114:20 116:17 117:3, 6, 15, 25 131:4 139:13 148:3 151:25 159:9, 11, 12, 18 160:13 178:19 246:19	
edition 45:8 46:16, 19	equivalence 163:2	examples 112:2 113:4, 6 117:16 210:11	
Edward 3:20	equivalently 227:12	excellent 13:18	
effect 4:13 132:21 214:20 215:14	errata 40:20 254:1	exception 165:23	
effects 126:20 127:7 132:13 134:12		excerpt 59:5, 21 64:16 77:16 127:23	
efficiency 84:3, 11 85:4 86:18 93:21 94:12		excluded 134:23	
efficient 84:21, 22 85:16		Excuse 6:14	
effort 242:20		exemplary 9:21	
eight 191:22 192:2 195:16 218:21		exercises 231:14	
either 24:11 28:15 43:8 58:14 104:5 140:20 152:6 247:21 251:8		Exhibit 8:4, 6 9:4, 6, 8 16:11 19:8 21:7, 15, 16, 17 39:11, 14 40:2, 12 42:9, 17, 21 43:11, 22 44:7, 9, 19	
ELECTRONICS 1:4 5:6, 23 7:11 254:1			
element 212:20 213:5			
elements 45:13 83:2, 10, 13, 25 85:22 86:15, 19			

explain 120:12 167:25 181:21 210:8 229:2 230:14 explained 179:15 180:19 explaining 180:7 243:11 explains 239:14 explanation 60:23 180:9 181:14 explanations 157:24 180:6 explicit 92:12 explicitly 78:14 89:15 134:22 141:11 170:21 211:20 explore 11:14 37:25 expressly 24:25 46:2 93:14 Expy 3:13 extending 63:12 extends 66:4 extent 20:23 23:18 24:23 37:10 44:24 48:5 67:9 71:11 189:18 198:6 244:7 external 193:6 194:14 196:1, 15 197:8, 10 extreme 103:15 242:22 extremely 96:21 128:10 eye 10:5 eyes 53:9 91:3 142:10 < F > fact 159:24 205:16, 20 216:5 factor 245:10 factors 222:14 fade 130:9, 14, 16, 19, 21 131:1, 7 fades 126:21 127:7 131:14, 22 132:4, 14, 19, 21 fading 121:12, 22 128:12, 17, 21 129:1,	2, 9, 16 130:2, 23 131:5 fair 24:15 46:20, 22 49:23 52:14 55:1, 7 121:24 128:5, 6 154:18 165:10 204:23 221:11 222:12 familiar 12:22 27:20 28:21 208:4, 14 familiarity 71:12 208:13 family 18:14 far 63:23 163:19 168:3 223:4, 9 235:22 236:25 237:18 238:10 fast 176:24 faster 163:14 feel 16:6 female 14:8 field 50:21 figure 76:10 97:19 166:1, 5 184:6 186:9 187:6, 19, 24 188:3, 16, 20 189:11, 14, 19 190:12, 14, 20 191:2, 6 192:9 193:15 195:4, 5, 6, 7, 12, 13 198:6, 21 201:12, 13 202:6 218:4, 7 219:18 220:18, 20 221:24 222:2, 11, 19, 23 225:7 226:21 232:22 figures 65:12 200:4 201:25 207:6 218:19 file 17:8 18:17, 25 20:15 21:1 59:24 60:2, 5, 25 78:3 207:17 filed 7:11 12:13 15:1 20:1 23:6 25:14, 17, 19, 23 41:14 47:18 51:2 60:3 61:2, 4 64:18 68:11, 16 81:1 245:19, 24 246:2 filing 4:3 76:2	filings 23:12 filters 90:20, 21 final 7:23 68:11, 15 finally 8:21 find 139:5 163:7 165:25 166:11 176:24 finds 227:5 fine 44:18 110:8 150:8 161:18 166:15 174:1 221:14 250:20 finish 164:22 finished 16:17 164:23 finishes 193:5 first 36:12, 23 37:7 41:1 56:13 58:17, 19, 23 60:7, 10 61:20 63:25 97:17 101:16 112:25 152:13 163:18 185:22 192:14 193:18 194:1, 7, 11 201:25 208:1 216:14 225:5 226:4 236:1, 10 253:1 five 82:16, 19, 21 207:14, 17 flexibility 219:14 flip 48:13 59:12 68:8 105:19 195:3 flipped 169:9 212:18 flipping 71:12, 13 Florida 2:11 fly 116:16 119:3 focus 47:12 56:6 183:22 focused 141:16 142:3 190:7 focusing 71:15 following 103:8 151:3 161:12 follows 6:6 force 4:13 forces 155:8 foreign 173:9 form 4:6 14:15 15:16 17:4, 20 18:20 20:8 22:10, 24 23:8, 25 24:18 25:3, 25 26:14 27:18 29:8	30:10 31:25 32:24 34:14 35:2, 18 36:17 37:23 39:3 40:24 41:16 42:4 46:25 47:20 49:6 50:1, 12 51:14 52:13, 22 53:23 55:5 56:23 57:19 59:20 60:21 61:19 62:5 63:16 64:19 65:16 66:8 67:2, 19 68:2 69:6 70:3, 11, 23 71:7, 23 72:14 74:21 76:15, 23 77:7 80:21 81:21, 25 83:16 84:17 85:7, 23 86:23 87:19 88:14 89:4, 24 91:21 92:10, 21 94:1 95:10, 19 96:4 97:7 98:14 99:11 100:1, 24 102:21 103:24 104:11, 16 106:11, 20 108:9 109:1 110:2, 10, 20 111:10, 22 112:11 113:9 114:3 115:24 116:12 117:7 118:15, 17, 23 119:7 120:2, 9, 21 121:6, 23 122:1, 3, 23 124:2, 10, 22 125:11 127:2, 10, 20 128:14, 23 129:6 130:10, 22 131:3, 16 132:7, 23 133:7, 13 134:3, 20 135:1, 9, 12, 13 137:10, 24 138:18 139:21 140:18 141:15 142:19 144:2 145:12, 23 146:7, 17 147:9, 15, 24 148:16, 22 152:8, 17 153:18 154:1, 9, 17 155:5, 13 156:12 157:20 158:17 159:7 160:4, 10, 12 162:6, 24 165:3, 21 167:23 168:13 169:3 171:8, 21 174:7 176:2 177:15 179:25 181:25 182:5, 23 183:11 184:25
--	---	---	--

185:16 186:11, 24 187:7, 20 188:5, 12, 22 189:16 190:17 194:21 197:1, 9, 18 199:11, 18 200:20 201:3 205:12 206:8 208:10 210:19 211:10 213:18 214:7 215:6, 22 216:9 217:8 218:14 219:8 220:7 221:25 223:6 224:24 227:21 228:21 232:6 233:21 234:10 235:17 236:18 237:4 238:2, 15 239:1, 11, 19 240:18 242:15 243:20 244:13 245:21, 25 246:23, 24 247:6, 8, 16, 25 248:15 249:8, 22 250:12 formed 183:7 forms 128:21 forth 17:17, 25 18:10 56:15 252:12 forward 45:12 found 38:9 foundation 29:9 42:19 44:1 56:24 70:12 111:23 117:8 120:10 124:23 128:15 134:4 146:8, 18 147:25 152:9 153:19 155:14 169:4 182:1 183:13 185:17 188:23 190:18 197:2 213:19 214:8 223:7 224:25 235:18 239:20 242:16 243:21 foundational 83:10 founded 72:23 four 12:14 74:11, 18 75:4 96:12 116:1 136:13, 15 207:21, 22 220:15 fourth 184:22 192:19 193:2 195:24 196:10, 17	frame 51:1 72:24 75:21 78:25 79:19, 20, 25 84:23 86:2, 19 92:5 95:24, 25 103:6 104:20, 25 105:18 106:12 107:10 142:8 178:21 frames 79:3 85:9, 15 frankly 204:3 freedom 245:7 frequency 103:22 104:9 105:2 106:18 134:19 135:22 136:2 203:14 204:10 246:18 front 9:12 19:8, 15 21:4 46:10 48:2, 10 65:23 107:23 136:11 150:17 202:23 250:18 full 11:20 59:24 60:25 fully 107:4 function 163:23 168:1, 8 180:23 functions 162:10 229:4 fundamental 116:25 126:9 159:3, 5, 19 238:5 fundamentally 126:1 FURTHER 4:5, 9 134:15 137:15, 21 138:3 140:10 141:11 169:16 251:5 252:15 furthermore 95:4 < G > gain 120:1, 3, 5, 8, 13, 17, 19 121:5, 11, 15, 21 122:9, 16, 21 123:11, 24 124:7 gather 227:23 gears 172:24 general 13:2 27:1 28:21 83:10 87:1, 9 104:12 131:5 145:13 163:17 176:3 generally 11:2 27:24 28:11 37:25 48:12	52:16 90:15 110:12 130:14, 20 135:21 146:10 155:7 183:17 189:22 201:6 208:13 generated 214:18 215:12 216:4, 25 generates 214:19 215:13 generating 192:15, 21 193:19, 23 generator 192:9, 14, 20 193:13, 15, 19, 23 194:13 196:9, 10, 11 201:25 214:18, 19, 21 215:11, 13, 15 216:4, 25 218:9 219:22 generators 193:2 195:25 196:18 197:17 getting 101:1 Gibson 45:9, 10, 21 46:2 47:4, 6, 10 Give 33:25 34:15 35:3, 19 36:18 71:24 118:9 126:9 134:8 155:17 159:9 161:12, 17 164:9 194:25 248:24 given 96:12 123:18 252:14 giving 11:20 12:4 165:14 go 9:17, 19 10:16 16:11 21:7 39:9 55:14 56:9 63:23 64:15 71:25 90:19 97:21 116:25 118:8 141:25 144:12 154:21 162:18 163:4 166:17, 22, 23 167:2 170:1, 3 181:4 191:19 195:5, 12 202:9 203:3 204:4 208:6 221:15 224:12, 15 233:9 234:1 241:9 251:9 goal 93:22 goals 86:9 89:18 91:22 106:7	goes 91:10 95:5 117:23 192:8 219:25 235:23 242:22 going 6:11 9:22 10:16, 18 12:3 35:24 37:1 46:11 58:16 64:24 65:3 68:15 84:10 86:1 93:8 95:1 97:18 98:23 99:1 103:13 108:16 112:15 118:4, 6 119:14 160:20 164:4 173:25 175:3, 4 184:2, 8 193:10 195:15 199:23 214:16 219:20 230:15 231:7 233:22 243:9 good 7:7, 8 55:12 92:2 202:17 248:6 Gotcha 84:12 gotten 168:3 grammar 128:3 180:12 181:2 graph 226:20 Great 9:1 56:12 63:10 107:24 129:3 140:5 greater 152:3 237:7 GREENBERG 3:4 5:21 ground 10:16 grounds 70:21 79:10 group 168:18 Guaynabo 5:11 guess 26:9 39:11 50:9 76:9 96:19 120:4, 23 126:8 135:25 171:23 201:23 219:11 guessing 173:10 < H > halfway 246:16 hand 95:5, 6 117:1, 23 118:8 151:3 252:21 Handbook 45:8 46:16
--	---	--	---

handed 8:2 9:2 60:18	130:24	impact 76:11, 13, 17 174:23 206:18	indicates 127:23 138:9, 14
handing 62:15 149:15	highlight 119:13	implementation 186:18	indication 167:15
handle 105:1	highlighted 171:12	implementing 92:13	infer 228:7
handles 237:8	highlighting 41:8	important 101:15	inferred 210:17
handling 104:21 105:10 178:11	histories 18:17 21:1	impossible 210:12	influence 112:17
handset 73:1, 3 227:1	history 16:23 17:3, 6, 9, 14, 24 18:19, 23	improving 121:11, 21	inform 170:4
handsets 105:19	19:1, 2, 5 20:5, 7, 15, 16, 18, 19, 24 21:12,	impulse 51:10 54:24	information 18:7 48:11 51:3, 19, 21
happen 226:4	14, 21, 22, 23 22:4, 7, 21 57:11 58:3, 6	include 24:23 30:1, 3 52:19 55:9 60:19	52:5 113:21 199:2 236:13
happened 233:4	59:25 60:2, 5 61:1	66:24 73:1 79:11	informed 78:2
happening 112:18 123:1	78:3 173:12	84:24 86:14 123:3	informing 227:19
happy 11:13 53:5 119:23 120:25 125:5	holders 166:4	143:9 215:4, 24	informs 93:1
180:13 182:13 184:4 189:5 194:24	honest 11:20 12:4	234:14 250:1	infrastructure 105:6, 7 168:16
hard 14:9 175:10	honestly 30:1 206:16	included 20:24	inherency 88:13 132:2
hardware 84:2	hope 62:8 231:23	23:23 24:17 42:12	inherent 85:1 88:9, 24 89:1 118:12
head 10:21 45:24 97:18 112:5, 25	hopefully 9:16 81:18 148:14	61:8 70:20 127:24	123:4 133:1 138:4
148:23 157:22 247:1, 9	hopping 51:10 54:23	141:21 155:20	142:6, 18
headed 35:12	133:12, 16 134:2, 19, 25 135:2, 6, 8, 9, 12,	includes 17:9 18:10	inherently 66:20
header 205:21	18, 23 136:4, 7	56:18 59:7 60:10	83:2, 14 84:16 85:4
heading 32:16 34:7	hotel 13:17	97:1 116:9 184:14	89:16, 21 131:19
headphone 71:22 72:2, 6 102:4, 11, 16	hours 13:9 155:19	185:9 193:22 194:1, 10 234:8	141:10 143:4 144:1, 4 249:6
headphones 100:8 102:18 103:3	hundreds 104:21 105:11	including 18:17, 21 20:5, 17 75:23 83:23	initially 71:13
headset 94:23	Hura 43:13	inclusion 145:16	injected 241:23
hear 57:1	H-U-R-A 43:14	incoming 104:21	innovation 160:16 219:13
heard 7:9 14:4	HYBRID 1:15 2:7	incorporate 243:4	input 185:5, 10 218:10 219:20
held 2:8 5:10	hypothetical 146:2 147:12 158:9	incorrect 156:13 236:7	inputted 184:19
help 25:12 68:24 173:7 182:12 198:3	< I >	increases 226:19	inquiry 74:10 75:4
helpful 87:8 98:9 109:3 113:3 173:5	ICMA 198:6	Independent 35:13 36:8 115:10 144:23, 24 145:3, 18, 21	ins 78:6
200:9 239:2	identical 38:24 70:18 218:3	146:5, 15, 22 147:7	inside 161:12
helping 41:11	identification 8:5 58:21 62:17 149:24	150:25 152:20, 21	instance 93:13 135:8 199:15
helps 94:18 163:21 231:23	160:23 161:9	153:4, 11, 16, 24	instances 228:16
hereinbefore 252:11	identifies 219:2	154:16, 22 156:7, 11, 22 157:4, 5, 7, 14, 16,	instituted 25:20
hereunto 252:20	IEEE 51:12	18, 25 158:1, 13, 15, 20, 21 160:12 162:3	instruct 236:20 239:7
hesitate 119:2 120:23	ill 147:12	167:18 168:24 169:7, 11, 15 170:6, 10	instructed 11:6 31:15 58:1
heterodyne 90:23	illnesses 11:23	190:6 204:19, 21, 25	instructions 11:16
high 43:2 53:15 54:16 94:11 96:21	illustrated 225:7	205:4 210:23 212:9, 11 244:2, 3, 10, 23	instructs 236:16
	illustrating 220:21	indicated 70:5, 16 132:15 197:10	Instruments 44:10 50:24, 25 105:4 168:17
	imagine 26:4		
	immediately 247:21		
	immunity 134:16		

insufficient 126:6 239:13	232:19	19 149:16, 22 153:10 160:22, 25 161:6, 8 253:1	June 245:19, 24 246:2
integration 43:2 53:15 54:16	interpreted 89:5, 7 interpreting 173:23 180:18	IPR2025-01516 1:12 IPRs 6:15, 17 7:11 12:10, 16 13:3, 4, 24 15:2, 7, 15 22:8 23:13, 15, 16, 23 24:16, 22, 24 25:13, 19, 24 26:13, 20 27:16, 21 28:24 29:6, 7 31:17 39:5 41:14 67:18 70:20 71:6 106:6 160:15	< K > KAPADIA 3:8 5:20, 21 6:11, 14, 21 7:5 8:6 9:4, 10, 16 10:7 20:9 29:2, 3 47:21 51:15 55:12, 20 59:11 62:18, 20 73:24, 25 95:12, 13 100:2, 3 107:11, 18 125:12 133:8 139:22 149:12, 14, 25 150:8, 14 160:24 161:2, 10 162:20 164:7, 21 177:16 185:3 186:25 188:7 196:24 202:17, 19 207:15, 18, 20 208:19 209:1, 24 211:11 217:15 221:6 223:16 229:23 238:17 240:2 250:21 251:5 253:1
intended 19:4 49:12 148:9 149:10 205:24 219:10, 12 220:9 237:7 242:25 247:10	interrelated 140:25 interrupted 101:1 intersymbol 34:8 44:21 83:7 88:5, 7 89:11 90:7 95:3, 5 108:4, 6, 11, 21 109:5, 17, 23, 25 110:11 111:2, 19 113:5, 6, 24 115:3, 22 116:5, 8 117:3, 16, 24 121:10, 19 122:17 127:1, 8 128:7, 12, 22 129:5, 10 130:2 131:15, 18 132:2, 5, 11, 22 133:1 137:3, 8, 17, 22 138:5, 10, 16 139:20 140:9, 12, 16 141:13, 21 142:4, 15, 17	irrelevant 28:8 204:19 ISI 83:8 84:24 85:5, 12, 17 86:21 isolate 178:18 issue 104:19 250:1 issued 51:1 76:4 78:1 92:24 issues 114:10 it'll 40:15 163:14 230:1 its 15:7 27:16 42:2 81:1 87:16 91:23 146:14 147:7 157:8 177:22, 23 210:23 219:13 234:8 238:4 241:17 249:23	keep 10:5 164:13 189:3 202:21 key 185:5, 10 keying 33:12 83:9 89:13 247:6, 7, 15, 20, 23 248:1 keys 248:7 keyword 93:17 kind 68:7 74:24 117:10 132:19 140:3 175:3 know 9:17, 20, 25 10:4 11:10, 12, 13 12:6, 12 16:1, 16 17:16 23:5, 10 24:2, 5, 7, 8 26:7 27:4 28:23 35:4, 20 46:6 47:3, 25 48:16, 17, 19 49:20, 21 50:3 51:2 52:25 67:3 68:11, 15 72:9 76:2 78:2, 3, 6 79:13 90:14, 16, 19 91:1 92:14, 22 94:3, 19, 23, 24 96:19 103:7, 14, 16, 18 105:14, 18, 25 106:1,
intercircuit 111:25 112:9	invented 48:18 invention 63:18 65:9 200:25 205:8, 15, 18, 19	< J > January 20:1 Japanese 173:10 180:22 Jenks 3:20 Jerry 45:9 Jersey 2:11 JOB 1:25 189:23 jog 43:5 JOSE 1:16 2:7 5:5 6:7 7:1 251:16 252:10 253:1 254:1 Joseph 26:12 149:18 150:18 judge 28:3, 8 jump 236:5 jumped 140:3 jumping 200:3 210:4	
interested 252:18 interesting 135:24	intricacies 154:19 introduced 72:24 126:20 127:6 132:13 introducing 146:2 invariably 250:3		
interface 211:24 212:5 220:9	inventions 63:17 84:4 inventor 14:1 47:22 48:17, 21, 24 inverse 138:1, 7, 20 involved 12:19 22:8 72:8 146:25 248:21 involvement 203:21 involves 157:11 involving 15:15 22:8		
interfere 108:18, 22 interference 34:8 44:21 83:8 88:5, 7 89:11, 12 90:8 95:3, 5 108:4, 6, 7, 12, 21 109:5, 6, 18, 23, 25 110:11, 12 111:3, 9, 20 113:5, 6, 24 114:1 115:3, 22, 23 116:6, 9 117:3, 17, 18, 24 121:10, 20 122:18 123:23 127:1, 9 128:7, 13, 22 129:5, 10, 16 130:2 131:15, 18 132:3, 5, 11, 22 133:1 137:3, 8, 17, 22 138:5, 11, 16 139:13, 20 140:9, 13, 17 141:14, 21 142:4, 15, 17 222:16	IPR 5:8 6:10, 17 7:12, 17, 19, 23 8:8, 10, 11, 16, 17, 18, 22, 25 23:6 24:21 25:1, 6, 8, 17 27:25 28:12, 25 29:12 38:12 58:17, 20 59:1 62:16,		
interleaving 121:9, 14, 19 126:7, 18 127:5 132:10, 11 134:14	internet 43:13 interparties 149:20 interpret 101:15 154:25 159:1 172:11 interpretation 174:17 179:17 183:16		

2 115:19 119:4, 6, 17, 22 120:7, 19 123:13 124:3 125:22 129:1, 2, 4 133:14 141:1 143:21 146:21, 25 148:21 149:2 156:20 157:15, 21 162:1, 3, 4 164:2 169:22 172:17 173:12, 15, 24 183:7 188:24 197:3 206:23 209:13 217:21 222:9 223:1, 8 224:3 225:11 228:14 241:9, 13 244:17, 22 247:5, 9, 14, 19 249:3, 6 knowing 28:17 knowledge 11:22 13:1 79:17 83:10 164:25 known 85:15 < L > labeled 173:2 218:17 lady 14:8 landscape 87:11 language 90:2 157:3 169:10 180:12 230:16 larger 60:8 late 151:18 248:5 latest 68:25 laugh 178:4 law 148:4 lawyer 76:9 lead 28:13 111:25 131:14 Leads 40:25 leave 56:2 209:6, 14 leaving 115:14 left 19:12, 14, 20 112:22 113:7, 16 121:16 195:19 218:10 Legal 3:19, 21 18:5 27:19 30:4 69:7 70:4 71:8, 10, 16 74:22 76:1, 24 80:22 88:15 legaling 30:12	length 171:1 218:8 222:15 228:2 lengths 210:9 240:10 lets 194:19 199:8 letters 195:4 letting 236:4 level 130:24 222:16 life 50:22 light 87:10 limitation 86:14 90:16 105:14 136:23 157:14 191:20 215:8, 10 216:18, 20, 23 217:1, 17, 21 limitations 45:13 105:15 216:2 217:25 limited 17:24 47:9 107:4 198:4 limiting 175:23 line 39:20 40:4, 15 53:12 74:2, 3 91:8 115:16 135:9 136:14, 15, 16 174:25 175:7, 8, 9, 11 177:5 184:15, 21 185:4 187:2 192:5, 6 193:10 198:12, 14 218:2 220:16 221:18 224:16 225:9, 12 226:10, 12, 13, 16 232:20, 23 233:13, 16 234:5 235:6 246:16 247:10 lines 82:21, 22 167:13 175:17 181:7 182:14 200:3 203:7, 11 232:9 235:6 link 237:9 links 250:8 LISA 1:24 2:8 5:16 252:7, 23 list 23:19 161:13, 15, 20 166:13 listed 23:19 listen 99:6 literal 230:15 literally 20:12 124:13 164:1 165:20, 22 166:13 171:17, 18	172:13, 14 179:20, 21 229:19 litigation 12:22 26:23 28:19, 22 litigations 12:19, 25 little 35:23 49:8, 16 57:9 68:18 88:21 93:18 120:5 live 147:13 197:24 200:5 201:14 LLP 3:4 5:21, 25 Ln 254:1 locating 44:12 location 201:21 long 13:8 18:4 19:4 38:3 50:21 74:24 161:15 184:1 250:23 longer 35:23 36:1 161:21 212:24 214:23 longly 131:21 long-term 53:1 look 15:23, 24 18:6 33:8 38:1, 2 40:2, 10 41:2, 3 48:12 49:17 51:25 62:3 63:11 64:12 65:3, 18 67:15 69:16, 20 76:8 91:1 93:6 108:1 121:2 126:11 133:15 135:20 136:1, 14, 16 138:19, 24 143:1 150:24 152:25 155:15 163:14 181:7 182:14 186:21 198:12 201:24 202:4, 6 208:1 209:19 210:1 212:14 215:19 216:5, 6, 11 218:4 219:1, 18 220:15, 16 221:18 222:2, 21, 24 224:15 225:9, 11 226:10, 13 228:13 232:21 245:23 247:22 looked 15:25 16:1, 7 22:13 42:24 43:7, 19 45:1 48:4, 7, 15 50:2, 5, 16, 17, 22 52:9 58:9 67:8 68:9, 11,	14, 15 80:7, 25 81:14 112:3, 7 114:25 116:14, 15 134:6 155:18 186:13, 18 190:24 194:24 205:7 222:5 249:9 Looking 21:17 26:18 33:1 60:18 73:16 81:10 89:7 97:25 135:5, 8 136:2 139:5 162:9, 21 171:25 172:1, 18 174:20 197:23 200:4 201:13 202:24 207:5 212:15 213:21, 25 216:13 218:16, 19 looks 62:24 180:21 213:20 loop 164:11 228:15 lose 123:7 124:9, 17 125:8 lot 10:12 18:5 36:1 66:14 72:3 125:2 141:23 164:13 186:3 198:11 208:8 229:1 loud 10:19 74:2, 8 167:7 184:24 214:16 loved 104:22 low 86:6 90:4 92:17, 19 93:4, 7, 14 94:3, 10, 11, 12 98:13 99:9, 23, 25 100:9, 10, 22 101:21 102:12 low-cost 83:1, 14, 24 84:20, 22 85:2, 16 86:16 89:19 97:6 lower 127:13 LUIS 1:16 2:7 5:5 6:7 7:1 251:16 252:10 253:1 254:1 lunch 107:12 < M > mad 96:20 maintain 159:8 173:19 210:12 211:1 229:6 239:25 241:16 242:1, 9, 21 243:18, 23
--	---	---	--

maintained 154:12, 15 160:1 210:8 238:4, 22 239:14, 17 244:9 249:25 maintaining 151:15 158:5 maintains 155:2 243:6, 17 maintenance 159:2, 21 making 190:20 227:19 233:5 238:23 manage 115:9 233:7 240:10 241:7, 15 managed 237:11, 12 managing 228:9 manual 193:7 194:14 196:2 197:8, 11 198:22 manually 162:8 manufactured 239:24 manufacturer 239:18, 21 240:3 242:13 243:1, 2 manufacturer's 243:19 mark 58:16 162:17 163:3, 8, 9, 13 marked 8:3, 4 9:3 46:14 58:20 62:17 64:13 67:25 69:4 70:2, 22 149:24 160:22 161:9 marking 163:10 marriage 252:17 Massachusetts 2:11 match 175:25 176:8 material 30:7 31:4, 21 materials 15:14 16:2 matrix 115:17, 18 matter 5:6 15:10 76:8 252:19 McAlexander 26:12, 22 149:18 mean 14:9 17:2 20:16 21:5 30:15 33:19 52:18 71:13 79:13, 16 80:23 84:13, 15, 18 89:22,	25 92:22 104:1 109:15 110:9 111:7 112:9 116:3 120:5, 16 121:16 122:4, 21 124:3, 11, 14 128:3 130:19, 21 135:7 139:18 142:9 145:17 146:4 147:18 154:23 159:1 165:11, 18 166:10 169:7 170:10 174:8 178:4 179:6 182:12 195:6 202:6 216:21 217:12, 20 219:12 230:18 239:6 241:18 meaning 131:12 187:24 237:13 meaningless 25:10 means 23:16 28:6 42:21 52:8 61:22 70:18 84:21 91:24 94:14 110:12 115:15, 20 118:22 123:10 125:14 127:15 128:25 142:5 152:21 158:15 160:7 198:1 245:7 248:10 249:11 meant 7:19 20:11, 12 120:20 148:20 mechanics 42:13 mechanism 241:7 media 207:14, 17 220:2 medical 11:23 meet 13:11 76:6 MELLENDEZ 1:16 2:8 5:5 6:8 7:2 10:8 251:16 252:10 253:1 254:1 memories 194:2 memorize 44:6 48:17, 21 memory 43:5 53:1 185:6, 10 194:12 247:2 mention 137:20 191:18 231:7 mentioned 6:10, 16 22:18 25:15 27:23 50:24 51:1 52:4	53:25 55:10 58:3 65:22 68:10 95:4 116:13 134:22 138:2 155:25 156:3 165:23 168:17 172:3 187:10 206:10, 16 235:23 245:15 mentioning 54:3 message 234:24 235:2 messages 236:22 239:10 met 13:13 191:6 method 204:1 228:9 Metro 5:11 Mh-hm 98:17 99:15 microphone 184:14, 20 185:11 microphones 186:10 mid 151:18 middle 19:11, 21 military 148:3, 6 mind 93:9, 22 182:25 mine 16:5 minimizing 84:2 minimum 123:2 236:21 239:9 minor 10:4, 11 minutes 202:12 207:14, 17 missed 173:3 missing 59:19 mistake 40:9, 17 82:6 180:20 misunderstand 165:19 misunderstood 231:20 mitigate 132:10 mitigating 88:7 mitigation 83:8 85:17 86:21 mitigations 85:5 mixed 173:2 mixer 195:22 198:20 202:7 Miyake 35:13 39:2, 7 48:19 50:3, 5 76:18 155:18 157:25 160:18 161:6, 11 162:12 164:3 165:2,	20, 24 166:14 167:22 168:7, 9 169:23 170:20 171:3, 10, 14, 17 172:12, 20 173:1, 8, 12, 16, 23 174:4 175:1, 24 177:21, 22 178:1, 12, 20, 21 181:13, 24 182:4 186:22 187:12, 18, 25 188:21 189:10 190:3, 5, 11, 22 191:1, 2, 18, 23 192:3 200:21 201:6 202:3, 9, 22 203:8 205:3, 11, 17 206:24 207:1, 11 208:17 209:6 212:6 229:1, 2, 14, 19 237:23 240:14 241:3, 13, 14, 19 243:5 246:5, 10 247:19 249:3, 11 250:18 Miyake's 167:15 203:20, 21 mobile 178:7 Modulated 44:20 102:2, 5 139:9 modulates 186:1 246:17 249:4 modulation 134:16 136:25 137:16 140:8, 11 141:12 241:16 246:21 247:24 248:2 249:5 modulator 181:18 246:17 249:4 module 32:17 99:13 136:17, 24 modules 102:19 Moe 51:12 moment 33:25 34:15 35:3, 19, 20 36:18 71:24 months 12:13, 14 MoPac 3:13 morning 7:7, 8 13:13 move 202:8 muck 150:18 multimedia 72:10 multiple 23:15 51:11 54:24 118:4 139:12,
--	---	---	--

19 147:20 158:3, 6 160:7 163:24 164:10 167:18 178:16 204:1 207:8 238:5 multistandard 43:2 53:15 54:16 multitude 172:7 Mumbling 204:12 MURACO 1:24 2:9 5:16 252:7, 23 < N > name 5:13, 20 6:25 14:5, 7 42:22 73:6 254:1 names 48:17, 19, 22 natural 91:7, 19, 23 92:1, 2 nature 91:24 92:3 necessarily 84:24 85:22 86:19 89:22 90:7, 9 102:17, 19 106:3 110:14 114:21 120:4 145:17 necessary 132:1 neck 11:25 need 6:16, 21 12:1, 7 36:22 51:24 65:18 68:24 98:23 104:4 118:1 128:18 145:14 148:18 155:15 163:4 173:14 183:15 202:10, 12 207:16 209:15 needed 105:1, 10 166:3 236:21 239:9 needless 181:15 needs 6:15 11:11 156:10 207:14 networking 43:13 never 96:7 181:2 New 2:10, 11 3:7 11:14 113:20 119:19, 23 192:7 252:3, 5, 8 nine 181:4 182:15 184:16 189:20 219:2 221:15, 16 246:6 nod 10:20 noise 125:24 134:12,	15 non 106:25 236:12 non-CDMA 217:7 nonexistent 157:23 nonorthogonal 152:2 nonsilicone 90:18, 21 Nope 37:16 normally 28:5, 15 112:14 204:6 Notary 2:10 3:20 6:2, 5, 24 252:7 254:1 note 6:9 notebook 209:14 noted 27:11 37:7 49:8 251:12 notice 12:12 noting 206:21 number 7:13, 20, 24 8:24 9:5, 6, 8 19:25 20:2 25:6, 10 31:23 38:16 42:21 46:7 47:15, 17 50:13 56:9 60:3 62:2, 11 65:22 69:17, 22 82:7 103:4 149:17, 21, 23 208:16 253:1 numbers 6:20 25:21 44:7 45:6 53:2, 10 64:4, 6, 8 98:8 218:15 222:19 NY 3:7 < O > oath 4:12 6:2, 22 object 11:6 22:10 35:18 36:17 40:24 53:23 70:23 81:25 89:4 111:10 112:11 115:24 131:3 133:7 144:2 165:21 168:13 171:21 220:7 221:25 223:6 227:21 228:21 232:6 233:21 234:10 235:17 236:18 237:4 238:2, 15 239:1, 11, 19 240:18 242:15 243:20 244:13 245:21, 25 246:24	247:8, 16, 25 248:15 249:8, 22 250:12 Objection 14:15, 22 15:3, 8, 16 17:4, 20 18:3, 20 20:8, 21 22:24 23:8, 14, 25 24:18 25:3, 9, 25 26:14 27:18 29:1, 8 30:10 31:8, 25 32:24 34:14 35:2 37:23 39:3 41:16 42:4, 19 43:15 44:1, 14, 23 46:25 47:20, 24 49:6 50:1, 12, 15 51:14, 18 52:13, 22 55:5 56:23 57:19 59:20 60:21 61:19 62:5 63:16 64:19, 23 65:16 66:8 67:2, 19 68:2 69:6 70:3, 11 71:7, 23 72:14, 21 74:21 76:15, 23 77:7 80:21 81:21 83:16 84:17 85:7, 23 86:23 87:19 88:14 89:24 91:21 92:10, 21 94:1 95:10, 19 96:4 97:7 98:14 99:11 100:1, 24 102:21 103:24 104:11, 16 106:11, 20 108:9, 14 109:1, 7 110:2, 10, 20 111:22 113:9 114:3 116:12 117:7 118:17, 25 119:9, 18 120:2, 9, 21 121:6, 23 122:3, 11, 23 124:2, 10, 22 125:11, 15 127:2, 10, 20 128:14, 23 129:6, 11 130:4, 10, 22 131:9, 16 132:7, 23 133:13 134:3 135:1, 4, 13 137:10, 24 138:18 139:21 140:18 141:15 142:19 145:12, 23 146:7, 17 147:9, 15, 24 148:16, 22 149:1, 5, 8 152:8, 17 153:8, 18 154:1, 9, 17 155:5,	13 156:12, 18 157:20 158:17 159:7 160:4, 10 162:6, 24 165:3 167:23 169:3 171:8 174:7, 23 176:2, 10, 22 177:15 179:25 181:25 182:5, 23 183:11 184:25 185:16 186:11, 16, 24 187:7, 20 188:5, 11, 22 189:16 190:17 194:21 196:23 197:1, 9, 18 199:11, 18 200:20 201:3 205:12 206:8, 15 208:10 210:19 211:10, 15, 22 212:3 213:18 214:7 215:6, 22 216:1, 9 217:8, 14 218:14 219:8 221:5 223:15, 20 224:24 228:4 234:17 240:22 objections 4:6 26:24 57:4 75:8, 11 77:22 78:20 80:13 114:18 117:19 135:19 146:23 169:17 191:7 214:15 237:21 240:1, 5 objective 74:10 75:3 93:2 obtained 186:1 obvious 41:10 71:5 241:21 Obviously 28:13 49:8, 16 82:5 85:10, 18 86:5 90:14 105:9 135:23 obviousness 190:22 occur 138:6, 7 170:13 occurred 61:16 occurs 113:7, 25 123:12 138:11, 17 odd 180:21 200:13 oddly 143:4 offer 131:23 offered 68:5 offhand 27:4 45:6 191:16
--	--	--	--

OFFICE 1:1 5:8, 11 17:10, 18 18:1, 10, 25 20:14 officer 4:11 official 20:25 officially 17:11 Oh 13:18 40:5 41:3 48:14 71:24 73:15 99:19 144:15 156:15 173:2 192:1 195:6 209:25 Okay 6:24 7:6, 16 8:1, 9, 20 9:15 10:2, 8, 15 11:18 12:5, 8 13:5, 10, 15 14:10 15:5, 13, 19 16:10, 14, 20 21:24 22:5, 19 23:2, 21 25:22 30:13, 19 31:3, 18 32:6, 14 33:7 34:4, 11, 19 35:15 36:6 39:8, 18 41:12 42:25 43:21 44:17 45:2, 20 46:1, 4, 12 47:13 49:2, 23 51:7, 23 55:21 56:8 58:15 59:3, 4 61:11 62:14 63:10, 22 64:24 65:7 66:18, 23 67:21 69:1, 24 70:7 71:2, 20 73:9, 17, 21, 22 74:15 78:16 82:11 85:20 89:3 95:23 98:4, 18, 23 102:15, 23 105:24 108:20 109:12, 22 110:16 111:13 112:1 113:2, 23 114:15 118:14 122:6 125:1, 16 126:13, 17, 24 128:2, 11 129:3, 8 130:8 131:6 133:9, 18 136:8, 12, 22 137:6, 12 143:23 144:21 145:1, 5, 9 150:4, 7, 15, 20, 23 151:6, 12, 23 153:4 156:8 161:19 166:15, 16 167:1, 9, 12, 20 173:4 175:12, 18, 22 176:5, 12, 15 177:11	181:6 182:20 185:8, 13 187:4 188:1 191:12, 25 192:12 193:17 194:17 195:7, 10, 14, 15, 21 196:14, 20 197:25 198:18 199:7, 14 203:2, 6, 10, 18 204:16, 17 205:1, 5, 25 206:11 207:9, 19, 25 208:7, 18 209:9, 22 210:13 211:25 212:19, 23 213:4, 9, 22 214:12 215:1 217:4 218:6, 18 219:5, 17, 24 220:4, 24 221:1, 10, 17, 20 222:6, 20 224:7, 14 225:8, 21 226:9, 22 228:12 230:12 232:17 233:8, 11 234:13 235:10 236:23 239:16 244:25 245:8, 12 246:4 247:13 249:1, 17 omitted 165:7 omni-directional 102:1 118:5 once 178:22 245:4 ONE-E-WAY 1:8 5:7 6:1 14:3 15:6, 10, 15 25:23 27:15 28:23 29:5 254:1 ones 217:16 one-to-one 242:7 oOo 4:19 open 21:7 29:13 55:24 107:21 209:7 opened 67:4 open-ended 119:19 operate 199:9 212:2 operated 73:4 83:18 84:6, 21 86:6 89:19 90:5 92:17 93:20 101:24 106:1, 25 operates 170:17 operating 198:21 operation 173:16 193:6 194:14 196:1	opine 71:1, 11 78:11 79:5, 11, 21 80:4 81:5 opined 78:17 146:20 opinion 27:14 49:5 57:5, 15, 17, 24, 25 58:14 65:17 67:10 68:5 70:13 80:18 105:22 116:5, 8, 16 119:3 131:11, 20, 23 132:6 141:2, 5 142:3 152:10 153:23 154:3, 5 160:2, 5 183:8 184:5 186:20 187:17, 22, 23 188:2, 9 189:12, 21 190:13 191:4 199:19 opinions 23:22 24:15, 20 27:12, 13 44:4 45:5 46:21, 23 48:6 50:18 52:12, 15 55:3, 8 66:17 67:16 71:3 76:12, 18 79:8, 14, 16 81:23 82:2, 5 87:12 107:2 118:11 134:19 138:3 147:4 169:20, 24 174:24 184:6 188:13 200:6, 7 opportunity 13:25 opposed 112:21 113:16 optimizes 85:3 86:17 optimizing 84:2, 11 option 94:2, 18 95:9, 18 141:19 options 93:25 order 101:3, 14 115:9 138:22 148:7 156:10 188:17 211:1 231:15 244:16 245:1 ordinary 31:20 74:13, 19 75:6 79:2, 18, 23 81:2, 10, 12 96:11, 17 103:9, 18 107:9 139:1 142:10 151:9, 13 154:24 156:5 158:25 160:6 168:7 170:23 172:2 173:13 174:13	177:25 180:10, 16, 25 182:8 210:22 230:17 231:5, 9 245:5 organization 201:20 oriented 192:22 193:24 198:19 original 16:7 57:21 60:11 65:14 77:14 98:25 110:18 123:8, 19 124:1, 8, 19 125:10 originally 50:8 60:6 127:16 178:9 originated 173:9 orthogonality 146:13 orthogonal 147:14, 23 149:11 151:18 154:6, 7, 11 156:24 159:16, 22, 23, 24 160:3, 8 170:25 200:22 228:10 237:14 244:8 245:9 250:6, 16 orthogonality 147:21 150:25 151:15 152:15 153:6, 17 154:12, 14 155:2 158:6 159:3, 5, 8, 21, 25 173:19 210:8, 12, 16 211:2, 9 229:7 233:7 237:11 238:3, 7, 21 239:14, 17, 25 240:10 241:7, 17 242:1, 9, 21, 24 243:7, 17, 18, 23 244:9 249:25 250:3 oscillators 90:24 105:21 outcome 252:18 output 202:7 outputting 184:19, 22 outs 78:6 outside 27:22 38:24 96:23 138:3 143:18 147:22 157:1 169:22 overall 92:16 93:15 217:22 overlap 24:4, 24 Owner 1:8 6:1 28:7 41:13, 21 42:1, 3, 6, 8,
--	---	---	--

14 46:14 53:21 54:1 68:8, 12 owners 149:19 < P > p.m 107:17 251:12 page 16:12, 22 19:12, 21 21:10 29:15, 19, 24 30:21, 25 39:14, 20 40:15 55:25 56:8, 10, 11, 17 61:20 63:8, 12, 20, 21 64:4, 6, 8, 9, 12, 15, 20 65:1, 2, 4 66:11 69:12 73:12, 13 91:11, 15 98:8 107:25 134:10 135:10 144:12, 14, 17 150:21 151:7 166:23 167:3 202:20 203:4 209:3, 20 212:18, 25 245:23 246:2 253:1 pages 58:17, 19, 23 60:7, 10 64:1, 2 66:4 67:6, 8, 11 98:7 253:1 paid 48:25 pairs 141:25 pan 214:17 215:11 216:3, 25 paper 42:18 44:20, 22 51:9 54:21 paragraph 16:12, 15 20:11 21:8, 24 38:8, 16, 18 40:1, 16 74:2, 6 82:17, 20 83:19, 21, 23 87:17 91:4, 6, 9, 10 93:19 97:13 98:1 100:5 101:13 108:1 121:2, 17 122:7 126:11 128:8 129:20, 23 132:15 133:3, 10 139:8 151:2 167:2, 5, 14 169:25 175:18 181:8 204:24 206:4, 17 208:1, 5, 8 210:1, 2 233:12, 15, 23, 24, 25 234:3, 4, 15 236:5 242:6 243:11 paragraphs 63:13, 25 77:1 98:12, 15 99:8,	14 100:20 142:12, 24 143:13 parasitic 112:14 paren 152:2 167:16 203:24 parens 152:1, 2 parentheses 19:14 parenthetical 16:24 151:17, 19 Park 5:11 part 13:11, 20 14:13, 20, 25 18:14, 18 20:6, 18 53:21 59:15 60:5 61:21 62:1, 11 64:6 65:21 66:1 67:1 69:4, 9, 14 70:1, 14, 17 72:8, 10 73:2 77:18 78:19 101:2, 4, 13 105:3, 5 112:17, 18 123:20 125:2 127:25 131:19 134:21 170:16 172:4 180:2 201:18, 20, 21 207:6, 12 211:12 212:17 219:7, 9 226:3 234:18 237:7 241:10, 11 248:10 partial 133:5 partially 117:10 particular 38:12 40:19 73:3 81:8 122:12 132:14 180:20 216:13 218:2 223:13, 22 236:1 particularly 38:3 115:1 222:9 parties 4:3 252:16 parts 16:24 19:3 22:16 41:18 66:14 207:2 party 28:2, 15 PATENT 1:1, 2, 8, 12 5:8 6:1 7:13, 20, 24 8:24 9:5, 6, 8 16:22 17:2, 10, 15, 18, 19, 24 18:1, 2, 8, 10, 12, 13, 19, 23, 25 19:1, 2, 13, 22 20:2, 4, 6, 14, 15, 19 21:6, 11, 14, 21, 22 22:4, 6, 20 23:7	27:17 28:7 31:23 38:11, 15, 25 39:10, 21, 25 40:6, 8, 11, 13, 18 41:10, 13, 21 42:1, 2, 6, 8, 14 46:14 47:15, 17, 18 49:10 50:13, 16, 18, 22, 25 51:1 53:21 54:1 59:2 61:3 67:24 68:8, 11 76:4 78:1 82:7 83:11 86:10 87:12, 13, 15 91:22 92:15, 25 104:13 115:21 120:15 136:10 144:19 149:17, 19, 20, 23 153:21 157:10 160:13 242:18 244:1, 20 253:1 patentee 89:10 patents 7:12 12:20 18:14, 18 20:18 22:7, 21 30:14, 15 31:16 33:17 38:6 48:18, 23 49:25 50:2 52:15, 17 66:11, 14 75:18, 19, 20 77:4, 6 87:16 93:3 94:7 106:5, 17 114:7, 21 116:21 141:20 143:8, 15 144:10 147:16, 17, 18, 22 153:10 160:14 171:25 183:17 240:7, 25 241:20, 21 paths 111:25 112:10 118:4 PDA 233:18 234:6, 16, 20 236:2, 14, 16, 19 239:7 pen 161:17 pencil 161:15 pending 11:4 12:20 97:16 98:25 people 141:22 186:3 percent 226:21 Perfect 130:8 perform 154:22 203:13, 22 204:7 performed 145:2 146:5 153:3, 11	156:6 157:7 158:1, 3, 21 169:8, 10 170:6 204:21 performs 185:21 period 128:1 permits 203:12 person 31:20 74:13, 19 75:6 79:2, 18, 22 81:2, 9, 11 96:11, 17 103:9, 17 107:9 139:1 142:10 151:13 154:24 156:5 158:24 160:5 168:6 170:23 172:2, 5 173:13 174:13 177:25 180:10, 16, 25 182:8 201:24 210:21 230:17 231:5, 9 245:5 personal 43:3 53:16 54:17 97:3 151:9 perspective 74:12, 19 75:5 172:1 pertinent 16:24 19:3 22:16, 25 23:18 petition 16:5 19:7 32:3 47:4, 6 59:1 71:14 77:17 80:1 100:6, 12 101:23 102:10 149:20 154:20 155:20 158:10 183:15 187:14, 22 191:9 198:5 200:5 237:23 241:1, 3, 4, 12 242:18 244:19 249:12 Petitioner 1:4 3:5 5:22 28:7 45:11, 13 156:3 160:19 169:25 170:5 183:4, 22 186:19 187:9 189:24 190:19, 25 191:17 201:16 212:5 213:24 216:15, 16 229:5 235:24, 25 petitioner's 158:10 petitions 23:6 49:20 70:19 94:7 147:19 240:8 Pg 254:1
--	--	---	---

phase 33:9, 12 83:9 89:12 247:6, 14, 20, 23 248:1, 10, 11, 13, 16 phases 248:23 phone 178:7 phrase 245:9 250:11 phrasing 84:6 physical 174:20 place 39:23 202:14, 18 220:17 places 135:12 please 6:24 10:20, 23 11:11 12:6 39:12 56:9 74:9 100:4 133:17 138:25 162:18 175:8 183:2 230:19 plenty 27:7 plethora 148:7 plurality 199:1 203:13 PM 148:25 149:3 PN 218:9 219:21 235:21 236:21, 24 237:2, 10, 16, 20, 22 238:4, 9, 12, 20, 25 239:8 241:8 250:6 point 11:9 16:6 42:24 43:7 50:22 54:5 97:12 105:8 110:7 135:9 138:8 180:16 198:2 207:1 226:3, 11, 24 233:4 pointed 235:24 pointing 98:21 100:18 portable 94:24 137:14 224:21 225:6, 22 226:1, 6 227:9, 18 228:18 229:24 230:3, 6 232:3, 15, 24 portion 125:22 176:18 178:24 232:2 portions 18:5 23:1 80:9 POSA 83:6 84:19 94:5 100:7 108:3 121:17 POSITA 89:9	position 28:2, 14 44:12 197:20 positions 27:15 28:6, 13, 24 29:5 possibility 89:17 240:17, 19 possible 10:21 50:21 145:20 199:3, 21 power 84:3, 11, 20, 22 85:3, 16 86:17 90:11 93:20 94:11, 12 99:23 100:9 101:21 102:12 134:12 164:11 powered 95:17 96:2 102:3 practical 126:3 practically 116:23 practice 101:18 preassigned 168:25 predate 76:19 predates 79:21 preferred 107:6 225:5 preliminary 149:19 premarked 8:4 253:1 premise 180:1 preparation 14:13, 14, 20, 25 preparations 13:12, 20 prepared 54:9 184:6 preparing 13:7, 23 125:23 PRESENT 3:18 14:2 26:20 162:5 225:13, 18 preserve 210:15 211:9 231:15 preserved 146:14 presumably 131:8 201:23 pretty 88:1 92:2 139:6 145:13 248:5 prevent 11:24 12:3 preventing 11:19 previous 27:16 37:1 116:2 119:11, 15, 16 previously 18:22	25:13 221:23 247:12 PRICE 3:11 5:25 primarily 19:4 47:11 79:20 primary 94:9, 10, 12, 13 principle 114:12 principles 30:5, 12 print 222:22 prior 11:10 23:5 37:5, 11 48:20 72:5 248:8 priority 79:6 private 139:10 privilege 11:7 probably 52:1 87:7 173:11 201:15 202:3 209:10 210:4 244:17, 20 245:15 problem 73:24 200:3 241:14, 18 problems 250:4 proceeding 26:8 28:1 process 67:7 72:15 185:22 186:2 226:3 236:3, 11 processed 137:2, 8 140:9 processes 137:15, 21 140:11 141:12 Professional 2:9 program 200:15 programmable 233:19 234:6 programming 200:15 programs 199:2, 4, 13, 22 properly 175:11, 13, 15 propose 186:19 proposed 80:1 158:10 160:19 240:14 250:2 prosecution 16:23 17:3, 6, 14, 24 18:19, 22 19:2 20:5, 6, 16, 18, 19, 24 21:11, 14, 21, 22, 23 22:4, 7, 21 protocol 213:13	provide 46:23 52:15 75:14 101:3 110:23 120:24 147:12 156:3 168:19 170:17 184:6 219:13 provided 42:2 46:20 51:20, 22 52:6, 12 55:3, 8 65:17 105:22 117:15 provides 159:13 237:8 providing 95:17 PSK 246:21, 23 247:1, 10 248:17 249:5, 11 PTAB 16:9 26:8 28:17 Public 2:10 6:5 252:7 254:1 publication 68:1 70:21 71:4 76:3 publications 55:9 published 43:24 Puerto 5:11 pull 19:8 20:25 97:22, 23 172:20 246:5 pulled 21:2 241:13 pulling 157:16 purpose 88:4 90:5 put 29:14, 18 45:11 51:5 54:6 97:23 143:13, 20, 21, 25 145:18 175:3 209:14 < Q > qualified 130:15 qualify 79:22 86:13 queries 227:5 question 4:7 10:24 11:1, 4, 8 14:18 17:22 19:18 23:17 24:2, 10 26:16 29:19 31:19 37:6 53:3, 5, 6, 8 54:9, 10 56:25 57:8, 20, 22 59:21 60:14 61:10 62:8 68:14, 24, 25 74:24 77:10, 11 81:18, 22 86:25 87:6 88:18, 20
---	--	--	--

91:17 92:6, 23 93:12 95:15, 21 97:10, 20 98:10, 25 99:1, 3, 17 100:15, 16, 17, 19, 25 104:5, 6 106:23 109:2 110:24 111:17 113:20, 22 115:25 117:10, 13 119:11, 12, 19, 21, 24 120:11 128:19, 20, 24 129:12, 19, 23 130:6 133:22 135:16 140:2, 5 142:21, 22 145:13, 19, 25 148:14 152:22 153:5, 13 155:6 163:1 165:12, 13 171:9 172:10 173:6, 21, 24 175:16 178:23 179:5 180:2 182:6, 11, 25 188:18, 25 189:3, 8 190:8 191:13 194:24 195:2 201:5 211:7 214:11 215:2 217:10 221:13, 14 222:24 224:9 225:2 229:10, 13, 14, 17, 21, 22 230:22, 25 231:20 232:13, 21 234:3 239:5 240:6, 24 242:4, 19 245:22 questioning 10:1 52:24 53:12 questions 9:23 10:19 37:1 74:25 97:16 111:12 116:2 180:12 232:1 251:6 quick 33:2 232:20 quickly 89:6 139:6 178:17 quiet 235:8 quit 96:22 quite 98:6 quotations 101:2, 6, 7, 15, 17, 19 quote 32:16, 17 33:9 34:7, 8 126:14 228:18 quoted 125:2 quotes 101:12 128:8	< R > radio 51:10 54:24 ran 105:6 168:16 rate 222:15 reaches 226:20 read 15:24 16:19 21:6 22:16 49:21 71:17, 18 74:1, 5, 7 90:3 94:19, 25 99:16, 20 115:19 122:13 125:18 126:25 127:4, 11 134:6 136:2, 5 140:7 146:10 152:11 166:3, 4 167:5, 6, 8, 11 172:5 174:11 175:20 179:8 180:11 181:20 182:9, 16, 19, 24 188:21 194:24 195:3, 15 197:20 199:23 204:13, 16 205:20 208:2, 4, 12 210:3, 17 212:16 214:16 215:8 221:21 222:24 224:19 226:6 227:24 231:12 232:7, 10 233:24 234:2, 18 235:5, 7, 12 236:4 254:1 reading 26:3 84:19 94:5 101:16 103:7, 18 124:13 142:9, 10 162:13 168:7 178:1 180:18 181:12 183:19 204:12 206:17 226:5 230:9 243:25 readminister 6:22 Reads 254:1 ready 68:23 133:21 209:13 real 33:2 118:3 realistic 123:1 reality 241:19 realize 186:3 realized 48:24 really 13:8 17:12 18:4 19:6 24:7 25:16 28:16 42:13 84:25 85:13 98:9	143:17 169:22 183:22 190:1 191:16, 20 206:21 245:13 248:11 249:19 re-ask 54:10 reason 82:15 94:25 103:19 174:2 178:8 254:1 reasonably 172:5 reasons 22:17 106:10 rebut 189:23 241:4 rebuttal 45:16 183:21 rebutting 45:17 157:23 169:24 188:15 198:4 recall 11:10 14:2 16:3 25:7, 15, 18, 23 26:3, 17, 18 27:8 43:17 45:24 49:24 50:11 51:16 53:12, 19, 24 54:2, 3 58:7 60:15 64:21 68:6 72:19 93:13 211:16 212:8 213:23 247:1 receive 105:11 136:24 138:23 140:23 148:8 199:3, 13, 22 222:15 236:22 239:9 received 18:24 102:6 123:25 137:15 140:11 141:12 184:23 225:16, 19 227:6 receiver 100:7 102:3, 4 104:22 109:11 112:23 114:11 137:14, 20 138:7, 11, 17, 22 139:3, 14, 24 140:10 141:11 142:1 148:3, 7 171:5 172:16 176:1, 9 179:13, 24 180:5 181:17 201:22 receivers 90:15 103:23 104:10 115:4 receiving 102:2, 7 171:4 172:15 174:5, 6 186:23 187:2	190:9, 11, 15 191:14 236:13 reception 45:22 105:1 139:10 181:18 184:23 Recess 55:17 107:15 150:11 208:23 251:2 recipient 148:10 recite 161:11 184:13 191:1 203:11 232:12 250:10 recited 165:1, 11, 16, 19 184:10, 11 206:6 recites 136:23 183:10 186:22 214:1 216:7 reciting 230:22 231:2, 8 recognize 45:6 50:19 recognized 83:6 recollection 7:15, 25 14:11 15:9 22:12 25:5, 12, 20 26:2 27:6, 11, 22 32:25 42:5, 20, 21 43:8, 17 44:3, 6 45:4, 10, 21 46:11 47:2, 10 48:5 50:7 51:6, 20 52:6 66:10 72:2 78:12 136:6 150:2 157:13 188:15 190:19 191:17 212:10 247:21 249:14 reconstruct 123:8 124:1, 8, 19 125:10 record 5:2, 19 6:20, 25 25:1, 8 29:17 51:5 55:14, 16, 19 64:3, 10 107:14, 17 150:10, 13 208:22, 25 231:16, 25 235:8 251:1, 4, 10, 11 252:13 recorded 5:4 red 163:6, 13 redirect 197:4 251:8 reduce 134:11 137:8, 21 140:9 reduced 34:7 121:10 132:2 142:14
---	---	--	--

reducing 121:19 122:17	234:15	155:23 183:3 244:21	requires 106:8
reduction 137:16 138:15 140:12 141:13 142:17	reflect 41:9	248:19	113:21 156:23 160:3, 9 212:2 232:18
reductions 140:16	reflected 41:20 77:1	remembered 133:23	236:1 241:25 242:8
redundancies 115:8	reflections 88:10	166:4	243:14
redundancy 120:1, 3, 6, 8, 13, 17, 19 121:5, 11, 15, 21 122:9, 16, 22 123:12, 17, 24 124:7	refresh 183:5 184:5 247:2	remembering 68:24	requiring 175:24
reexplain 108:25	regarding 53:13	remind 56:8 175:7, 8	requisite 203:23
refer 8:10, 17, 21 9:20 17:17 19:1 21:11 87:17 133:11 134:1, 25 135:2, 12, 17 139:23, 25 140:14 142:24 151:19 163:23 171:7, 19 183:17 191:3 201:16 202:4 203:7 206:7 211:14 247:11	55:4 67:12, 16 89:18 138:4 162:11 169:20	reminds 48:14	resay 24:11
reference 16:1 20:23 31:23 38:10, 24 39:21, 24 40:12 43:18 44:3 45:4 132:14 151:3 161:1, 6 174:16 231:7, 18	Regis 5:11	REMOTE 3:2	researched 147:2
referenced 27:6 38:6 47:4, 5, 6, 7 48:10 77:15 200:11	Registered 2:9 18:25	remove 139:12, 19	reserved 4:7
references 170:3, 8	regular 123:12	rendered 217:6	resistance 121:12, 21
referencing 48:9	relate 38:6 48:6 66:17 84:5 87:3 93:4 94:8 108:12 109:5, 18 111:3 114:1 115:22 143:17 163:1 240:8	renders 71:5	resistant 123:23
referred 17:8 18:22 20:4 22:20 26:13 29:6 30:16 59:8 60:11 61:3, 15 77:16 113:18 143:5 151:16 170:11 179:1 206:6 210:24 247:3	related 15:10 16:2 18:8, 14 19:12, 21 57:11 58:4, 12 77:24 86:14 87:12 107:2 111:8 117:17 131:24 148:12 188:15 205:21 206:25 231:1 252:16	rep 17:8	resolution 104:25
referring 8:12 17:14, 16 60:15 113:17 139:14 140:15 156:20 158:22 213:24 215:17 222:19 225:2 243:3	relates 45:22 87:4 88:17 99:23 101:20 108:21 114:9 123:20 200:1	repeat 19:18 39:12 56:25 88:17, 22 91:16 104:6 109:2 113:22 124:14 195:2 234:3	respect 17:19 18:1 23:6, 23 24:16, 20 26:22 27:16 28:12 30:9, 11 36:15 37:5 42:17 45:12 46:21, 23 47:11 55:8 58:9 67:10 68:5 78:11 80:5 81:7 87:1 187:23, 24 189:11, 22 190:8, 12, 21 198:6 218:2 223:10 237:1, 18 238:10, 14, 19
refers 8:22, 24 16:22 133:16 140:7 195:16	relationship 189:19 242:8	rephrase 10:23 29:2	respective 4:3 10:1 203:23
	relevant 19:6 38:11 74:14, 20 75:7, 10, 16 77:10, 20 78:18 87:13 115:1 132:5 174:9 204:25 205:13 222:10 240:25 242:18	reply 234:24 235:2	respectively 121:22 192:21 194:3
	relied 169:5 212:6 249:13	report 32:8	respond 10:20 180:2
	relies 28:14	Reported 1:23	response 28:20 36:22 41:14, 22 42:3, 6, 8, 14 43:16 44:2, 15, 17, 24 53:22 54:1 68:8, 12 125:18 133:5 140:21 147:13 149:19 154:20 205:24 244:20
	rely 49:13, 15, 18 72:4 79:17	Reporter 2:9 5:15 248:4	responses 49:20 180:14 231:25
	relying 45:4	Reporting 5:14, 17	rest 37:11
	remain 170:25	represent 5:22, 25 54:2 82:4 166:12 174:21	restate 24:12 53:4 87:7 98:24 104:5 117:12 133:24 140:4
	remains 207:11	representation 54:7 81:24 137:2	restricting 182:7
	remember 14:4, 6 53:11 54:11 88:20	representative 137:1	restrictions 217:25
		represented 53:20 84:1 171:22	resulting 141:20
		representing 60:9	retained 12:9, 15, 24 15:7, 11
		require 94:22 96:2 105:21 144:10 145:10 147:14, 17, 20, 23 153:16 154:7 183:19 203:21	
		required 11:8 88:13 115:7 210:15 211:9	
		requirement 26:8 73:19 74:17 75:3, 17, 24 76:6, 22 77:21 80:4 92:19, 23 97:6 98:12 152:15 153:6 157:18 240:11	
		requirements 92:25 156:9, 14, 16, 19, 21 157:22	

retention 13:2 reversed 236:4, 12 review 15:14 16:15, 18 21:13 22:2 23:12 25:1 26:11, 21 27:7, 9 30:24 31:9, 12 32:1, 12 33:4 34:2, 17 35:5, 22, 25 36:3, 21 38:4, 22, 23 39:4, 22 41:6, 21 59:10, 14 78:13 98:18, 19 99:18, 21 122:15 125:4 133:20 137:25 139:7 143:3 148:18 149:20 153:2 162:16, 19 164:6, 12, 15, 20 167:10 172:25 175:19 181:9 182:18 184:17 197:22 199:25 204:9, 11, 15 208:3 209:23 216:12 218:24 222:4 224:17 233:2 234:19 235:11 reviewed 21:20 22:3, 6, 14, 15, 22, 25 23:17 25:8 27:2 41:13, 17, 18, 24 47:14, 23 77:13 78:21 81:1 143:16 reviewing 21:1 27:11 49:24 50:11 51:16, 21 52:1 155:20 rewind 71:24 Rico 5:12 rid 215:17 right 8:15 14:17 25:11 37:20 41:23 43:8, 10 45:3 51:4 55:11 64:7 65:24 82:9 99:4 100:23 101:17 107:12 108:24 111:18 113:19 130:12, 17 131:24 141:4 143:2 144:11 164:19, 24 184:6 185:14, 20 192:4 209:2 210:6 213:17, 23 218:12, 20 219:7 220:17 222:8	227:25 235:13 245:12 249:20 250:22 251:5 ring 61:18 Robert 51:13 54:22 role 169:16 roughly 246:15 Row 225:3 rows 115:18 RPR 1:24 Rudell 42:18 53:14 54:15 rules 10:17 28:3 ruling 16:9 28:14 rulings 28:17 < S > safe 189:12 190:12 191:3 sake 25:7 41:4 SAMSUNG 1:4 5:6, 22 7:11 15:12 47:18 49:25 50:4 63:6, 8 65:1, 5 77:17 100:11 160:21, 24 253:1 254:1 Sandra 3:19, 21 5:13 saw 37:9 63:3 69:12 120:18 223:17 saying 22:23 49:17 86:13 97:25 110:6 116:3 128:16 141:24 159:23 176:7 177:12, 19, 21, 23 178:25 182:9 183:22 197:7 200:15 204:14, 18 243:12, 14 says 16:21 19:12, 21, 24 22:3, 14 56:14 63:5 64:25 65:1 69:13, 17, 18, 21 74:7 83:6 84:15 96:8 100:6 108:3 119:22 121:17 132:15 134:11 137:11, 13 139:8 150:25 151:13, 24 167:14 172:12 176:11, 17 177:4, 10 179:9, 10, 14 184:18, 21 185:4, 12, 20	187:1 192:13, 19, 25 194:6 195:23 196:15, 19 197:3, 13 198:25 199:6, 12, 24 212:8 213:6, 11 216:24 220:25 224:23 225:5, 22 226:2, 6, 11, 23 227:4, 9 230:10, 20 232:20 234:11, 22 236:3, 10, 19 241:3 246:1 249:3 250:6 scenario 141:7 169:21 scheme 246:21 247:24 249:5 SCHMID 3:15 5:24 10:3 14:15, 22 15:3, 8, 16 17:4, 20 18:3, 20 20:8, 21 22:10, 24 23:8, 14, 25 24:18 25:3, 9, 25 26:14, 24 27:18 29:1, 8 30:10 31:8, 25 32:24 34:14 35:2, 18 36:17 37:23 39:3 40:24 41:16 42:4, 19 43:15 44:1, 14, 23 46:25 47:20, 24 49:6 50:1, 12, 15 51:14, 18 52:13, 22 53:23 55:5 56:23 57:4, 19 59:20 60:21 61:19 62:5 63:16 64:19, 23 65:16 66:8 67:2, 19 68:2 69:6 70:3, 11, 23 71:7, 23 72:14, 21 73:23 74:21 75:8, 11 76:15, 23 77:7, 22 78:20 80:13, 21 81:21, 25 83:16 84:17 85:7, 23 86:23 87:19 88:14 89:4, 24 91:21 92:10, 21 94:1 95:10, 19 96:4 97:7 98:14 99:11 100:1, 24 102:21 103:24 104:11, 16 106:11, 20 108:9, 14 109:1, 7 110:2, 10, 20 111:10, 22 112:11 113:9	114:3, 18 115:24 116:12 117:7, 19 118:17, 25 119:9, 18 120:2, 9, 21 121:6, 23 122:3, 11, 23 124:2, 10, 22 125:11, 15 127:2, 10, 20 128:14, 23 129:6, 11 130:4, 10, 22 131:3, 9, 16 132:7, 23 133:7, 13 134:3 135:1, 4, 13, 19 137:10, 24 138:18 139:21 140:18 141:15 142:19 144:2 145:12, 23 146:7, 17, 23 147:9, 15, 24 148:16, 22 149:1, 5, 8 152:8, 17 153:8, 18 154:1, 9, 17 155:5, 13 156:12, 18 157:20 158:17 159:7 160:4, 10 162:6, 24 165:3, 21 167:23 168:13 169:3, 17 171:8, 21 174:7 176:2, 10, 22 177:15 179:25 181:25 182:5, 23 183:11, 13 184:25 185:2, 16 186:11, 16, 24 187:7, 20 188:5, 11, 22 189:16 190:17 191:7 194:21 196:23 197:1, 9, 18 199:11, 18 200:20 201:3 205:12 206:8, 15 208:10 209:16 210:19 211:10, 15, 22 212:3 213:18 214:7, 15 215:6, 22 216:1, 9 217:8, 14 218:14 219:8 220:7 221:5, 25 223:6, 15, 20 224:24 227:21 228:4, 21 229:21 232:6 233:21 234:10, 17 235:17 236:18 237:4, 21 238:2, 15 239:1, 11, 19 240:1, 5, 18, 22 242:15 243:20 244:13 245:21, 25
---	--	---	---

246:24 247:8, 16, 25 248:15 249:8, 22 250:12 251:7 Scholtz 51:13 54:22 Scope 15:8 24:19 26:1, 15 29:8 62:6 66:9 68:3 70:12 71:8 95:11, 20 96:5, 23 97:8 103:17, 25 104:17 106:21 110:21 111:23 113:10 114:4 117:8 135:14 140:19 145:24 146:18 147:10 152:9, 18 154:2 169:18 185:2, 17 187:8 188:6 189:17 190:18 197:2 214:8 221:25 239:20 242:16 243:20 249:22 sealing 4:4 search 162:8 174:21 searching 155:23 second 46:16 91:8 100:6 165:25 180:2 185:24 192:19 193:1, 22 194:12 195:24 196:8, 17 207:6 209:25 secondary 114:10 Section 30:4, 9, 22 31:2, 5, 7, 19 32:7, 11, 15, 22 33:8, 11, 23 34:5, 12, 20, 25 35:7, 12, 16, 23 36:1, 7, 11, 13, 16 37:17, 22 39:1, 5, 9, 12, 16, 17 40:11 55:25 73:11, 15 80:15, 20 81:8, 23 82:13 88:25 89:2 99:12, 13 100:5 114:7, 9 142:14, 16 150:24 151:1 166:17, 24 185:5, 6, 10 205:6, 20 206:9 250:6 sections 37:11 38:7 67:12 70:25 171:11 see 12:11 14:3 16:21 19:11, 20, 24	21:10 24:13 30:22 31:1 32:2 33:14, 15 36:24 37:8 38:5, 16 39:16, 20, 21, 24 40:5 48:13 50:8 56:13 57:23 61:20 62:21 63:4, 6, 13, 17 64:17 65:8 69:19, 23 74:1 82:16, 23 83:3, 4, 12 90:5 91:4, 6, 16 94:2, 22 100:6 108:3 112:6 126:12, 14 127:12 132:25 133:16 136:18 137:4, 18, 19 144:6, 22 148:12 151:5, 10, 21, 22 152:4, 21 162:13 163:11 167:13 174:9 175:20 176:6, 23 177:6 181:10 184:15 185:1, 4 186:4, 22 187:3 192:5, 10, 17, 18, 23, 24 193:4, 8, 11, 16, 25 194:5, 15, 25 195:11, 12, 13, 18 196:3, 4, 5, 8, 12 198:16, 17, 23 199:5 200:9 203:7, 16 204:4 207:24 210:2, 4 212:20, 22, 24, 25 213:2, 5 214:1 216:17, 23 218:5, 13, 15 219:20, 21, 23 222:23 225:17, 18 226:10 227:2, 7, 13, 16 233:3, 12, 17, 20 234:8, 11, 22 235:1, 12 239:12 242:10, 11, 17 245:23 246:16, 22 seeing 71:14 150:3 247:18 seen 150:1 152:13 186:5 segment 123:7 124:9, 12, 18 125:9, 21 select 106:10, 13 194:20 196:16, 22 199:3, 13, 22 201:19 selectable 200:16	selected 228:1 237:2, 19 238:12 selecting 193:1 195:24 197:5 239:4 selection 227:23 236:24 237:17 238:9, 24, 25 send 115:17 118:3 sending 115:16 237:9 sense 10:6 28:8 45:16 60:13, 14 61:12, 13 102:14 237:12 248:22 sensitive 80:10 sent 116:10 sentence 36:12, 23 37:7 56:13 74:5 82:17, 23 83:5 91:12, 14, 16 100:6 101:5, 16 126:18, 25 127:4, 11, 19, 24, 25 132:16 134:14 151:8, 24 163:18 167:14 175:12, 13, 14, 24 176:7, 18 178:25 179:2, 8, 9, 20, 21 192:7, 8, 10 193:11 197:21 198:13, 17 206:5 225:12 226:2, 11 232:24 234:23 236:6 sentences 82:17, 20 152:7 227:24 separate 7:12 57:15 123:16 separated 220:13 separation 248:25 sequence 148:21, 24 serial 62:2 65:22 69:17 set 56:4, 15 92:25 99:4, 5 140:6 175:25 176:19 179:11, 12, 22, 24 180:5 201:22 209:8 223:1 224:11 228:17 237:13 252:12, 21 setting 124:5 201:17 205:18 237:9	seven 175:9 severe 131:8 shake 10:21 share 161:4 shared 207:7 sharing 151:14 203:14 204:8, 10 SHEET 254:1 shift 33:12 83:9 89:12 247:6, 15, 20, 23 248:1 shifted 172:24 shifting 33:10 248:16 short 126:20 127:7 128:17 130:9, 15 131:7, 14, 21 132:4, 13, 18, 21 139:6 141:23 shorten 250:2 shortening 250:8 shortly 131:21 short-term 53:1 showing 201:14, 15, 17, 19 shown 63:21 156:10 192:9 193:15 shows 218:7 shuts 227:14 sic 26:18 side 29:14, 18 105:19 171:5 172:16 174:5 176:8, 9 178:13 179:11, 13, 23, 24 180:4, 5 181:17 185:21 236:14 239:9 sided 192:2 195:13 sides 222:22 signal 43:23 102:2, 5 105:2 108:7, 13, 17 109:6, 10, 14, 16, 19 110:1, 19 111:4, 9, 20 113:7, 25 114:1, 13, 17 115:23 116:10 117:5, 18 118:2, 3 123:3, 9, 19, 25 124:1, 8, 19 125:10, 23 130:24 131:1 134:20 137:1 138:23 139:9, 12 141:1 159:15 186:1 216:25 222:16
--	---	---	--

225:15, 19, 23 226:7 227:6 229:25 230:4, 7 232:25 233:5 246:18, 19, 20 249:4 signaling 133:5 signals 104:21 148:8 184:19, 23 227:10 Signature 254:1 signed 4:11, 13 significant 90:11 silent 155:21 237:10 238:20 240:16 242:22 243:16 silicone 90:17 similarities 10:13 similarly 8:16 Simon 43:25 simple 99:2 173:23 189:8 simply 10:20 single 88:11 104:22 115:12 159:13 178:14 182:22 183:10 219:7 220:13 single-consolidated 7:10 site 189:19 Sitting 111:18 117:2 185:14 190:1 249:2 situation 236:15 237:1, 18 238:11 situations 159:13 six 164:9 167:13 size 222:14 236:21 skill 31:20 74:13, 20 75:6 79:2, 18, 23 81:3, 10, 12 96:11, 17 103:10, 18 107:9 139:1 142:11 151:9, 13 154:25 156:5 158:25 160:6 168:7 170:23 172:2 173:14 174:13 177:25 180:10, 16, 25 182:8 210:22 230:17 231:5, 9 245:6 skim 68:6, 7 skip 70:25 slash 20:1 44:12	69:18, 22 slightly 93:12 slot 164:11 slots 126:19 127:6 132:12 203:23 206:7, 14 208:9 small 242:23 snooping 148:4 soft 90:21 somewhat 204:19 Song 47:22 Sony 63:5 64:25 65:5 soon 202:18 sorry 15:20 17:21 19:15 21:18 22:11 33:20 35:19, 23 46:6 47:16 58:22 73:23 74:4 82:21 84:9 89:5 90:1 95:21 98:3, 6, 7 99:20 100:2 119:5 122:19 135:15 138:12 139:17 141:2 144:3, 15 166:19 167:11 173:3 174:4 177:2 192:2 201:8 204:13 209:25 210:4 213:13 218:11 222:18 225:1 226:15 230:2 233:23 246:8 sort 16:4 24:1 71:13 85:12 87:14 143:7 201:23 235:19 sorts 96:7 135:24 sounded 161:20 sounds 140:3 181:21 185:19 source 16:7 110:13 187:15 243:10 sources 110:17 space 166:4 206:22 209:17 spark 27:6 sparked 44:5 spatial 203:15 206:6 speak 13:19, 25 14:12, 19, 24 82:9	speaker 72:12, 13, 20 73:1, 2 184:24 185:11 speakers 186:14 speaking 28:11 112:20 113:15 Specialist 3:19, 21 5:15 specific 13:3, 4 15:21 18:8 24:21 28:12 42:5 45:3, 17 81:16 84:25 88:3 104:5, 7 117:16 151:16 162:2 163:7 172:9 174:22 178:19 181:15 192:15 193:20 199:19 200:3 205:14, 17 206:22 231:8 232:20 237:2, 20, 22 238:12 specifically 12:15 13:21 16:3 17:19 18:1 19:2 27:5 29:15 32:10 39:13 42:23 43:19 44:25 45:25 52:7 57:25 78:9 80:5 81:14 83:22 97:13, 20 99:12 103:1 108:1 116:20 135:20 136:1 163:12 165:1, 15, 18 171:15 191:1 205:10 211:13, 16 212:14 220:16 238:8 specification 61:4, 16 64:8 65:14 66:4, 6 67:22, 24 70:8, 9 74:12, 18 75:5, 22, 23 77:24, 25 81:4 87:4 93:1 94:19 95:1 96:12 104:14 135:11 162:5 165:2 173:25 212:11 specifications 94:6 specified 243:19 spectrum 51:10 54:24 83:1, 15, 24 84:22 85:2 86:16 87:2 89:18 92:14 134:16, 21 137:14	167:17 203:12 208:17 220:21 221:2, 8 239:23 speed 9:17 spend 13:6 112:5 spent 37:12 191:11 198:11 229:1 spot 184:7 195:1 spread 54:23 83:1, 14, 24 84:22 85:2 86:16 87:1 89:18 92:13 134:16 137:14 159:14 167:17 196:8, 9, 10, 17 201:25 203:11 208:16 220:21 221:2, 7 239:22 spreading 123:13 134:20 135:21 157:12 173:18 176:19 177:7, 12 178:25 179:11, 12, 22, 23 180:5 185:22, 24 186:2 192:8, 14, 15, 20, 22 193:2, 12, 14, 18, 19, 23, 24 194:2, 4, 8, 12, 13 195:25 196:22 197:16 199:16 200:17 201:1, 5, 8 210:9 214:19, 21, 24 215:12, 13, 14, 18 225:24 226:8 227:11, 12 228:1, 3, 17 230:5, 8 232:5, 16 233:1 245:10 ss 252:4 stage 172:12 stamp 160:20 161:5 stand 119:15 standard 84:1 101:17 146:24 standpoint 89:8 start 30:3, 22 31:1 82:12 101:4, 16 127:18 128:20 162:13 166:23 192:6 194:9 250:8 started 53:13 107:21 163:17 222:19
--	---	--	---

Starting 54:13, 19 63:12 176:17 184:21 192:5 210:3 221:18 246:15 starts 39:16 55:25 82:18, 23 91:13, 14 136:17 151:2, 8 175:12, 14 177:1 181:8 193:12 198:14 220:19 224:16 225:13 232:24 233:13 234:4, 23 246:17 State 2:10 5:18 6:25 210:14 211:8, 20 212:1 242:7 252:3, 8 stated 24:10 69:11, 14 89:18 91:22 135:16 166:13 175:17 198:15 statement 30:4, 11 119:22 157:1 180:3 STATES 1:1 5:7 140:10 171:15 176:18 181:13 220:20 station 104:20 105:8 106:2 145:11, 15, 16, 21 146:1 161:22, 25 165:5, 7 167:16, 21, 24 168:2, 9, 11, 14, 15, 20, 23 169:12, 16 171:4, 10, 19, 20 172:15 173:17 174:6 178:6, 15 185:20 186:23 187:1, 2, 5, 18 188:4 189:10, 15 190:9, 11, 15 191:5 202:3 226:7 228:23 229:3 235:15, 20, 24 236:10 243:5 stations 107:1 168:20 178:8 181:16 185:18 186:4, 5 199:1 stay 248:5 step 174:19 STIPULATED 4:1, 5, 9	stop 202:15 229:11, 12 storing 194:3 straight 115:16 strain 11:25 strategies 83:8 85:6 86:21 87:21, 23, 25 strategy 87:22 strength 130:25 131:2 222:16 strict 61:22 strictly 112:20 113:14 strike 23:4 24:14 30:2 33:10, 22 41:24 46:21 47:16 59:6, 25 66:2 69:2 74:4 76:20 84:14 91:5, 18 95:12 97:1, 4 100:2 102:17 109:24 116:7 119:5 122:20 129:24 138:12 142:23 147:5 154:6 155:9 158:12 201:9 202:7 206:4 220:14 230:2 string 248:2 strong 128:4 225:16, 20 227:6 structure 123:6 124:17 125:8 173:15 stuck 173:8 student 180:13 studied 130:18 134:18 146:19 147:2, 11 148:17 study 29:12 158:8 169:21 studying 146:24 stuff 18:5 24:6 Suarez 3:19, 21 5:13 sub 205:21 subject 40:19 94:7 106:6 147:19 153:10 160:15 submitted 26:12 61:6 65:15 Subscribed 251:18 254:1 subspecies 151:16	substantive 18:7 45:15 substantively 85:25 subsystem 85:24 subsystems 168:19 sufficient 131:20 141:18 sufficiently 17:5 104:7 suggest 9:18 111:7 216:22 suggesting 237:12 suggests 94:16 suit 128:4 suitable 100:9 101:21 102:12 Summary 34:22 63:18 65:9 superheterodyne 103:22 104:9 supplied 198:20 support 34:22 43:20 98:12 149:18 178:16 suppose 17:9 78:1 79:1 supposed 21:16 149:6 203:3 sure 16:9 17:12 18:4 19:19 24:12 35:21 36:20 42:10, 13 46:8 54:12 65:17 68:14, 16, 19 69:14 74:25 75:1, 15, 25 80:23 89:25 92:7 94:18 100:16 109:4, 15 110:22 111:16 118:21 119:1 121:1, 3 122:4 124:11 128:16, 24 133:23, 25 138:25 140:20 142:20 152:22, 24 153:15 180:14 181:11 204:3, 18, 24 206:10, 17 208:20 223:25 224:8 228:14 231:16 241:5 surprise 249:15 surprised 81:6 93:16 189:20 190:2 249:18, 19 250:14	switch 178:17 193:7 194:14, 19 196:2, 5, 15 197:8, 11, 15, 16, 20 198:22 199:9, 21 225:24 226:8 227:11 228:2 230:1, 5, 8 232:5, 16 233:1 switched 197:15 198:21 228:18 250:17 switching 192:25 194:6, 10 195:16, 23 230:1 swore 6:13 sworn 4:10, 13 6:4, 15 7:3 251:18 252:12 254:1 symbol 109:16 123:14, 15 symbols 110:13, 14, 18 synchronized 152:1 synchronous 151:15, 17 synonyms 130:6 system 44:12 83:2, 15, 25 84:23 85:3, 17, 21 86:17 87:14 88:6, 8 90:4 94:21 96:21 115:6 141:19 145:11, 17 146:15 147:5, 6 149:9 155:10, 15, 18 156:24 158:7 167:17 168:5, 21 170:16 171:7 172:7 173:19 176:21 177:9 178:20 203:12, 20, 21 208:17 227:4 229:7 237:8 239:23 240:12 241:11, 17 244:6 systems 43:4 53:17 54:18 72:7 87:2 89:20 93:5 94:9 96:7 158:9 168:19 < T > table 31:14 56:17 take 11:2 12:7 55:13 86:5 93:8, 10 105:25 106:1 111:14
--	---	---	--

118:4 136:9 143:1	167:21 171:18 245:7	54:4 55:9, 12 56:4	34:6, 13, 21 35:1, 14,
208:19 209:11, 16	247:20	57:20 58:3 59:16	17 36:5, 15 37:18, 22
232:20 250:21	terminal 185:15, 18	60:22 61:9, 10 62:7	40:21 41:14 66:11
taken 28:25 29:5	terminals 185:19	64:24 65:4 66:16	67:14, 17 70:20 71:6
55:17 107:15 150:11	terms 10:14 18:11	73:16 74:23 77:9	75:17 77:4 78:10, 17
208:23 251:2	67:15 76:2, 3, 8, 17	82:19 83:18 86:3, 25	86:15, 19 87:16 93:3
takes 184:1	78:10, 18, 25 90:17	87:20, 25 88:16 92:2,	94:6 106:6 116:2
talk 93:20 112:12	92:23 130:15 148:19	6 93:2 94:4, 15	135:10 144:10 145:7
116:18 189:9 190:10	154:21 155:25	96:11, 16, 23 97:22	160:14
206:13 229:18	161:12 162:14, 22	98:15, 24 99:19	Thursday 1:17 2:3
231:17 238:18	163:3, 7, 12, 15, 21, 25	100:12 102:25 104:4,	254:1
talked 68:12 204:20	164:9 165:1 170:5	6, 12, 18 105:22	time 4:8 5:3 13:6
214:5	171:3, 6, 16 172:14	106:22 110:7 111:11,	37:12 50:21 51:1, 9
talking 114:9 115:5	173:13 174:3 190:5	19 113:4, 20 114:5	54:23 55:13, 19
116:19 129:15, 16	test 77:21, 23	115:25 116:1 117:20	72:24 74:14, 20 75:7,
135:21 143:6 231:19	testified 6:5	118:10 119:10	10, 16, 21 77:20
236:13	testifying 22:9	121:24 125:3, 17	78:18, 25 79:3, 18, 20,
talks 93:7	testimony 11:20	126:10 130:5 131:10	25 84:23 85:9, 14
tape 71:25	12:4 42:16 102:20	140:21 143:14, 19	86:2, 18 89:9 92:4,
target 180:7	111:1 124:21 252:14	144:8 145:25 148:13,	18 93:8, 10 95:24, 25
taught 35:13 36:9	Texas 44:10 50:23,	24 150:5 152:19	103:6 104:20, 25
TDMA 164:10 204:1	24 105:4 168:17	154:18 155:24	105:14, 18, 20 106:12
206:1	text 37:2, 11 81:3, 10	165:14 173:1, 6, 7	107:10, 13, 17 111:15
teach 242:7	230:16 231:8 245:10	177:2, 18, 19 179:4	112:6 126:19 127:6
team 105:3	Thank 7:7, 22 8:1	180:19 191:17	132:12 134:7, 25
technical 87:11	29:21 40:5, 8 41:8,	196:19 204:6, 23	135:2, 5, 18, 23 136:4,
105:13	11 55:23 98:8 99:6	211:6, 23 212:4	6 142:8 150:9, 13
technically 73:2	107:20 134:7 236:4	215:7, 16 216:19	151:14 152:13
techniques 43:23	245:18	217:9 221:13 225:2	162:25 163:20
133:4	thereof 16:25 19:3	228:23 232:11, 19	164:10, 11 170:18
technologies 94:20	thing 15:25 37:9	240:23 243:3, 22	174:19 178:21 184:1
103:5	58:9 113:1 129:10,	244:14 245:14 247:3	191:11 198:11
technology 90:16	15, 17, 21 130:3	250:21	203:14, 23, 24, 25
106:3	140:15 224:6 248:17	thinking 72:16	206:6, 7, 14, 22 208:9,
telephone 224:21	things 9:17 19:5	90:25 91:2 204:5	21, 25 213:12, 13
225:6, 23 226:1, 6	23:20 24:3, 4, 5, 24	third 39:20 40:4, 15	216:14, 23 222:25
227:10, 18 228:19	45:23 47:11 71:15	62:3 69:16, 21	229:2 244:4 250:25
229:25 230:4, 7	72:3 81:17 85:11	184:18 194:2, 8, 11	251:4, 9, 10, 12
232:4, 15, 24	86:6 114:13 115:16	196:9, 17 213:5	times 9:18 11:5
tell 14:9 33:1 50:17	123:17 126:2, 7	THIS__DAY 254:1	20:13 109:11 111:8
91:12 93:7 162:9	135:24 163:2 166:9	thought 92:11 118:9	114:6 116:1 141:23
170:20 175:10 189:2	179:18 186:7 195:9	179:15 202:16	152:1 204:10
228:7 230:19 239:3	223:24 226:4 250:16	230:24 231:3 246:13	title 44:4
telling 95:7 202:13	think 7:19 10:12	thousand 60:6	titled 33:11 36:8
temporary 166:2	13:3 17:5, 21 18:7	thousands 105:12	39:1, 6 43:1 44:10,
ten 224:12, 13 225:3	23:9, 11, 16 24:9	three 6:15, 17 7:10,	20 51:9 53:14 54:15,
tend 48:16, 21	26:16, 25 27:3 29:10	11 9:18 10:5 15:1	22 142:14
term 88:24 131:24	30:14 36:23 40:7	22:7, 8 29:7 30:8, 14,	today 5:15 11:21
144:23 146:9 156:1	41:10 42:9 45:5	17 31:6, 17, 24 32:10,	13:7 22:9 29:7
157:4, 8 158:19	47:9 52:14, 25 53:6	20, 22 33:5, 17, 19, 24	41:15 70:20 71:6

75:18 77:5 80:18 104:1, 19 117:2 178:9 190:1 223:9 249:2 Today's 5:2 toggle 196:16 200:12 told 53:7 111:2 226:5 230:21 tool 38:20 top 16:21 21:10 39:20 40:4 45:24 73:12 91:14 97:17 112:5, 24 148:23 157:22 234:22 246:15, 16, 25 247:9 totally 182:13 223:24 track 164:13 TRADEMARK 1:1 5:8 train 202:15 transceivers 43:3 53:16 54:17 TRANSCRIPT 254:1 transform 115:17 transformed 115:9, 18 translated 173:11 180:22 transmission 123:5 125:23 139:16, 19 141:13 167:16 168:11 171:4, 19 172:15 174:5 181:18 186:22 187:1, 5, 18 188:4 189:10, 14 191:5 199:1 246:19 transmissions 116:4 136:25 137:7, 16, 21 140:8, 12 152:1 transmit 102:6 105:11 178:13 212:21 213:7, 11, 15 214:4, 13, 17, 25 215:4, 9, 10, 25 216:3, 7, 18, 24 217:6, 18, 22, 25 218:7, 11 219:2 222:13 223:18 226:18, 19, 21 236:2 transmits 221:7 transmitted 113:25 126:19 127:5 132:12	transmitter 95:17 96:2 101:24 112:22 113:8, 11, 16, 17 115:12 116:11 134:13 138:6, 22 139:4 140:1, 22 171:5 172:16 174:4, 5 175:25 176:8 177:22 178:7, 11, 14, 15 179:11, 22 180:4 181:16 185:21 214:24 220:22 221:2 transmitters 115:4 139:13 178:15 transmitting 101:25 102:1 227:1 TRAURIG 3:4 5:21 treated 231:6 tree 249:21 250:11 TRIAL 1:2 4:8 tried 49:14 170:4 229:2 true 252:13 try 9:19 10:5, 23 94:25 119:23 129:23 132:18 204:13 trying 20:10 52:25 53:6 86:3, 8 87:8 88:19, 20 110:8, 25 111:6 129:22, 24 130:1 141:6 167:25 170:9, 12 195:12 200:5, 9 229:10, 16, 18 231:24, 25 247:18 turn 16:11 29:15, 18 30:21, 25 32:7 34:5, 20 35:7 36:7 37:17 39:13, 19 55:24 73:10 82:12 107:25 136:13 144:17 150:21 174:25 191:22 202:20 207:21 209:3 212:13 218:21 227:22 246:5 Turning 133:3, 10 turns 159:15 two 9:24 13:8 26:13 40:22 64:4 65:11 74:25 77:1 79:3 90:1 97:16 99:14	101:2, 5, 7, 11, 12 111:11 119:2 123:16 126:7, 19 127:6 132:12 140:15 152:7 164:17 165:8 166:11 167:24 170:7 194:18 200:19 201:2 207:2, 19 220:2, 14 222:22 223:24 231:13 TX 3:14 type 96:7 118:21 178:20 typed 177:2 types 55:10 72:10 92:15 106:15 219:15 220:10 typically 61:21 < U > U.S 1:12 7:13, 20, 24 9:4, 6, 8 19:12, 21 47:15, 17 50:13 60:3 62:11 149:17, 20, 23 253:1 Uber 13:16 ultimately 18:11 28:2 196:25 199:17 200:18 219:25 Ultra-wide 51:9 54:23 unaware 49:13 82:9 unclear 120:5, 16 140:2 171:9 197:23 240:6, 9 249:10 underneath 65:1 understand 8:11, 18, 22 10:22 11:15 12:18, 21 15:12 17:7 18:13 20:10 23:3 42:7 57:7, 21 58:2 75:20 76:1, 21 77:12 78:4 81:22 84:19 88:19, 21 90:6 94:21 96:13 101:14 108:4 110:8, 25 111:6 116:2 120:11, 12, 13 121:17 129:12, 18, 23, 24 130:1 139:2 140:14 141:6, 18 151:14 152:12	154:22 156:4, 6 160:6 168:8 170:1, 9, 12, 24 173:22 178:1 179:17 189:22, 23 204:3 210:23 217:20 222:10 229:16 230:18 232:18 239:5 242:20 244:6 understanding 7:14 17:23 20:14 32:21 62:13 65:19, 25 69:8 70:6, 17 71:9 74:16 75:2, 9 76:25 77:2, 23 79:22 81:9 88:12 89:9 92:24 94:8, 13 101:20 121:25 127:15, 21, 22 129:9 146:25 153:9, 20 156:4 170:6 197:19 224:9 231:4, 11 245:5 Understood 10:15 11:1 12:2 18:24 24:2 37:16 44:8 60:22 71:15 86:11 87:6 89:10 92:4 100:7, 16, 25 107:9 119:10 139:11 203:25 undisputed 101:22 unintentional 102:25 unique 57:12 58:10 153:22, 24 157:12 159:2 160:17 168:4 171:13 172:6 200:14 202:1 207:2, 11 228:24 235:21 239:24 240:8, 20 242:14 244:22 unit 187:15 225:16, 19, 23 226:1, 6, 7 227:5, 10, 18, 20 228:19, 20, 22 229:25 230:4, 7, 14 232:4, 15, 24, 25 233:6 234:9, 12, 15, 21, 24 235:1, 14, 22 236:2, 13, 16, 20 239:8 UNITED 1:1 5:7
--	--	---	--

unknown 82:1	vague 155:6	20 239:15 240:13, 15,	118:23 124:5 127:12
unnecessary 90:12	Vanderbilt 3:6	21 241:2, 6, 7, 20, 23,	129:1 150:6 156:22
unreasonable 94:5	vantage 180:16	25 242:7, 14, 20	165:13 176:6 183:25
unrelated 104:13	variable 213:7, 11, 15	243:10, 12, 14, 18, 23,	189:1, 7 197:7 200:1
106:4 147:3	218:8 245:9	24 244:2, 4, 5 245:10,	202:7 214:10 216:21
upper 127:16	variations 118:2	19, 24 246:2 249:21,	220:14 228:13 229:7,
use 31:15 47:8 86:7	varied 210:9	23 250:15, 17	18 230:23 237:6
89:11 90:7, 9, 20, 22	various 223:5	want 21:19 26:9	240:15 241:12
93:17, 19 95:1	varying 211:3	46:13 68:19 69:10	250:13
103:10, 14, 15, 20	Venn 119:1	74:7 91:1 97:22	went 53:19 223:14
105:1 116:23 126:8	verbal 10:19	100:15 110:23	224:1
131:17 133:2 134:13	verify 37:3, 13 69:9	116:15 117:12	We're 5:1 29:7
148:2, 6 155:11	166:8	118:20 119:13 125:3,	41:15 70:20 71:6
157:11 160:14, 15	version 47:5 67:5	4, 20 130:11 140:4,	107:16 114:8 115:5
161:18 163:6 171:17	247:17	22 148:2, 5 149:9	135:21 150:12 175:1
177:9 178:10 190:20	versus 5:7 90:17	152:22 161:14 162:1,	202:24 208:24
200:11 208:16	125:21	2, 4 166:22 172:20	231:19 251:3
209:17 211:18 229:3	Video 3:19, 21 5:4,	174:21 179:7 180:11,	we've 79:25 81:1
236:17 240:12	14 72:10 91:2	14 181:11, 22 182:11	122:5 162:10 223:3,
user 57:12 58:10	VIDEOGRAPHER	188:9 189:3 202:15	11 224:10 236:25
88:11 153:22, 23	5:1 6:19 55:15, 18	209:17 212:15	237:17 238:10
157:12, 16 158:5	107:13, 16 150:9, 12	222:24 223:24 224:8,	250:14
159:2 168:4 171:13	207:13, 16 208:21, 24	19 228:14 229:11	WHEREOF 252:20
172:6 177:9, 21, 23	250:25 251:3, 9	230:11 250:18	wide 203:14
178:14 185:15, 18, 19,	VIDEOTAPED 1:15	wanted 148:6 231:16	Win 51:12 54:22
23 187:15 194:19	view 28:9 79:23	wants 227:22	wired 72:25
196:22 197:4, 6	154:24 156:2	waste 163:20	wireless 51:10 54:24
199:3, 9, 12, 15, 21	viewed 74:12, 18	way 29:20 43:8	71:21 72:1, 5, 7, 12,
200:2, 10, 13, 14, 24	75:5, 21	52:3 58:14 62:3	13, 20, 25 73:2, 3
201:11, 17, 18 202:2	VIMAL 3:8 5:20	69:17, 21 77:9 79:25	100:8 102:11, 16, 18
207:3, 12 240:8, 24	voice 14:4, 8	89:3, 7 90:22 91:10	103:3 105:5, 6
244:22		95:16 102:8 107:8	136:25 137:15 140:7,
users 105:12 126:2	< W >	112:13 123:6, 22	11 141:12 168:16
146:14 158:6 163:24	wait 99:19 173:1	124:17 125:8, 23	Witness 3:12 6:4, 7,
168:5 170:22 176:21	192:1	129:13 138:20	13 7:1, 3 144:3
177:14 178:3, 11, 16,	waiting 61:9 62:8	141:23 145:19	202:10 208:20
18 179:3 192:16	waived 4:4	174:24 189:4 190:21	250:23 251:8 252:11,
193:20 203:13, 24	Walley 36:9 39:2, 6	240:13, 14 242:2	14, 20 253:1
207:8 208:16	48:20 50:6 76:18	243:22 244:8 252:18	Wong 47:22
user's 199:17	159:12 160:18 161:1	ways 189:4	Woolfork 48:18, 25
uses 155:4 171:3, 6,	169:23 171:2 190:23	welcome 29:22	147:18 160:16
18 172:14 211:17	209:11 210:7, 14, 18,	55:22 107:19	241:21 244:1
224:5 227:12 241:15	20 211:2, 8, 20 212:1,	well 6:12 10:9	word 87:23 92:1, 2
248:2, 7	8, 11, 14 217:3 218:4,	12:25 22:22 23:3	93:19 121:16 125:21
usually 18:6 248:5	22 219:12 220:8	37:8 40:23 41:24	127:8 144:6 165:16
utilized 134:17	223:10, 12 224:12, 13	59:25 67:14 69:2	166:10 192:7 193:12
utilizing 172:3	228:25 229:15, 17, 20,	83:22 84:18 85:11,	211:17 212:9, 10
	24 230:3 232:2	15, 24 91:5 92:1	223:22, 23 226:2, 16
< V >	233:5 237:1, 6, 10, 18,	95:22 97:12 105:6	229:3
	24 238:1, 11, 14, 19,	109:17 113:12	wording 180:21

words 120:18 124:13 128:6 162:2, 4 165:20, 24 166:13 167:24 171:23 174:15, 22 180:18 182:9, 10 204:4 206:12 211:19 217:19 230:18 231:1, 12, 19, 22 work 50:25 149:10 180:15 worked 50:20, 23 105:4 working 12:14 43:13 works 10:3 17:13 42:10 136:3 177:23 179:16 world 118:3 worthwhile 209:10 would've 21:6 72:9 198:11 write 53:9 87:10 115:18 161:14 written 65:19 67:13 73:18 74:17 75:3, 13, 17 76:3, 5, 21 77:3, 20 80:3 84:10 89:8 107:3 117:21 121:8 131:10 173:10 182:10 184:11 wrong 39:23 41:1 73:15 125:4 177:3 230:19, 20 245:1 wrote 88:16 124:24 132:9, 16 206:17 < X > Xia 44:22 Xiang-Gen 44:22 < Y > Yeah 7:21 12:6 30:17 48:14 49:11 69:13 74:4 98:3 99:2, 15 117:9 153:1, 3 159:11 163:6 165:4 170:9 172:22 181:10 194:5 195:8 200:21 209:11 212:18 213:14	218:23 221:12 222:3 227:17 229:13 245:17 years 90:15 York 2:11 3:7 252:3, 5, 8 Yup 19:17 33:3, 18 38:21 41:12 62:23 68:22 136:20 196:7 197:14 207:23 226:22 227:15 246:11 < Z > zero 149:3 152:3 ZOOM 2:8		
--	---	--	--

WORD LIST

< 0 >	17 (8)	242 (1)	59 (3)
0 (1)	18 (7)	25 (4)	< 6 >
000 (8)	180 (2)	26 (2)	6 (15)
003 (1)	19 (10)	27 (2)	6:46 (1)
01540 (1)	196 (6)	28 (2)	6:52 (1)
01541 (1)	1978 (1)	29 (1)	6:53 (2)
027 (2)	1980s (1)	2C (1)	60 (3)
047 (32)	1990 (1)	< 3 >	61 (2)
062 (4)	1990s (1)	3 (14)	62 (2)
< 1 >	1994 (1)	3:15 (1)	627 (10)
1 (27)	1997 (2)	3:29 (1)	62A (1)
1,307 (1)	1999 (3)	31 (5)	62B (4)
1:48 (1)	< 2 >	32 (1)	62C (1)
10 (19)	2 (17)	34 (13)	62D (4)
10,468,047 (1)	20 (20)	35 (6)	62E (5)
10:41 (1)	2000 (1)	350 (1)	63 (9)
10:54 (1)	2001 (33)	37 (1)	64 (3)
1001 (3)	2002 (2)	38 (6)	64B (2)
10017 (1)	2003 (73)	39 (1)	64C (2)
10027391 (3)	2005-ish (1)	391 (2)	64E (2)
1004 (6)	201 (1)	3C (2)	64F (2)
1004-0001 (1)	2011 (3)	3G (1)	65 (2)
1005 (16)	2015 (2)	3rd (2)	66 (4)
1009 (2)	2016 (1)	< 4 >	< 7 >
1011 (5)	2017 (2)	4 (15)	7 (26)
10129627 (3)	2018 (2)	40 (4)	7000 (1)
1015 (3)	2019 (2)	41 (1)	71 (2)
1016 (3)	2020 (3)	42 (3)	78731 (1)
1022 (1)	2021 (3)	424 (1)	7A (5)
1037 (4)	2021-00284 (4)	43 (1)	< 8 >
10468047 (6)	2021-00285 (1)	44 (1)	8 (18)
10648012 (1)	2022 (1)	45 (1)	801 (1)
11 (24)	2023 (2)	46 (1)	80211 (5)
12 (14)	2024 (3)	47 (1)	803 (2)
12:35 (1)	2025-01516 (15)	48 (3)	805 (1)
13 (13)	2025-01540 (2)	< 5 >	807 (1)
14 (11)	2025-01541 (2)	5 (7)	811 (1)
149 (1)	2025-0516 (1)	5:25 (1)	813 (1)
15 (18)	2026 (7)	5:31 (1)	815 (1)
1516 (1)	203 (1)	50 (2)	82 (1)
1540 (2)	209 (1)	5185766 (2)	827 (1)
1541 (1)	21 (6)	518577 (1)	85 (2)
16 (3)	217 (1)	54 (4)	86 (1)
1-6 (2)	219 (1)	57 (4)	87 (1)
160 (1)	22 (2)	57717 (1)	88 (1)
161 (1)	22nd (1)	58 (2)	89 (2)
	23 (4)		
	24 (4)		

8B (3)	agree (23)	applicant (4)	attention (1)
8-bit (8)	AGREED (4)	application (96)	Attorneys (3)
< 9 >	agreement (2)	applications (6)	attribute (12)
9 (34)	agrees (1)	application's (1)	attributes (2)
9:00 (1)	ahead (5)	applied (2)	audio (6)
9:22 (1)	aim (1)	apply (5)	August (7)
90 (2)	aims (1)	appreciate (1)	Austin (1)
910700 (1)	air (2)	approach (2)	author (1)
9107000 (1)	al (4)	appropriate (1)	authority (2)
915 (1)	Alexander (1)	approximately (2)	authorized (1)
917 (1)	align (1)	April (1)	authors (1)
95 (1)	allegations (1)	arbitrary (1)	available (2)
< A >	alleged (1)	architecture (6)	Avenue (1)
a.m (2)	allegedly (1)	architectures (3)	aware (23)
ability (4)	alleging (1)	areas (1)	< B >
able (4)	allocation (1)	argued (1)	back (24)
absence (4)	allow (1)	argument (2)	background (8)
absent (2)	allowed (2)	arguments (4)	backwards (1)
Absolutely (1)	allowing (1)	arranged (1)	bad (3)
abstract (4)	allows (2)	arrive (1)	band (2)
AC (1)	altering (3)	art (44)	bandwidth (2)
accept (4)	alternative (1)	article (5)	bare (1)
access (9)	amended (1)	articles (1)	base (70)
accomplish (1)	amendments (2)	articulate (1)	based (17)
accomplishes (1)	analog (3)	articulated (1)	basic (1)
accurate (5)	analysis (21)	arts (1)	basically (10)
accurately (7)	analyze (3)	ascribe (1)	basis (10)
achieve (1)	analyzed (2)	aside (9)	bathroom (2)
action (1)	and/or (1)	asked (54)	battery (15)
actual (5)	answer (56)	asking (50)	battery-operated (1)
ADCs (1)	answered (22)	aspect (1)	beginning (2)
add (4)	answering (5)	aspects (1)	begins (2)
added (1)	answers (2)	assign (5)	belief (1)
adding (7)	antenna (7)	assigned (21)	believe (28)
addition (5)	anticipates (1)	assigning (9)	believed (1)
additional (3)	anticipating (1)	assignment (9)	bell (1)
additionally (1)	anybody (2)	assignments (2)	benefit (2)
address (2)	apart (1)	assigns (9)	benefits (2)
adds (2)	apologies (2)	assistant (2)	best (3)
adjusts (1)	apologize (5)	associated (2)	better (7)
administer (1)	apparatus (27)	assume (10)	beyond (6)
administers (1)	apparatuses (1)	assumed (8)	big (1)
administrative (1)	apparently (1)	Assuming (1)	biggest (1)
advanced (1)	APPEAL (1)	assumption (1)	bind (2)
advantages (1)	appear (5)	asynchronosity (1)	bit (14)
affixed (1)	appearances (1)	asynchronous (2)	bits (9)
ago (3)	appears (7)	attached (6)	Bless (1)
	appellate (1)	attachment (1)	blocked (1)
	Apple (5)	attachments (1)	

blood (1)	change (9)	combinational (1)	connects (1)
blue (3)	changed (5)	combinations (2)	consciously (1)
BOARD (3)	changes (1)	combine (2)	Consequently (3)
book (1)	changing (2)	combined (1)	consider (4)
boss (1)	channel (10)	combining (1)	consideration (9)
bottom (7)	channels (1)	come (11)	considered (12)
bounces (1)	characteristics (1)	comes (2)	consist (1)
bound (2)	characterization (2)	comment (2)	consistency (1)
boy (1)	characterize (1)	COMMISSION (1)	consistent (4)
brain (1)	characterizing (1)	Commoca (2)	consistently (1)
break (11)	cheap (1)	C-O-M-M-O-C-A (1)	consolidated (1)
brief (3)	check (1)	common (1)	constrained (1)
Briefly (2)	chip (9)	communicate (2)	constraining (1)
bring (1)	chipping (1)	communicates (1)	constructed (2)
broadcasting (1)	Cho (2)	communicating (1)	construction (21)
broader (1)	choice (10)	communication (27)	constructions (12)
build (1)	choices (1)	Communications (5)	construe (2)
burden (1)	choose (1)	company (3)	construed (2)
business (2)	circle (1)	comparable (1)	consume (1)
< C >	circuit (24)	compared (2)	consumption (4)
call (2)	circuits (1)	comparison (1)	contains (1)
called (4)	circumstance (1)	complete (1)	contemplated (3)
calls (1)	citation (7)	completely (3)	contemplates (3)
camera (1)	citations (9)	completeness (2)	contemporary (1)
cancelled (1)	cite (10)	complexity (4)	content (2)
capacity (1)	cited (14)	component (4)	contents (1)
careful (1)	citing (2)	components (10)	context (52)
carefully (1)	claim (57)	composition (1)	continuation (15)
carrier (2)	claimed (7)	Compound (13)	continuations (1)
carry (1)	claiming (2)	comprehends (1)	continue (5)
Case (17)	claims (41)	comprise (1)	continues (2)
cases (3)	clarification (2)	comprises (3)	continuing (2)
catching (1)	clarified (1)	computer (3)	contradict (1)
cause (1)	clarify (12)	conceive (1)	control (59)
caused (20)	clear (23)	concept (2)	controlled (3)
CCR-NJ (2)	clearly (4)	concepts (1)	controller (33)
CDMA (103)	close (3)	conclude (1)	controllers (6)
center (1)	closed (2)	conclusion (10)	Controlling (2)
centered (1)	CMI (1)	conclusions (3)	convenient (1)
central (66)	CMOS (3)	conditions (1)	conversion (24)
centralized (4)	code (143)	configured (1)	converters (3)
centrally (6)	coded (4)	confined (3)	convolution (3)
centrals (1)	codes (70)	confirm (7)	convolutional (19)
certain (4)	coding (40)	confirms (1)	copies (5)
certainly (25)	coincide (3)	confused (2)	copy (4)
certify (2)	collection (1)	confusing (3)	corners (4)
chains (2)	column (41)	confusion (1)	correct (89)
challenged (2)	columns (3)	connected (3)	corrected (2)
	combination (8)	connecting (2)	correction (5)

CORRECTIONS (1)	decode (5)	difference (12)	< E >
correctly (1)	decoding (3)	differences (18)	e.g (3)
correlation (1)	deep (13)	different (44)	earlier (16)
correlations (1)	defer (1)	differential (9)	early (1)
correspond (1)	define (2)	differently (1)	easier (2)
corresponding (1)	defined (3)	Digital (13)	easy (1)
cost (22)	definitely (3)	diminish (3)	echo (2)
costs (4)	definition (6)	DiNOVO (2)	echos (7)
could've (2)	definitively (1)	direct (26)	edition (3)
Counsel (7)	degradation (2)	directed (4)	Edward (1)
count (2)	degrees (3)	disagree (4)	effect (4)
COUNTY (1)	demodulated (1)	disclose (9)	effects (4)
couple (1)	demodulating (1)	disclosed (28)	efficiency (7)
Court (12)	demodulator (1)	discloses (16)	efficient (3)
cover (2)	demonstrate (1)	disclosing (4)	effort (1)
covered (2)	demonstration (1)	Disclosure (16)	eight (4)
CPU (2)	Dep (1)	disclosures (10)	either (9)
CPUs (1)	depend (3)	discreet (1)	ELECTRONICS (5)
create (6)	depending (1)	discuss (2)	element (2)
created (1)	depends (2)	discussed (15)	elements (8)
creating (1)	Deponent (2)	discussing (10)	eliminating (2)
cross (8)	deposed (1)	discussion (2)	embodiment (26)
current (2)	DEPOSITION (15)	disgruntled (1)	embodiments (2)
currently (1)	describe (3)	displaced (1)	emphasis (1)
cycle (6)	described (10)	display (2)	employee (2)
< D >	describes (5)	dispute (6)	encode (3)
DACs (1)	describing (2)	disputed (1)	encoded (3)
DANIEL (2)	description (26)	disputing (1)	encodes (1)
dash (1)	design (13)	dissect (1)	encoding (27)
data (15)	designated (1)	distinction (4)	ends (1)
database (3)	designed (13)	District (6)	enforcement (1)
date (10)	designing (5)	division (10)	engineering (1)
dates (2)	designs (4)	Document (71)	English (1)
Davies (12)	desired (1)	documents (6)	ensure (4)
day (3)	detail (1)	doing (14)	ensuring (1)
days (2)	detailed (2)	domain (1)	entire (2)
deal (1)	details (1)	double (3)	entirety (5)
December (2)	detection (1)	doubt (1)	entitled (1)
decide (2)	determination (2)	DPSK (10)	entity (7)
decided (1)	determine (1)	DR (10)	enumerated (1)
decides (2)	determining (1)	drawing (1)	environment (2)
decision (2)	developments (3)	drawings (4)	equivalence (1)
decisions (4)	deviate (1)	drop (2)	equivalently (1)
declarant (11)	device (35)	drove (1)	errata (2)
declarant's (3)	devices (12)	due (1)	error (6)
declaration (115)	diagram (1)	duly (2)	errors (4)
declarations (37)	diagrams (1)	duplex (2)	especially (1)
declaring (1)	dictates (1)	duty (6)	ESQ (2)
	differ (1)		

essence (1)	extreme (2)	follows (1)	goes (7)
essentially (1)	extremely (2)	force (1)	going (41)
establish (1)	eye (1)	forces (1)	good (6)
established (4)	eyes (3)	foreign (1)	Gotcha (1)
establishing (1)		form (256)	gotten (1)
et (3)	< F >	formed (1)	grammar (3)
Ethernet (1)	fact (4)	forms (2)	graph (1)
evaluating (1)	factor (1)	forth (5)	Great (6)
Everest (2)	factors (1)	forward (1)	greater (2)
evidence (2)	fade (9)	found (1)	GREENBERG (2)
exact (5)	fades (8)	foundation (32)	ground (1)
exactly (8)	fading (13)	foundational (1)	grounds (2)
EXAMINATION (1)	fair (15)	founded (1)	group (1)
examined (1)	familiar (5)	four (11)	Guaynabo (1)
example (31)	familiarity (2)	fourth (6)	guess (12)
examples (5)	family (1)	frame (21)	guessing (1)
excellent (1)	far (9)	frames (3)	
exception (1)	fast (1)	frankly (1)	< H >
excerpt (5)	faster (1)	freedom (1)	halfway (1)
excluded (1)	feel (1)	frequency (10)	hand (10)
Excuse (1)	female (1)	front (13)	Handbook (2)
exemplary (1)	field (1)	full (3)	handed (3)
exercises (1)	figure (50)	fully (1)	handing (2)
Exhibit (145)	figures (5)	function (5)	handle (1)
Exhibits (20)	file (12)	functions (2)	handles (1)
exist (2)	filed (22)	fundamental (6)	handling (3)
existed (1)	filing (2)	fundamentally (1)	handset (3)
expect (8)	filings (1)	FURTHER (11)	handsets (1)
expected (1)	filters (3)	furthermore (1)	happen (1)
expensive (2)	final (3)		happened (1)
experience (6)	finally (1)	< G >	happening (2)
expert (22)	find (5)	gain (17)	happy (10)
experts (3)	finds (1)	gather (1)	hard (2)
EXPIRES (1)	fine (8)	gears (1)	hardware (1)
explain (6)	finish (1)	general (11)	head (9)
explained (2)	finished (2)	generally (17)	headed (1)
explaining (2)	finishes (1)	generated (4)	header (1)
explains (1)	first (31)	generates (2)	heading (2)
explanation (3)	five (6)	generating (4)	headphone (6)
explanations (2)	flexibility (1)	generator (22)	headphones (3)
explicit (1)	flip (5)	generators (4)	headset (1)
explicitly (6)	flipped (2)	getting (1)	hear (1)
explore (2)	flipping (2)	Gibson (7)	heard (2)
expressly (3)	Florida (1)	Give (18)	held (2)
Expy (1)	fly (2)	given (3)	help (5)
extending (1)	focus (3)	giving (3)	helpful (7)
extends (1)	focused (3)	go (41)	helping (1)
extent (11)	focusing (1)	goal (1)	helps (3)
external (6)	following (3)	goals (4)	hereinbefore (1)

hereunto (1)	incorporate (1)	internet (1)	June (3)
hesitate (2)	incorrect (2)	interparties (1)	< K >
heterodyne (1)	increases (1)	interpret (4)	KAPADIA (67)
high (6)	Independent (60)	interpretation (4)	keep (4)
highlight (1)	indicated (4)	interpreted (2)	key (2)
highlighted (1)	indicates (3)	interpreting (2)	keying (9)
highlighting (1)	indication (1)	interrelated (1)	keys (1)
histories (2)	infer (1)	interrupted (1)	keyword (1)
history (35)	inferred (1)	intersymbol (64)	kind (6)
holders (1)	influence (1)	intersymboling (1)	know (117)
honest (2)	inform (1)	intricacies (1)	knowing (1)
honestly (2)	information (9)	introduced (4)	knowledge (5)
hope (2)	informed (2)	introducing (1)	known (1)
hopefully (3)	informing (1)	invariably (1)	< L >
hopping (16)	informs (1)	invented (1)	labeled (2)
hotel (1)	infrastructure (3)	invention (8)	lady (1)
hours (2)	inherency (2)	inventions (2)	landscape (1)
hundreds (2)	inherent (10)	inventor (5)	language (5)
Hura (1)	inherently (13)	inverse (3)	larger (1)
H-U-R-A (1)	initially (1)	involved (5)	late (2)
HYBRID (2)	injected (1)	involvement (1)	latest (1)
hypothetical (3)	innovation (2)	involves (1)	laugh (1)
< I >	input (4)	involving (2)	law (1)
ICMA (1)	inputted (1)	IPR (45)	lawyer (1)
identical (3)	inquiry (2)	IPR2025-01516 (1)	lead (3)
identification (6)	ins (1)	IPRs (37)	Leads (1)
identifies (1)	inside (1)	irrelevant (2)	leave (3)
IEEE (1)	instance (3)	ISI (6)	leaving (1)
ill (1)	instances (1)	isolate (1)	left (9)
illnesses (1)	instituted (1)	issue (2)	Legal (15)
illustrated (1)	instruct (2)	issued (4)	legaling (1)
illustrating (1)	instructed (3)	issues (1)	length (4)
imagine (1)	instructions (1)	it'll (3)	lengths (2)
immediately (1)	instructs (1)	its (17)	lets (2)
immunity (1)	Instruments (5)	< J >	letters (1)
impact (5)	insufficient (2)	January (1)	letting (1)
implementation (1)	integration (3)	Japanese (2)	level (2)
implementing (1)	intended (11)	Jenks (1)	life (1)
important (4)	intent (1)	Jerry (1)	light (1)
impossible (1)	intentionally (1)	Jersey (1)	limitation (15)
improving (2)	intercircuit (2)	JOB (2)	limitations (4)
impulse (2)	interested (1)	jog (1)	limited (4)
include (17)	interesting (1)	JOSE (9)	limiting (1)
included (9)	interface (3)	Joseph (3)	line (49)
includes (13)	interfere (2)	judge (2)	lines (11)
including (6)	interference (80)	jump (1)	link (1)
inclusion (1)	interleaving (9)	jumped (1)	links (1)
incoming (1)	intermediate (5)	jumping (2)	
	intermixed (1)		

LISA (5)	mark (6)	misunderstood (1)	non-CDMA (1)
list (5)	marked (14)	mitigate (1)	nonexistent (1)
listed (1)	marking (1)	mitigating (1)	nonorthogonal (1)
listen (1)	marriage (1)	mitigation (3)	nonsilicone (2)
literal (1)	Massachusetts (1)	mitigations (1)	Nope (1)
literally (13)	match (2)	mixed (1)	normally (4)
litigation (4)	material (3)	mixer (3)	Notary (7)
litigations (2)	materials (2)	Miyake (93)	note (1)
little (8)	matrix (2)	Miyake's (3)	notebook (1)
live (4)	matter (4)	mobile (1)	noted (4)
LLP (3)	McAlexander (3)	Modulated (4)	notice (1)
Ln (1)	mean (61)	modulates (3)	noting (1)
locating (1)	meaning (3)	modulation (11)	number (32)
location (1)	meaningless (1)	modulator (3)	numbers (12)
long (9)	means (25)	module (4)	NY (1)
longer (5)	meant (5)	modules (1)	< O >
longly (1)	mechanics (1)	Moe (1)	oath (3)
long-term (1)	mechanism (1)	moment (8)	object (48)
look (73)	media (3)	months (2)	Objection (250)
looked (41)	medical (1)	MoPac (1)	objections (18)
Looking (29)	meet (2)	morning (3)	objective (3)
looks (3)	MELLENDEZ (10)	move (1)	obtained (1)
loop (2)	memories (1)	muck (1)	obvious (3)
lose (4)	memorize (3)	multimedia (1)	Obviously (10)
lot (12)	memory (7)	multiple (17)	obviousness (1)
loud (6)	mention (3)	multistandard (3)	occur (3)
loved (1)	mentioned (27)	multitude (1)	occurred (1)
low (23)	mentioning (1)	Mumblin (1)	occurs (5)
low-cost (10)	message (2)	MURACO (5)	odd (2)
lower (1)	messages (2)	< N >	oddly (1)
LUIS (9)	met (2)	name (8)	offer (1)
lunch (1)	method (2)	names (3)	offered (1)
< M >	Metro (1)	natural (5)	offhand (3)
mad (1)	Mh-hm (2)	nature (3)	OFFICE (9)
maintain (12)	microphone (3)	necessarily (14)	officer (1)
maintained (10)	microphones (1)	necessary (1)	official (1)
maintaining (2)	mid (1)	neck (1)	officially (1)
maintains (3)	middle (2)	need (22)	Oh (13)
maintenance (2)	military (2)	needed (5)	Okay (235)
making (4)	mind (3)	needless (1)	omitted (1)
manage (5)	mine (1)	needs (4)	omni-directional (2)
managed (2)	minimizing (1)	networking (1)	once (2)
managing (1)	minimum (3)	never (2)	ONE-E-WAY (12)
manual (6)	minor (2)	New (11)	ones (1)
manually (1)	minutes (3)	nine (8)	one-to-one (1)
manufactured (1)	missed (1)	nod (1)	oOo (1)
manufacturer (6)	missing (1)	noise (3)	open (5)
manufacturer's (1)	mistake (4)	non (2)	opened (1)
	misunderstand (1)		

open-ended (1)	parens (2)	PM (2)	probably (10)
operate (2)	parentheses (1)	PN (19)	problem (4)
operated (12)	parenthetical (3)	point (18)	problems (1)
operates (1)	Park (1)	pointed (1)	proceeding (2)
operating (1)	part (60)	pointing (2)	process (7)
operation (4)	partial (1)	portable (16)	processed (3)
opine (8)	partially (1)	portion (4)	processes (4)
opined (2)	particular (12)	portions (3)	Professional (1)
opinion (44)	particularly (3)	POSA (6)	program (1)
opinions (40)	parties (2)	POSITA (1)	programmable (2)
opportunity (1)	parts (6)	position (4)	programming (1)
opposed (2)	party (2)	positions (5)	programs (4)
optimizes (2)	PATENT (118)	possibility (3)	properly (3)
optimizing (2)	patentee (1)	possible (5)	propose (1)
option (5)	patents (50)	power (17)	proposed (5)
options (1)	paths (3)	powered (3)	prosecution (22)
order (11)	PDA (9)	practical (1)	protocol (1)
ordinary (38)	pen (1)	practically (1)	provide (12)
organization (1)	pencil (1)	practice (1)	provided (11)
oriented (3)	pending (4)	preassigned (1)	provides (2)
original (13)	people (2)	predate (1)	providing (1)
originally (4)	percent (1)	predates (1)	PSK (7)
originated (1)	Perfect (1)	preferred (2)	PTAB (3)
orthogonality (1)	perform (4)	preliminary (1)	Public (4)
orthogonal (23)	performed (14)	premarked (2)	publication (4)
orthogonality (44)	performs (1)	premise (1)	publications (1)
oscillators (2)	period (1)	preparation (4)	published (1)
outcome (1)	permits (1)	preparations (2)	Puerto (1)
output (1)	person (39)	prepared (2)	pull (6)
outputting (2)	personal (5)	preparing (3)	pulled (2)
outs (1)	perspective (4)	PRESENT (6)	pulling (1)
outside (8)	pertinent (5)	preserve (3)	purpose (2)
overall (3)	petition (31)	preserved (1)	put (13)
overlap (2)	Petitioner (27)	presumably (2)	
Owner (15)	petitioner's (1)	pretty (5)	< Q >
owners (1)	petitions (6)	prevent (2)	qualified (1)
	Pg (1)	preventing (1)	qualify (2)
< P >	phase (14)	previous (6)	queries (1)
p.m (2)	phases (1)	previously (4)	question (151)
page (64)	phone (1)	PRICE (2)	questioning (3)
pages (14)	phrase (2)	primarily (3)	questions (10)
paid (1)	phrasing (1)	primary (4)	quick (2)
pairs (1)	physical (1)	principle (1)	quickly (3)
pan (4)	place (4)	principles (2)	quiet (1)
paper (5)	places (1)	print (1)	quit (1)
paragraph (65)	please (15)	prior (8)	quite (1)
paragraphs (11)	plenty (1)	priority (1)	quotations (6)
parasitic (1)	plethora (1)	private (1)	quote (7)
paren (3)	plurality (2)	privilege (1)	quoted (1)

quotes (2)	reduction (5)	Reporting (2)	ruling (3)
< R >	reductions (1)	represent (6)	rulings (1)
radio (2)	redundancies (1)	representation (3)	< S >
ran (2)	redundancy (18)	representative (1)	safe (3)
rate (1)	reexplain (1)	represented (3)	sake (2)
reaches (1)	refer (30)	representing (1)	SAMSUNG (19)
read (76)	reference (18)	require (13)	Sandra (3)
reading (21)	referenced (9)	required (5)	saw (5)
readminister (1)	references (2)	requirement (18)	saying (23)
Reads (1)	referencing (1)	requirements (7)	says (85)
ready (3)	referred (20)	requires (11)	scenario (2)
real (2)	referring (14)	requiring (1)	scheme (3)
realistic (1)	refers (7)	requisite (1)	SCHMID (323)
reality (1)	reflect (1)	resay (1)	Scholtz (2)
realize (1)	reflected (2)	researched (1)	Scope (46)
realized (1)	reflections (1)	reserved (1)	sealing (1)
really (22)	refresh (3)	resistance (2)	search (2)
re-ask (1)	regarding (8)	resistant (1)	searching (1)
reason (6)	Regis (1)	resolution (1)	second (15)
reasonably (1)	Registered (2)	respect (41)	secondary (1)
reasons (2)	regular (1)	respective (3)	Section (64)
rebut (2)	relate (16)	respectively (3)	sections (5)
rebuttal (2)	related (22)	respond (2)	see (157)
rebutting (5)	relates (9)	response (26)	seeing (3)
recall (31)	relationship (2)	responses (3)	seen (3)
receive (11)	relevant (21)	rest (1)	segment (6)
received (10)	relied (3)	restate (8)	select (9)
receiver (30)	relies (1)	restricting (1)	selectable (1)
receivers (4)	rely (5)	restrictions (1)	selected (4)
receiving (13)	relying (1)	resulting (1)	selecting (4)
reception (5)	remain (1)	retained (5)	selection (6)
Recess (5)	remains (1)	retention (1)	send (2)
recipient (1)	remember (9)	reversed (2)	sending (2)
recite (6)	remembered (2)	review (73)	sense (10)
recited (7)	remembering (1)	reviewed (21)	sensitive (1)
recites (5)	remind (3)	reviewing (8)	sent (1)
reciting (3)	reminds (1)	rewind (1)	sentence (54)
recognize (2)	REMOTE (1)	Rico (1)	sentences (4)
recognized (1)	remove (2)	rid (1)	separate (3)
recollection (43)	rendered (1)	right (47)	separated (1)
reconstruct (5)	renders (1)	ring (1)	separation (1)
record (27)	rep (1)	Robert (2)	sequence (2)
recorded (1)	repeat (12)	role (1)	serial (3)
red (2)	rephrase (2)	roughly (1)	set (21)
redirect (2)	replacing (2)	Row (1)	setting (4)
reduce (4)	reply (2)	rows (1)	seven (1)
reduced (4)	report (1)	RPR (1)	severe (1)
reducing (2)	Reported (1)	Rudell (3)	shake (1)
	Reporter (3)	rules (2)	

share (1)	small (1)	station (61)	surprised (7)
shared (1)	snooping (1)	stations (8)	switch (25)
sharing (4)	soft (1)	stay (1)	switched (4)
SHEET (1)	somewhat (1)	step (1)	switching (6)
shift (9)	Song (1)	STIPULATED (3)	swore (1)
shifted (1)	Sony (3)	stop (3)	sworn (8)
shifting (2)	soon (1)	storing (1)	symbol (3)
short (14)	sorry (49)	straight (1)	symbols (3)
shorten (1)	sort (8)	strain (1)	synchronized (1)
shortening (1)	sorts (2)	strategies (6)	synchronous (2)
shortly (1)	sounded (1)	strategy (1)	synonyms (1)
short-term (1)	sounds (3)	strength (3)	system (50)
showing (4)	source (4)	strict (1)	systems (11)
shown (4)	sources (1)	strictly (2)	
shows (1)	space (3)	strike (38)	< T >
shuts (1)	spark (1)	string (1)	table (2)
sic (1)	sparked (1)	strong (4)	take (18)
side (25)	spatial (2)	structure (4)	taken (7)
sided (2)	speak (6)	stuck (1)	takes (1)
sides (1)	speaker (7)	student (1)	talk (9)
signal (63)	speakers (1)	studied (6)	talked (3)
signaling (1)	speaking (3)	study (3)	talking (9)
signals (5)	Specialist (3)	studying (1)	talks (1)
Signature (1)	specific (35)	stuff (2)	tape (1)
signed (2)	specifically (40)	Suarez (3)	target (1)
significant (1)	specification (29)	sub (1)	taught (2)
silent (6)	specifications (1)	subject (6)	TDMA (3)
silicone (1)	specified (1)	submitted (3)	teach (1)
similarities (1)	spectrum (21)	Subscribed (2)	team (1)
similarly (1)	speed (1)	subspecies (1)	technical (2)
Simon (1)	spend (2)	substantive (2)	technically (1)
simple (3)	spent (4)	substantively (1)	techniques (2)
simply (1)	spot (2)	subsystem (1)	technologies (2)
single (9)	spread (25)	subsystems (1)	technology (2)
single-consolidated (1)	spreading (65)	sufficient (2)	telephone (14)
site (1)	ss (1)	sufficiently (2)	tell (12)
Sitting (5)	stage (1)	suggest (3)	telling (2)
situation (4)	stamp (2)	suggesting (1)	temporary (1)
situations (1)	stand (1)	suggests (1)	ten (3)
six (2)	standard (3)	suit (1)	tend (2)
size (2)	standpoint (1)	suitable (3)	term (12)
skill (38)	start (13)	Summary (3)	terminal (2)
skim (2)	started (4)	superheterodyne (2)	terminals (1)
skip (1)	Starting (9)	supplied (1)	terms (35)
slash (4)	starts (23)	support (5)	test (2)
slightly (1)	State (10)	suppose (3)	testified (1)
slot (1)	stated (9)	supposed (3)	testifying (1)
slots (7)	statement (5)	sure (58)	testimony (7)
	STATES (7)	surprise (1)	Texas (5)

text (7)	turn (30)	Venn (1)	written (22)
Thank (15)	Turning (2)	verbal (1)	wrong (8)
thereof (2)	turns (1)	verify (4)	wrote (5)
thing (12)	two (42)	version (3)	< X >
things (28)	TX (1)	versus (3)	Xia (1)
think (128)	type (3)	Video (6)	Xiang-Gen (1)
thinking (5)	typed (1)	VIDEOGRAPHER (16)	< Y >
third (13)	types (6)	VIDEOTAPED (1)	Yeah (31)
THIS___DAY (1)	typically (1)	view (4)	years (1)
thought (7)	< U >	viewed (4)	York (5)
thousand (1)	U.S (18)	VIMAL (2)	Yup (14)
thousands (1)	Uber (1)	voice (2)	< Z >
three (55)	ultimately (6)	< W >	zero (2)
Thursday (3)	Ultra-wide (2)	wait (3)	ZOOM (1)
time (97)	unaware (2)	waiting (2)	
times (10)	unclear (8)	waived (1)	
title (1)	underneath (1)	Walley (81)	
titled (12)	understand (73)	want (50)	
today (18)	understanding (40)	wanted (2)	
Today's (1)	Understood (20)	wants (1)	
toggle (2)	undisputed (1)	waste (1)	
told (4)	unintentional (1)	way (35)	
tool (1)	unique (21)	ways (1)	
top (17)	unit (41)	welcome (3)	
totally (2)	UNITED (2)	well (48)	
track (1)	unknown (1)	went (3)	
TRADEMARK (2)	unnecessary (1)	We're (15)	
train (1)	unreasonable (1)	we've (11)	
transceivers (3)	unrelated (4)	WHEREOF (1)	
TRANSCRIPT (1)	upper (1)	wide (1)	
transform (1)	use (41)	Win (2)	
transformed (2)	user (45)	wired (1)	
translated (2)	users (20)	wireless (26)	
transmission (22)	user's (1)	Witness (15)	
transmissions (8)	uses (11)	Wong (1)	
transmit (32)	usually (2)	Woolfork (6)	
transmits (1)	utilized (1)	word (20)	
transmitted (4)	utilizing (1)	wording (1)	
transmitter (35)	< V >	words (25)	
transmitters (3)	vague (1)	work (3)	
transmitting (3)	Vanderbilt (1)	worked (3)	
TRAURIG (2)	vantage (1)	working (2)	
treated (1)	variable (5)	works (6)	
tree (2)	variations (1)	world (1)	
TRIAL (2)	varied (1)	worthwhile (1)	
tried (3)	various (1)	would've (3)	
true (1)	varying (1)	write (4)	
try (8)			
trying (27)			