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Transcript of Tim A. Williams, Ph.D.

Date: April 9, 2021

Case: Mediatek Inc., et al. -v- Nippon Telegraph and Telephone Corporation
(PTAB)

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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE WESTERN DISTRICT OF TEXAS
3 AUSTIN DIVISION

3 NIPPON TELEGRAPH AND
4 TELEPHONE COPORATION
5 and ESSENTIAL WIFI LLC,

5 Plaintiffs,

6 v.

CASE NO.
1:20-cv-00632-ADA

7 MEDIATEK INC. AND
8 MEDIATEK USA INC.,

9 Defendants.

10
11 Videotaped deposition of

12 TIM A. WILLIAMS, Ph.D.

13 Via Videoconference

14 Friday, April 9, 2021

15 12:09 p.m.

16 VOLUME I

17
18
19
20
21
22
23 Job No.: 364163

24 Pages: 1 - 179

25 Reported by: Lori Roy, RPR, CCR

1 Videotaped deposition of TIM A. WILLIAMS,
2 Ph.D., held via videoconference.

3
4
5
6 Pursuant to agreement, before Lori Roy,
7 Registered Professional Reporter, Certified Court
8 Reporter.

A P P E A R A N C E S

ON BEHALF OF THE PLAINTIFFS

BRYAN D. ATKINSON

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(Present via videoconference)

ON BEHALF OF THE DEFENDANTS

GREGORY NIEBERG

NATHAN SPEED

WOLF GREENFIELD & SACKS, PC

60 ATLANTIC AVENUE

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(Present via videoconference)

ALSO PRESENT:

Jillian Barricelli, Planet Depo Technician

Drew Halton, Planet Depo Videographer

C O N T E N T S

EXAMINATION OF TIM A. WILLIAMS, Ph.D.	PAGE
By Mr. Atkinson	6

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1	P R O C E E D I N G S	12:09:27
2	THE VIDEOGRAPHER: Here begins Tape Number	12:09:27
3	1 in the videotaped deposition of Tim Williams,	12:09:29
4	Ph.D., in the matter of Mediatek, Inc., et al.	12:09:33
5	versus Nippon Telegraph and Telephone Corporation	12:09:37
6	in the U.S. District Court for the Western District	12:09:40
7	of Texas, Austin Division, Number IPR 2020-01401.	12:09:43
8	Today's date is April 9, 2021. The time on the	12:09:53
9	video monitor is 12:09 p.m.	12:09:55
10	The videographer today is Drew Halton	12:09:58
11	representing Planet Depos. All participants are	12:10:00
12	attending remotely. Would counsel please voice	12:10:04
13	identify themselves and state who they represent?	12:10:07
14	MR. ATKINSON: This is Bryan Atkinson of	12:10:08
15	Dickinson Wright. I'm representing Nippon	12:10:12
16	Telephone and Telegraph Corporation.	12:10:18
17	MR. NIEBERG: I'm Gregory Nieberg and	12:10:20
18	joining me is Nathan Speed, both of Wolf	12:10:23
19	Greenfield, and we represent the Mediatek	12:10:26
20	petitioners.	12:10:29
21	THE VIDEOGRAPHER: The videographer is	12:10:29
22	today is Drew Halton representing Planet Depos.	12:10:33
23	The court reporter is Lori Roy representing Planet	12:10:34
24	Depos.	12:10:37
25	Would the reporter please swear in the	12:10:37

1	witness.	12:10:38
2	THE REPORTER: Will counsel please	12:11:04
3	stipulate that in lieu of formally swearing in the	12:11:04
4	witness, the reporter will instead ask the witness	12:11:04
5	to acknowledge that their testimony will be true	12:11:04
6	under the penalties of perjury, that counsel will	12:11:04
7	not object to the admissibility of the transcript	12:11:04
8	based on proceeding in this way, and that the	12:11:04
9	witness has verified that he/she is in fact Tim	12:11:04
10	Williams, Ph.D.?	12:11:04
11	MR. NIEBERG: That's fine for the Mediatek	12:11:04
12	petitioners.	12:11:05
13	MR. ATKINSON: That's fine with NTT.	12:11:06
14	TIM A. WILLIAMS, Ph.D.,	12:11:25
15	being first duly sworn or affirmed to testify to	12:11:25
16	the truth, the whole truth, and nothing but the	12:11:25
17	truth, was examined and testified as follows:	12:11:25
18	EXAMINATION BY COUNSEL FOR THE PLAINTIFFS	12:11:25
19	EXAMINATION	12:11:25
20	BY MR. ATKINSON:	12:11:25
21	Q. Dr. Williams, would you mind stating your	12:11:25
22	full name for the record?	12:11:27
23	A. Tim Arthur Williams.	12:11:29
24	Q. And where are you currently employed?	12:11:34
25	A. I work for my own company.	12:11:37

1	Q.	Which is?	12:11:41
2	A.	It's called Beach Technologies.	12:11:43
3	Q.	I'm sorry. I interrupted you. Would you	12:11:45
4		mind stating that again?	12:11:48
5	A.	It is a company called Beach Technologies,	12:11:49
6		B-E-A-C-H.	12:11:52
7	Q.	Okay. And what is your title with that	12:11:57
8		company?	12:11:59
9	A.	I'm the owner, CEO.	12:12:00
10	Q.	Okay. And is there any reason today that	12:12:01
11		would prevent you from giving accurate and complete	12:12:06
12		testimony?	12:12:09
13	A.	No.	12:12:10
14	Q.	Have you brought any notes with you to	12:12:11
15		this deposition?	12:12:16
16	A.	No.	12:12:18
17	Q.	Okay. If you need to take a break, please	12:12:21
18		just let me know. I would only request that you	12:12:25
19		answer the -- whatever question is pending and	12:12:27
20		possibly one to two follow-up questions, but I will	12:12:31
21		try to be accommodating to you. So if you need to	12:12:33
22		go to the restroom or you need water or you just	12:12:38
23		need a break to refresh, I'll -- we'll try to	12:12:40
24		accommodate that --	12:12:46
25	A.	Thank you.	12:12:47

1	Q.	-- as quickly as possible.	12:12:48
2		Does that sound fair?	12:12:51
3	A.	Yes. Thank you.	12:12:52
4	Q.	And we don't need to do it right now, but	12:12:55
5		if -- I'm not sure that we'll need to use it, but	12:13:00
6		would you be able to get -- would you be able to	12:13:06
7		have access to like blank paper and possibly either	12:13:12
8		a pen or a marker in case -- oh, excellent. Okay.	12:13:15
9		So just in the event that we need to, you know,	12:13:26
10		make some drawings to help illustrate our	12:13:28
11		discussions today, would that be possible?	12:13:30
12	A.	Yes.	12:13:31
13	Q.	Okay. Excellent. All right.	12:13:32
14		MR. ATKINSON: Would the court reporter	12:13:35
15		please pull up Exhibit 1004?	12:13:36
16		THE TECHNICIAN: Sure, Counsel. Everyone	12:13:42
17		stand by please.	12:13:45
18		Exhibit 1004 is now on screen.	12:13:53
19		(Mediatek Deposition Exhibit 1004 was	12:13:58
20		referenced.)	12:13:58
21		BY MR. ATKINSON:	12:13:58
22	Q.	Dr. Williams, I'll represent to you that	12:13:58
23		this is the CV that -- that was filed in connection	12:13:59
24		with the petitioner's petition for this suit.	12:14:06
25		Do you recognize this document?	12:14:13

1	A.	I do.	12:14:15
2	Q.	What is it?	12:14:15
3	A.	It's my CV. I can't scroll it, but it's	12:14:17
4		the first page of my CV.	12:14:24
5	MR. ATKINSON:	Right. Can we give control	12:14:26
6		to Dr. Williams?	12:14:29
7	THE TECHNICIAN:	There you go, Doctor.	12:14:31
8		You're all set.	12:14:33
9	THE WITNESS:	Thank you.	12:14:35
10		This is my CV.	12:14:49
11	BY MR. ATKINSON:		12:14:50
12	Q.	And just as you're looking through it, is	12:14:50
13		there anything that -- that needs to be updated on	12:14:52
14		this -- on your CV, or is it still accurate?	12:14:55
15	A.	Through Technology, we just shut that	12:15:00
16		company down in the last couple of weeks.	12:15:22
17	Q.	Okay. That's the Through Technology, LLC,	12:15:28
18		of Chicago, Illinois; is that --	12:15:32
19	A.	Correct.	12:15:36
20	Q.	Okay. So rather than "present," it would	12:15:36
21		be through 2021; is that right?	12:15:38
22	A.	Correct. That just happened in the last	12:15:41
23		couple of weeks.	12:15:46
24	Q.	Okay.	12:15:46
25	A.	Other than that, it looks pretty accurate.	12:15:49

1	Q.	Okay. All right.	12:15:51
2	MR. ATKINSON:	We can put that away, and	12:16:09
3		can we next turn to Exhibit 1003?	12:16:10
4	THE TECHNICIAN:	Everyone stand by,	12:16:15
5		please.	12:16:18
6		Exhibit 1003 is now on the screen.	12:16:24
7		(Mediatek Deposition Exhibit 1003	12:16:29
8		was referenced.)	12:16:29
9	MR. ATKINSON:	And can we give	12:16:29
10		Dr. Williams control in case he wants to look	12:16:30
11		through it?	12:16:33
12	THE TECHNICIAN:	There you go, Doctor.	12:16:33
13		You're all set.	12:16:35
14	THE WITNESS:	Thank you.	12:16:35
15	BY MR. ATKINSON:		12:16:37
16	Q.	Dr. Williams, I'll represent to you that	12:16:37
17		Exhibit 1003 is the Declaration that you submitted	12:16:40
18		in connection with the petitioner's petition for	12:16:43
19		this proceeding.	12:16:48
20		Do you recognize this document?	12:16:52
21	A.	I do.	12:16:53
22	Q.	And is that your signature? Luckily, you	12:16:55
23		have it right at the end here. That's at the end	12:17:00
24		of the document that you have displayed on the	12:17:04
25		screen?	12:17:07

1	A.	It is.	12:17:07
2	Q.	Okay. And do you have anything that you	12:17:08
3		feel like you need to add to -- to the -- to your	12:17:16
4		Declaration, this Declaration, that you're aware of	12:17:21
5		as we're sitting here right now?	12:17:24
6	A.	Not at this time.	12:17:26
7	Q.	Okay. And is it correct that you've been	12:17:27
8		retained by the petitioner in this matter,	12:17:37
9		Mediatek, to opine on the validity of U.S. Patent	12:17:42
10		7,280,551; is that correct?	12:17:48
11	A.	Yes.	12:17:50
12	Q.	And that's what this -- what this document	12:17:53
13		represents; is that correct?	12:17:57
14	A.	This document represents the results of my	12:18:00
15		work and expression of my opinion regarding the	12:18:03
16		questions present in this case.	12:18:08
17	Q.	Okay. All right. Well, we're likely	12:18:11
18		going to be referring to this document as we -- as	12:18:24
19		we go through the proceedings here today, but I	12:18:31
20		think for right now, for the immediate right now,	12:18:34
21		we can put that away.	12:18:39
22	MR. ATKINSON:	The next document I would	12:18:47
23		like to pull up is Exhibit 2023.	12:18:48
24	THE TECHNICIAN:	Sure, Counsel. Everyone	12:18:58
25		stand by, please.	12:19:00

1 Exhibit 2023 is now on the screen and,

12:19:03

2 Dr. Williams, you have control.

12:19:06

3 THE WITNESS: Okay.

12:19:07

4 (Mediatek Deposition Exhibit 2023 was

12:19:09

5 referenced.)

12:19:09

6 BY MR. ATKINSON:

12:19:09

7 Q. Now, Dr. Williams, I don't -- I don't know

12:19:09

8 if you've seen this document before or not. But if

12:19:13

9 you'll take a minute to look through it, it's

12:19:16

10 the -- well, it's the cover pleading and the first

12:19:22

11 exhibit, Exhibit A, from a district court case.

12:19:26

12 Well, before I get into that, are you

12:19:33

13 aware that there's also a pending litigation

12:19:36

14 between Nippon Telegraph and Telephone Corporation

12:19:39

15 and various other defendants, including Mediatek?

12:19:46

16 A. I've heard that there is, yeah.

12:19:50

17 Q. Okay. And so I will represent that this

12:19:54

18 was a joint statement made by -- well, actually

12:19:58

19 before I get into that, for shorthand, is it -- can

12:20:08

20 I refer to the plaintiff as -- can I refer to the

12:20:15

21 plaintiff, Nippon Telegraph and Telephone

12:20:20

22 Corporation, as NTT? Would that be -- well, and

12:20:23

23 also -- as well as co-plaintiff Essential WiFi, can

12:20:29

24 I refer to those plaintiffs collectively as NTT for

12:20:34

25 purposes here today?

12:20:39

1	A.	That's fine with me.	12:20:39
2	Q.	And the same with -- I think it's Mediatek	12:20:41
3		Corporation; is that correct? Or, no, I'm sorry,	12:20:47
4		Mediatek, Inc.	12:20:49
5		Can I refer to -- Mediatek, Inc., and --	12:20:51
6		as well a Mediatek USA, Inc., can we refer to them	12:20:54
7		as -- collectively as Mediatek?	12:20:59
8	A.	That's fine.	12:21:00
9	Q.	Okay. Just to make things a little bit	12:21:02
10		easier on us.	12:21:07
11		Let's see. All right. So if you'll turn	12:21:11
12		to Exhibit A and scroll to the second page.	12:21:14
13	A.	Exhibit A is this document that's on the	12:21:20
14		screen?	12:21:22
15	Q.	Yeah, this document. You just have to	12:21:23
16		keep going.	12:21:25
17	A.	So you're calling it Exhibit A?	12:21:26
18	Q.	Well, it's -- so Exhibit 2023 is a	12:21:27
19		document from the District Court case which itself	12:21:32
20		has an exhibit that's a chart.	12:21:37
21	A.	Okay. I just don't want to get confused	12:21:42
22		here.	12:21:45
23	Q.	Yeah.	12:21:48
24	A.	Can you repeat the question, please?	12:21:49
25	Q.	Can you scroll within the exhibit, Exhibit	12:21:49

1	2023, to the portion that's labeled Exhibit A? You	12:21:51
2	can keep going. All right. Keep -- keep going.	12:21:58
3	There should be a chart following this. And keep	12:22:10
4	going until you see -- until the second -- one more	12:22:21
5	page. Okay.	12:22:26
6	You see on the left side that -- that --	12:22:36
7	where it says "transmitting a plurality of wireless	12:22:41
8	packets simultaneously."	12:22:52
9	Do you see that?	12:22:53
10	A. Yes.	12:22:53
11	Q. Do you see that phrase as being one of the	12:22:53
12	claim terms of the '551 Patent?	12:22:56
13	A. I do.	12:22:59
14	Q. Okay. And if you'll see the boxes next to	12:23:00
15	that language, you'll see -- you'll see under the	12:23:03
16	column Plaintiffs' Proposed Construction, "the	12:23:08
17	claim term speaks for itself and should be	12:23:11
18	construed as plain meaning; usage in preamble is	12:23:13
19	not limiting."	12:23:17
20	Do you see that?	12:23:19
21	A. I do.	12:23:19
22	Q. And there is in the column labeled	12:23:20
23	Defendants' Proposed Construction states, "at least	12:23:25
24	this quoted portion of the preamble is limiting and	12:23:28
25	should be given its plain meaning."	12:23:31

1	Do you see that?	12:23:33
2	A. I do.	12:23:33
3	Q. Have you seen these -- these proposed	12:23:35
4	constructions before today?	12:23:40
5	A. I don't recall.	12:23:44
6	Q. Or are you seeing them for the first time	12:23:45
7	right now?	12:23:47
8	A. I don't recall.	12:23:48
9	Q. Okay. Sitting here right now, do you have	12:23:48
10	an opinion as to what -- as to whether either of	12:23:53
11	these proposed constructions is correct?	12:23:57
12	A. I need to have the patent in front of me.	12:24:17
13	Q. Sure. We can pull that up.	12:24:20
14	A. Am I going to be able to look at two	12:24:24
15	documents?	12:24:26
16	Q. I don't know.	12:24:28
17	A. Why don't you message me the patent.	12:24:31
18	MR. ATKINSON: So if we can pull up	12:24:34
19	Exhibit 1001.	12:24:37
20	THE TECHNICIAN: Sure, counsel. Everyone	12:24:42
21	stand by please. Exhibit 1001 is on the screen.	12:24:44
22	(Mediatek Deposition Exhibit 1001 was	12:25:10
23	referenced.)	12:25:10
24	THE TECHNICIAN: Dr. Williams, I've given	12:25:10
25	you control of the document. And as you can see at	12:25:12

1	the top of the screen there's tabs. So if you just	12:25:13
2	go one over to the left, you'll go back to the	12:25:15
3	exhibit we were just looking at.	12:25:18
4	THE WITNESS: Yeah, but I need to look at	12:25:20
5	them both simultaneously.	12:25:22
6	THE TECHNICIAN: Sure.	12:25:26
7	THE WITNESS: Can you send it to me?	12:25:27
8	THE TECHNICIAN: Sure. Stand by.	12:25:27
9	THE WITNESS: Are you going to send it in	12:25:35
10	the chat?	12:25:35
11	THE TECHNICIAN: Yes, sir.	12:25:37
12	MR. ATKINSON: I'm sorry. Am I going to	12:25:41
13	have to do something in the chat or --	12:25:42
14	THE TECHNICIAN: No, no. I'm going to	12:25:44
15	send -- I'm just going to send a copy of this, of	12:25:45
16	this exhibit, so the doctor can pull it up on his	12:25:46
17	screen.	12:25:49
18	MR. ATKINSON: Okay. I understand.	12:25:58
19	THE TECHNICIAN: That's coming in the chat	12:25:59
20	right now, Doctor. You should have it in there.	12:26:01
21	THE WITNESS: I do.	12:26:04
22	THE TECHNICIAN: Okay. Great.	12:26:06
23	So I went ahead and pulled up 2023 for	12:26:08
24	you.	12:26:11
25	THE WITNESS: Thank you.	12:26:14

1	THE TECHNICIAN: You're welcome. And,	12:26:15
2	Doctor, if that's too difficult for you, let me	12:26:25
3	know. It'll just take me a minute or two, but I	12:26:27
4	can make these side by side, so you just let me	12:26:32
5	know.	12:26:34
6	THE WITNESS: No, I'd rather -- it's the	12:26:34
7	kind of the way I normally work is to have	12:26:36
8	documents on my two screens, so...	12:26:37
9	THE TECHNICIAN: No problem.	12:26:40
10	THE WITNESS: That's more natural for me.	12:26:41
11	Okay. Could I have the question again,	12:26:48
12	please?	12:27:07
13	BY MR. ATKINSON:	12:27:09
14	Q. Sure.	12:27:09
15	I believe the pending question is, do you	12:27:09
16	have -- for the Claim Term "transmitting a	12:27:12
17	plurality of wireless packets simultaneously," do	12:27:20
18	you have an opinion of either of the proposed	12:27:22
19	constructions from plaintiffs or defendants in the	12:27:26
20	chart directly next to that term is correct sitting	12:27:28
21	here today?	12:27:31
22	MR. NIEBERG: Objection, scope. Sorry.	12:27:32
23	Objection, scope.	12:27:34
24	THE WITNESS: Not that I've expressed.	12:27:49
25	Q. Okay. All right. And for the -- for the	12:27:52

1 next row, you will see Claim Term "wireless 12:28:00
2 channels," and you'll see next to that in both the 12:28:04
3 Plaintiffs' Proposed Construction and Defendants' 12:28:07
4 Proposed Construction there's -- it says, 12:28:10
5 "Frequency ranges provided to transmit packets," in 12:28:15
6 both columns. 12:28:19

7 Do you see that? 12:28:20

8 A. Yes. 12:28:20

9 Q. And underneath both of these 12:28:23
10 constructions, there is the word "agreed." 12:28:26

11 Do you see that? 12:28:29

12 A. I do. 12:28:30

13 Q. Have -- has anyone discussed these or this 12:28:30
14 potential construction with you? 12:28:36

15 A. Not that I recall. 12:28:47

16 Q. Do you have any opinion as to whether this 12:28:51
17 construction for the term "wireless channels" is 12:28:53
18 appropriate? 12:28:58

19 MR. NIEBERG: Objection, scope. 12:29:00

20 THE WITNESS: Not that I've expressed. 12:29:01

21 Q. Okay. And so when you say "not that I've 12:29:03
22 expressed," do you have -- do you have an opinion 12:29:10
23 sitting here right now, or do you have no opinion? 12:29:13

24 MR. NIEBERG: Objection, scope. 12:29:19

25 THE WITNESS: My opinion is if the parties 12:29:22

1 agreed on this construction, that's fine with me. 12:29:24

2 Q. Okay. So at least within the context of 12:29:27

3 the '551 Patent, you would -- you would agree that 12:29:33

4 "frequency ranges provided to transmit packets" is 12:29:37

5 an appropriate definition for the Claim Term 12:29:41

6 "wireless channels"? 12:29:44

7 MR. NIEBERG: Objection, scope. 12:29:45

8 THE WITNESS: If the parties have agreed 12:29:47

9 to this construction, that's fine with me. 12:29:49

10 Q. Well, let me ask it another way. 12:29:51

11 Do you have any reason why this would be 12:29:55

12 an inappropriate construction, or that -- that you 12:29:58

13 can think of right now you from a technical stand 12:30:02

14 point? 12:30:06

15 A. Not that I have expressed. 12:30:07

16 Q. And is there any of that -- I understand 12:30:09

17 you haven't expressed, but is there anything as you 12:30:14

18 are sitting here right now that comes to mind? 12:30:17

19 MR. NIEBERG: Objection, scope. 12:30:23

20 THE WITNESS: I don't understand the 12:30:24

21 question. 12:30:25

22 Q. So you say that you haven't expressed an 12:30:25

23 opinion. 12:30:30

24 Do you have an opinion, or is there any 12:30:31

25 reason that you can think of where this is 12:30:33

1	incorrect within the context of the '551 Patent?	12:30:37
2	MR. NIEBERG: Objection, scope.	12:30:42
3	THE WITNESS: I have not expressed an	12:30:43
4	opinion on that and don't have one at this point.	12:30:45
5	Q. Okay. All right. You will see the next	12:30:49
6	Claim Term is "multiple wireless channels."	12:30:58
7	Do you see that?	12:31:03
8	A. Yes.	12:31:04
9	Q. And there's again in both Plaintiffs'	12:31:07
10	Proposed Construction and the Defendants' Proposed	12:31:12
11	Construction, you see the language "multiple	12:31:13
12	frequency ranges provided to transmit" patents --	12:31:15
13	no, I'm sorry, not patents, packets -- "multiple	12:31:20
14	frequency ranges provided to transmit packets."	12:31:21
15	Do you see that?	12:31:24
16	A. I do.	12:31:24
17	Q. And do you have any opinion as to	12:31:25
18	whether -- oh, I'm sorry.	12:31:28
19	Do you also see where the annotation to	12:31:32
20	both constructions in the chart stating that it's	12:31:40
21	agreed?	12:31:43
22	Do you see that?	12:31:44
23	A. I do.	12:31:45
24	Q. All right. Do you have -- do you have any	12:31:46
25	opinion as to whether these proposed constructions	12:31:49

1	are inappropriate for this Claim Term?	12:31:53
2	MR. NIEBERG: Objection, scope.	12:32:01
3	THE WITNESS: In the District Court, if	12:32:02
4	the parties have agreed to this, that's fine with	12:32:03
5	me.	12:32:05
6	Q. Is this something that you've considered	12:32:06
7	before today or -- and/or has anyone asked you to	12:32:08
8	consider these constructions before today?	12:32:14
9	A. In this case?	12:32:17
10	Q. Yes. Well, or, you know, within your --	12:32:17
11	within your work for Mediatek, generally.	12:32:23
12	MR. NIEBERG: Objection, form.	12:32:28
13	THE WITNESS: I'm not sure what the	12:32:41
14	question is. Can I have that again?	12:32:42
15	Q. So has either -- within the scope of this	12:32:45
16	proceeding here today or within any work for	12:32:49
17	Mediatek possibly in connection with the District	12:32:55
18	Court litigation, has anyone asked you to consider	12:33:00
19	this -- this agreed construction in the connection	12:33:06
20	with the Claim Term "multiple wireless channels"?	12:33:12
21	MR. NIEBERG: Objection, form.	12:33:15
22	THE WITNESS: Not that I recall.	12:33:17
23	Q. And have you considered whether this --	12:33:18
24	whether this construction is appropriate for this	12:33:21
25	Claim Term before today?	12:33:24

1	A.	No.	12:33:27
2	Q.	Okay. As you're sitting here right now,	12:33:27
3		do you have any opinion as to whether this	12:33:35
4		construction is appropriate for the Claim Term	12:33:37
5		"multiple wireless channels" within the context of	12:33:40
6		the '551 Patent?	12:33:42
7	MR. NIEBERG:	Objection, scope.	12:33:46
8	THE WITNESS:	Well, given that the parties	12:33:48
9		have agreed that wireless channels are frequency	12:33:50
10		ranges provided to transmit packets, it makes sense	12:33:54
11		that -- multiple wireless channels or multiple	12:33:58
12		frequencies provided to transmit packets makes	12:34:00
13		sense.	12:34:04
14	Q.	Okay. All right. And you'll see in the	12:34:04
15		next row, you see the Claim Term "Mandatory	12:34:14
16		Channel"?	12:34:18
17		Do you see that?	12:34:18
18	A.	I do.	12:34:19
19	Q.	And you'll see Plaintiffs' Proposed	12:34:22
20		Construction is "one of several frequency ranges	12:34:27
21		provided between two STAs, whose busy/idle state	12:34:30
22		determines whether there is transmission."	12:34:38
23		Do you see that?	12:34:40
24	A.	I do.	12:34:41
25	Q.	And --	12:34:41

1	MR. NIEBERG: Objection, form. I	12:34:44
2	apologize. I think there's more to the	12:34:47
3	construction that's below.	12:34:48
4	MR. ATKINSON: Is there? I'm sorry. Oh,	12:34:51
5	there is. You are correct.	12:34:53
6	Q. Let me restate the proposed construction.	12:34:56
7	It's "one of several frequency ranges provided	12:35:02
8	between two STAs, whose busy/idle state determines	12:35:04
9	whether there is transmission regardless of idle	12:35:08
10	state of the other available channels."	12:35:11
11	Do you see that including the additional	12:35:14
12	language that I just read off? You have to scroll	12:35:16
13	a little bit.	12:35:20
14	A. Can I scroll it?	12:35:23
15	Q. Sure.	12:35:24
16	A. Yes, I see those words.	12:35:32
17	Q. Okay. Now, sitting here today, do you	12:35:34
18	have any opinion -- oh, I'm sorry.	12:35:38
19	In the next column under Defendants'	12:35:42
20	Proposed Construction, you see "plain meaning"?	12:35:45
21	A. I do.	12:35:50
22	Q. Now, have you expressed an opinion as to	12:35:52
23	what the -- or strike that.	12:35:59
24	Do you have an opinion as to what -- as to	12:36:02
25	the proper construction of this term "mandatory	12:36:05

1	channel"?	12:36:11
2	A. It's my understanding that the court	12:36:16
3	issued a construction and the panel issued a	12:36:19
4	construction.	12:36:25
5	Q. Okay. Actually, we can -- we can take a	12:36:26
6	look at those right now.	12:36:30
7	MR. ATKINSON: Can we open Exhibit 1055?	12:36:40
8	THE TECHNICIAN: Sure, Counsel. Everyone	12:36:47
9	stand by.	12:36:50
10	THE WITNESS: Can I have that on my own	12:36:50
11	computer?	12:36:52
12	THE TECHNICIAN: 1055 is now on the	12:37:06
13	screen.	12:37:09
14	(Mediatek Deposition Exhibit 1055 was	12:37:21
15	referenced.)	12:37:21
16	THE WITNESS: Can I have this on my own	12:37:21
17	computer? Can I have this on my own computer?	12:37:23
18	THE TECHNICIAN: Oh, you're asking --	12:37:23
19	MR. ATKINSON: That's fine with me. Can	12:37:23
20	we -- I can't see the chat box. Were you able to	12:37:25
21	send the --	12:37:29
22	THE TECHNICIAN: Yes, it's in there.	12:37:31
23	THE WITNESS: Thank you. Okay. Thank	12:37:32
24	you. I have it.	12:37:42
25	BY MR. ATKINSON:	12:37:44

1	Q. All right. And if you'll scroll to -- let	12:37:44
2	me get it myself.	12:38:00
3	All right. If you'll scroll to where --	12:38:00
4	at the top of the page, it says Page 4 of 6 --	12:38:02
5	A. I'm there.	12:38:07
6	Q. Right.	12:38:07
7	-- you'll see "mandatory channel." You'll	12:38:07
8	see the same -- I believe it's the same	12:38:11
9	construction for Plaintiffs' Proposed Construction	12:38:16
10	and Defendants' Proposed Construction as from -- as	12:38:19
11	in the joint claim construction statement, and then	12:38:23
12	there's a third column that says Court's Final	12:38:30
13	Construction.	12:38:34
14	Do you see that?	12:38:35
15	A. I do.	12:38:36
16	Q. And when I say Court's Final Construction,	12:38:36
17	you understand that that's the District Court?	12:38:39
18	A. I do.	12:38:42
19	Q. All right. Okay. Have you formed or	12:38:42
20	developed any opinion as to whether any of these	12:38:49
21	proposed constructions is correct for the term	12:38:53
22	"mandatory channel"?	12:38:58
23	A. Yes.	12:38:59
24	Q. And what is that -- what is your opinion?	12:39:00
25	A. It's my opinion that the Court's	12:39:04

1	construction is the most appropriate, the District	12:39:06
2	Court's construction.	12:39:12
3	Q. Okay. All right.	12:39:13
4	MR. ATKINSON: And can we also pull up --	12:39:21
5	let me see here -- Paper 14?	12:39:26
6	THE TECHNICIAN: Paper 14 is now on	12:39:35
7	screen.	12:39:37
8	THE WITNESS: Can I get this as well?	12:39:43
9	MR. ATKINSON: Yeah. Can we send a link	12:39:44
10	to him in the chat box?	12:39:47
11	THE WITNESS: Thank you.	12:39:51
12	(Paper 14 was referenced.)	12:40:03
13	BY MR. ATKINSON:	12:40:03
14	Q. Let me direct you to the --	12:40:03
15	A. I have it.	12:40:08
16	Q. Okay. Hold on. Let me get to the right	12:40:12
17	page.	12:40:21
18	Well, while we're getting there, have you	12:40:22
19	seen this document before today?	12:40:24
20	A. Yes.	12:40:26
21	Q. And if you'll turn to Page 21.	12:40:32
22	A. I'm there.	12:40:46
23	Q. Right. Now you'll see just before the	12:40:47
24	heading, Heading 2, on that page, you'll see two	12:40:49
25	sentences. It says, "Based on the preceding, we	12:40:55

1	preliminarily determine that 'mandatory channel'	12:41:00
2	means 'one channel in a wireless multichannel	12:41:03
3	communication system over which transmission must	12:41:06
4	occur before transmission may occur over the other	12:41:09
5	wireless channels.'" "	12:41:12
6	Do you see that?	12:41:13
7	A. Yes. I was scrolling while you were	12:41:21
8	reading, but I see the words that you were reading.	12:41:24
9	Q. Okay. Now, have you -- have you formed an	12:41:27
10	opinion as to the appropriateness of this	12:41:29
11	construction?	12:41:36
12	A. Yes.	12:41:37
13	Q. And what is your opinion?	12:41:38
14	A. Well, respectfully -- with respect to the	12:41:44
15	panel, I think that this construction is not	12:41:48
16	correct, and this construction goes against the	12:41:55
17	teachings of the patent and is not -- this	12:42:03
18	construction would not be supported in the	12:42:10
19	disclosures of the patent or the invention	12:42:14
20	expressed in the claims, with all due respect.	12:42:19
21	Q. Okay. And is there any particular	12:42:22
22	language that you -- that you -- that you disagree	12:42:25
23	with here?	12:42:31
24	MR. NIEBERG: Object to form.	12:42:38
25	WITNESS: My issue is that they seem to	12:42:40

1 be -- the panel seems to be impeding some sort of 12:42:42
2 temporal relationship between the idle nature of 12:42:49
3 the mandatory channel and the transmission of the 12:42:54
4 secondary channels. 12:42:57

5 And if you look at the patent, for 12:42:59
6 example, Figure 1, if you turn to Figure 1, S3 is a 12:43:05
7 decision box in this flow chart where it tests 12:43:15
8 whether the mandatory channel is idle. 12:43:21

9 If that mandatory is idle, then it 12:43:24
10 proceeds to reconstruct data packets and to 12:43:27
11 transmit on every wireless channel that it has 12:43:31
12 access to. So it would transmit on the mandatory 12:43:38
13 channel, as well as secondary channels. 12:43:43

14 If the mandatory channel is not idle, this 12:43:46
15 flow chart just cycles back and continues to test 12:43:50
16 whether the mandatory channel is idle. 12:43:55

17 So under the panel's construction, the 12:43:57
18 transmission occurring over the mandatory channel 12:44:02
19 is not the appropriate test to determine whether 12:44:08
20 the other wireless channels can be included. 12:44:13

21 Q. Okay. So is your -- is your objection to 12:44:18
22 the word "before" in the Board's proposed 12:44:23
23 construction? 12:44:32

24 MR. NIEBERG: Objection, form. 12:44:35

25 THE WITNESS: Well, the patent makes clear 12:44:44

1 and the claims make clear that there's -- there's
2 a test to be made of the idle nature of the
3 mandatory channel, and then a decision to -- to
4 transmit based on that mandatory channel being
5 idle.

6 The -- if the mandatory channel is
7 occupied, then there will be no transmissions per
8 the claimed invention, and the temporal nature also
9 comes out in the institution's decision --
10 institution decision down at the back on Page 39 of
11 the Paper 14 document.

12 Q. Okay. Let me get there. Okay.

13 A. Just about where it says Section 4, Claims
14 2 and 6, that second to last sentence, "Under our
15 preliminary interpretation, all the claims of the
16 '511 Patent control system transmission by 'setting
17 a mandatory channel' which must be transmitting,
18 i.e., not idle, before any other channel of the
19 multichannel system is available for use."

20 So that, again, implies a temporal
21 relationship between the mandatory channel being in
22 the transmission state and the inclusion of the
23 second set of frequencies in the transmission.

24 Also if you look at -- back at the patent
25 on Figure 2, you see that that construction is at

12:44:47

12:44:55

12:44:58

12:45:05

12:45:09

12:45:12

12:45:16

12:45:19

12:45:28

12:45:31

12:46:08

12:46:17

12:46:24

12:46:28

12:46:32

12:46:35

12:46:39

12:46:43

12:46:47

12:46:53

12:46:57

12:47:00

12:47:05

12:47:08

12:47:10

1 odds with Figure 2 of the patent where there are 12:47:16
2 two channels that are transmitting simultaneously 12:47:20
3 after the mandatory channel has been tested to be 12:47:24
4 idle and found to be idle. 12:47:28

5 So there's no -- there's no temporal 12:47:31
6 difference between transmission on Channel 1 and 12:47:36
7 transmission on Channel 2. 12:47:40

8 Q. So let me see if I understand your 12:47:41
9 position. 12:47:44

10 So you would -- you would contend that the 12:47:45
11 mandatory channel would -- must be idle in that if 12:47:57
12 the mandatory channel is in an idle state, then you 12:48:09
13 could transmit -- and if you -- that you can 12:48:14
14 transmit over both the mandatory channel and the 12:48:19
15 other channel; is that correct? 12:48:22

16 MR. NIEBERG: Objection, form. 12:48:24

17 THE WITNESS: Well, if you look at Figure 12:48:25
18 1 of the patent -- maybe I can get it up on the 12:48:28
19 screen here. 12:48:34

20 THE TECHNICIAN: You have control, 12:48:40
21 Dr. Williams. And the patent is 1001. 12:48:41

22 THE WITNESS: That's correct. 12:48:45

23 THE TECHNICIAN: Go over two from where 12:48:45
24 you are. There you go. 12:48:46

25 THE WITNESS: I know it doesn't translate 12:48:52

1 well to the record, but I'm going to use my pointer
2 here.

3 So in Figure 1, which is an expression of
4 one of the inventions of the patent, we have a
5 start. We have stored data for transmission buffer
6 in step S1.

7 Hang on a second.

8 Q. Take your time.

9 A. I apologize for the interruption, but the
10 lawn guy is mowing the lawn here.

11 So step 1 is store the data, step 2 is
12 search idle wireless channel by carrier sense, and
13 step 3 is a decision.

14 So here we're using carrier sense to
15 determine the idle nature of the mandatory channel,
16 and then we have a decision to make on whether the
17 mandatory channel is, in fact, idle or not. If
18 that mandatory channel is not idle, that is, it's
19 occupied or there's information being transmitted
20 on -- on that channel, then we circle back around
21 and continue to search for the idle nature of that
22 channel.

23 If it is idle, then we proceed to
24 reconstruct data packets in accordance with the
25 number of idle channels and of transmission standby

12:48:54

12:48:59

12:49:01

12:49:05

12:49:12

12:49:15

12:49:20

12:49:22

12:49:42

12:49:45

12:49:46

12:49:50

12:49:54

12:49:55

12:49:58

12:50:02

12:50:05

12:50:11

12:50:15

12:50:18

12:50:21

12:50:25

12:50:27

12:50:31

12:50:34

1 packets so that they have the same packet time 12:50:39
2 length for every wireless channel and transmit them 12:50:42
3 simultaneously. 12:50:46

4 So we have a system in which the apparatus 12:50:47
5 is continually looking -- once it has data to 12:50:55
6 transmit, it looks for an idle mandatory channel, 12:50:58
7 and then it transmits on all the channels that it 12:51:01
8 has available to it at the same time, and that's 12:51:04
9 shown in Figure 2 in this relationship. 12:51:09

10 So the down arrow right above where it 12:51:16
11 says Channel 1 is the test time for determining 12:51:21
12 whether the channel is idle, and then the 12:51:23
13 generation of the packet information to be 12:51:26
14 transmitted, and then the transmission on Channels 12:51:31
15 1 and 2 is shown in this Figure 2. 12:51:33

16 Q. So in the decision box S3 where we're 12:51:38
17 testing mandatory channel idle -- 12:51:44

18 A. Yes. 12:51:48

19 Q. -- does that relate to -- does -- what is 12:51:48
20 your -- what is your understanding of what "idle" 12:51:52
21 means in this context? 12:51:56

22 A. Idle means that you have the capacity to 12:51:59
23 transmit. 12:52:02

24 Q. And when you say "capacity to transmit," 12:52:07
25 that means that there could be information being 12:52:10

1	transmitted; is that correct?	12:52:15
2	MR. NIEBERG: Objection, form.	12:52:17
3	THE WITNESS: I don't understand the	12:52:22
4	question.	12:52:24
5	Q. Let me -- so how do we determine whether	12:52:24
6	the mandatory channel is idle?	12:52:33
7	A. Well, in the carrier sense algorithm, we	12:52:36
8	simply determine whether there's significant	12:52:42
9	amounts of power on that channel --	12:52:44
10	Q. Okay. And --	12:52:48
11	A. -- of intentionally radiated power.	12:52:51
12	Q. Okay. And so is that done by the	12:52:55
13	transmitter or the receiver?	12:53:02
14	A. Is what done?	12:53:05
15	Q. That -- that testing of the power on	12:53:07
16	the -- in the channel that you just described?	12:53:13
17	A. So the receiver would be active, would be	12:53:16
18	tuned to that particular channel and would	12:53:22
19	determine the amount of intentionally radiated	12:53:26
20	power on that channel.	12:53:31
21	Q. Okay. So is the receiver in the -- in the	12:53:34
22	'551 Patent, is the receiver, you would contend, is	12:53:46
23	the one that is testing for whether there's an idle	12:53:48
24	state?	12:53:51
25	A. I think you said the name of the patent	12:53:54

1	wrong. It's the '551.	12:53:56
2	Q. Oh, I'm sorry.	12:54:00
3	A. Yes, the receiver is required in the -- a	12:54:01
4	receiver or some determination, some other means of	12:54:09
5	determination of idleness is required in the	12:54:14
6	patent.	12:54:19
7	Q. Okay.	12:54:19
8	A. So there could be a system-wide control in	12:54:20
9	your entire network that guarantees idleness of a	12:54:24
10	channel, but in one common implementation there	12:54:31
11	would be an active receiver at each station that	12:54:36
12	determines whether there's significant	12:54:41
13	intentionally radiated power on that channel to	12:54:43
14	determine idleness.	12:54:49
15	Q. So let me understand. Are you saying	12:54:52
16	that -- that the intended recipient of the data	12:54:58
17	that's in the transmission buffer in the box -- I	12:55:06
18	think it's S1 --	12:55:13
19	A. Yes.	12:55:15
20	Q. -- S1, is it your contention that -- that	12:55:16
21	the receiver of the -- that's intended to receive	12:55:23
22	the data that's in that transmission buffer is the	12:55:29
23	one that is doing the testing in box S3 or is it	12:55:31
24	the device that's -- that's intending to transmit	12:55:38
25	the data in box S1 that's doing the test in S3?	12:55:43

1	A.	That's a really --	12:55:51
2	MR. NIEBERG:	Object to form.	12:55:55
3	THE WITNESS:	-- a really compound	12:55:56
4		question, but it's the -- the devices that we're	12:55:57
5		considering in this -- one form of device that we	12:56:01
6		are considering in this patent is a transceiver,	12:56:05
7		which has a transmitter and a receiver at the same	12:56:10
8		location, and that transceiver uses its receive	12:56:15
9		capabilities to determine idle -- the idle nature	12:56:22
10		of the mandatory channel before transmitting its	12:56:24
11		data out of its own transmitter.	12:56:27
12	Q.	Okay. So it's -- let me understand it.	12:56:29
13		Let me make sure I understand you.	12:56:40
14		So you would -- you contend it's the --	12:56:42
15		the trans -- the device that intends to transmit	12:56:48
16		data is performing the test by using its reception	12:56:51
17		capabilities; is that accurate?	12:56:57
18	A.	Basically, yes.	12:57:04
19	MR. NIEBERG:	Object to form.	12:57:08
20	MR. ATKINSON:	Okay.	12:57:08
21	THE WITNESS:	I think I talked over Greg.	12:57:09
22	MR. NIEBERG:	I was just saying object to	12:57:10
23		form.	12:57:12
24	BY MR. ATKINSON:		12:57:22
25	Q.	All right. Would that transmitter -- if	12:57:22

1 the transmitter was -- was the device that was 12:57:37
2 transmitting as in the process of transmitting 12:57:43
3 information on the wireless channel at the time of 12:57:49
4 S3, would it then be able to transmit information 12:57:56
5 on the second channel or not? 12:58:03

6 MR. NIEBERG: Objection, form. 12:58:07

7 THE WITNESS: Can I have that question 12:58:14
8 again, please? 12:58:17

9 Q. So in a situation where the transmitter, 12:58:17
10 the device that has the information in the 12:58:20
11 transmission buffer in step S1 -- 12:58:24

12 Okay. Are you following me so far? 12:58:28

13 A. Yes. The transceiver that has the 12:58:30
14 information of S1, yes. 12:58:34

15 Q. Right. Suppose it is transmitting on 12:58:36
16 what -- what we're terming the -- on the, quote, 12:58:42
17 unquote, mandatory channel -- 12:58:45

18 A. Okay. 12:58:49

19 Q. -- would it be able to transmit on the 12:58:49
20 second wireless channel, you know, in step S4, or 12:58:54
21 would it be prevented from transmitting on that 12:58:59
22 channel in step S4, the second channel, not the 12:59:03
23 nonmandatory channel as it were? 12:59:11

24 A. So you're saying this hypothetical device 12:59:17
25 is an infringing device of the '551 Patent? 12:59:21

1	Q. I'm not necessarily saying it's infringing	12:59:25
2	or not. I'm just trying to -- well, I guess that's	12:59:28
3	what we're trying to determine in part.	12:59:30
4	I'm just saying that there is -- that	12:59:31
5	there's a device that has data in transmission	12:59:33
6	buffer, it is transmitting on -- it itself is	12:59:35
7	transmitting on the -- on the mandatory channel and	12:59:41
8	it then wants to transmit on the secondary channel.	12:59:44
9	Would that device be able to or -- to do	12:59:51
10	so or would it be prevented from doing so?	12:59:53
11	MR. NIEBERG: Objection, form.	12:59:55
12	Q. Or can you tell?	01:00:01
13	A. I don't know.	01:00:03
14	Q. What information would you need?	01:00:03
15	A. The specification of the hypothetical	01:00:07
16	device you're talking about. Certainly the patent	01:00:11
17	does not teach that kind of operation and does not	01:00:13
18	claim that kind of operation.	01:00:17
19	Q. Okay.	01:00:20
20	A. So you're talking about something outside	01:00:20
21	of the -- of the constraints of the patent.	01:00:23
22	Q. Okay. So you don't think -- so is it your	01:00:25
23	understanding that the patent is silent to that	01:00:29
24	situation?	01:00:31
25	MR. NIEBERG: Objection, form.	01:00:31

1 THE WITNESS: I think that the patent 01:00:34
2 teaches away from that scenario. I think the 01:00:43
3 patent teaches away from that scenario because of 01:00:51
4 the testing of the mandatory channel, the nature of 01:01:00
5 the idleness of the mandatory channel occurs before 01:01:04
6 subsequent transmissions. 01:01:08

7 Q. Okay. And so when it does the test and it 01:01:09
8 determines that -- 01:01:18

9 A. And, I'm sorry, that's also in line with 01:01:22
10 the goals of the '551 Patent, to avoid interference 01:01:26
11 between channels. Leakage is what the patent calls 01:01:35
12 it. 01:01:39

13 If -- for example, Figure 2, if this 01:01:42
14 Channel 2 -- in your hypothetical, let's say 01:01:46
15 Channel 1 begins transmitting at the time shown, 01:01:51
16 but Channel 2 doesn't start transmitting until 01:01:55
17 halfway through when Channel 1 is transmitting, 01:02:00
18 then Channel 2 will occupy its channel for a period 01:02:03
19 of time it's outside the mandatory channel time, 01:02:08
20 which will increase the leakage into neighboring 01:02:16
21 transceivers. 01:02:21

22 Q. Let me -- let me step back because I'm not 01:02:24
23 sure -- I'm not sure I understand. So let me think 01:02:28
24 a second. 01:02:39

25 So we have transceiver, and let's say -- 01:02:42

1	let's just for -- try to clarify this is a little	01:02:53
2	bit. We'll call this transceiver A. Okay?	01:02:58
3	A. Okay.	01:03:01
4	Q. And we have -- we have that device and it	01:03:02
5	wants to send information to transmitter or -- to	01:03:07
6	device B --	01:03:15
7	A. To transceiver B?	01:03:18
8	Q. Yeah, let's just call it transceiver B.	01:03:21
9	A. Okay.	01:03:24
10	Q. Okay. Let's say that unless -- since it's	01:03:25
11	up on the screen, let's say that Channel 1 is -- is	01:03:37
12	designated to be the mandatory channel; is that	01:03:42
13	fair?	01:03:47
14	A. No -- yes.	01:03:47
15	Q. Okay. So let's say that transceiver A	01:03:48
16	determines -- or transceiver A determines that	01:04:00
17	Channel 1 is idle, it doesn't detect any power, are	01:04:02
18	those -- is that an accurate description of how one	01:04:08
19	would determine the idle state of Channel 1? Is	01:04:10
20	that accurate, to your understanding?	01:04:14
21	A. Well, basically, yes.	01:04:17
22	So it -- in Figure 2 that would occur at	01:04:19
23	this point in time with the down arrow shown under	01:04:23
24	the Transmission Data Generation (1).	01:04:26
25	Q. Okay.	01:04:28

1 A. So there would be a test of the channel
2 for significant intentional radiated power, and
3 then there would be a processing of the data to be
4 transmitted, and then the transmitter on Channel 1
5 would be activated, and that's the hashed box there
6 that's shown, for a period of time on Channel 1,
7 and then that data ends, and then a Transmission
8 Data Generation (2), there's another test of the
9 channel of whether it's idle or not, followed by a
10 formatting of the data, and then a transmission of
11 that data in the hashed portion over time shown on
12 Channel 1.

13 Q. Okay. And so in Figure 2, at least for
14 Channels 1 and 2, the transmissions appear to be
15 depicted as occurring concurrently, i.e.,
16 simultaneously; is that accurate?

17 A. That's my interpretation of this drawing,
18 yes.

19 Q. Okay. And so let me see if I understand
20 your position.

21 So is it your position that it would be
22 inappropriate for the transmission on Channel 2 to
23 occur before the transmission begins on Channel 1
24 under -- under the claims of the patent?

25 MR. NIEBERG: Objection, form.

01:04:29

01:04:31

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01:04:54

01:04:58

01:05:01

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01:05:09

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01:05:41

01:05:44

01:05:44

01:05:55

01:05:56

01:06:02

01:06:10

01:06:21

01:06:28

1	THE WITNESS: For this piece of	01:06:33
2	information that's being transmitted in this long	01:06:37
3	hashed section? Is that your question?	01:06:41
4	Q. Yeah. So -- just to -- just so that we	01:06:44
5	can kind of understand.	01:06:48
6	So imagine that -- let's assume that --	01:06:50
7	that the -- I think you called it hashed sections,	01:06:55
8	I guess, it's the boxes that have the diagonal	01:07:01
9	line, upwards sloping lines in them. Just so I	01:07:07
10	understand the figure, you're -- you're indicating	01:07:11
11	that that -- to you that that's indicating	01:07:13
12	transmission, is that correct, of transceiver A?	01:07:16
13	A. Yes.	01:07:24
14	Q. Okay. So Figure 2 depicts those	01:07:25
15	transmissions as beginning and also ending	01:07:28
16	concurrently; is that accurate?	01:07:33
17	A. Yes.	01:07:36
18	Q. And it's your understanding that that	01:07:37
19	would be something that is implicated in the claims	01:07:45
20	of the '551 Patent; is that correct?	01:07:54
21	MR. NIEBERG: Objection to form.	01:07:56
22	THE WITNESS: You implicated -- I don't	01:07:59
23	understand.	01:08:01
24	Q. So would that be something that a -- that	01:08:02
25	a transceiver practicing the claims of the patent,	01:08:05

1	is that -- is that behavior that that -- that that	01:08:11
2	device would exhibit under the claims?	01:08:16
3	MR. NIEBERG: Objection, form. Objection,	01:08:23
4	form.	01:08:24
5	THE WITNESS: I don't understand the	01:08:25
6	question, but the patent describes this figure as a	01:08:26
7	first embodiment of the best mode disclosure.	01:08:30
8	So to the extent that I understand your	01:08:35
9	question, this figure does describe the actions of	01:08:38
10	a device that would infringe claim one of the '551.	01:08:44
11	Q. Okay. And so -- so let's modify. Like,	01:08:57
12	you know, imagine that the -- that the information	01:09:06
13	transmitted on Channel 2, let's move that to the	01:09:08
14	left just a little bit so it's occurring -- that	01:09:13
15	it's starting earlier in time than the information	01:09:16
16	on -- on Channel 1.	01:09:20
17	A. How can that happen?	01:09:21
18	Q. I'm just -- I'm creating a hypothetical.	01:09:25
19	I'm just asking.	01:09:29
20	A. Okay. So how could you transmit the	01:09:32
21	information --	01:09:35
22	Q. No, no, no, no. So I'm just -- I'm just	01:09:36
23	seeing if you understand the question.	01:09:37
24	So imagine the box -- so you keep the box	01:09:40
25	depicted in Channel 1 at the same position, and you	01:09:49

1	move the box for Channel 2 to the left a little	01:09:53
2	bit.	01:09:58
3	Do you understand?	01:10:00
4	A. I don't understand how that can occur in	01:10:02
5	the teachings of the patent, but I'll go with your	01:10:05
6	hypothetical.	01:10:08
7	Q. Right. So, yeah, I'm -- that's what I'm	01:10:09
8	getting to.	01:10:12
9	So would that situation be a situation	01:10:13
10	that could -- that could occur under the teachings	01:10:17
11	of the patent or not?	01:10:22
12	MR. NIEBERG: Objection, form, foundation.	01:10:23
13	THE WITNESS: I don't understand how you	01:10:28
14	can transmit information before you have it ready	01:10:29
15	to transmit.	01:10:33
16	Q. So imagine that -- that it was ready to	01:10:39
17	transmit but, you know, let's say for whatever	01:10:42
18	reason you start transmitting on Channel 2, the	01:10:47
19	nonmandatory channel, before you start transmitting	01:10:51
20	on Channel 1, the mandatory channel.	01:10:56
21	Is that -- is that consistent with the	01:10:59
22	embodiments of the -- described in the '551 Patent,	01:11:06
23	or would that be inconsistent?	01:11:09
24	MR. NIEBERG: Objection, form.	01:11:11
25	THE WITNESS: Embodiments? Are we talking	01:11:12

1	about Claim 1 or Claim --	01:11:16
2	Q. Either. To the extent there's a	01:11:17
3	difference, you can like -- if you understand the	01:11:20
4	difference, you can explain, but, you know,	01:11:25
5	either -- either.	01:11:26
6	A. Well, I don't understand the question.	01:11:27
7	But the patent teaches you test the idle	01:11:29
8	nature of the mandatory channel. Then you	01:11:32
9	construct the data to be transmitted. I don't	01:11:34
10	understand how you can transmit before you have the	01:11:37
11	data to be transmitted available.	01:11:42
12	Q. So what if the data was ready to be	01:11:55
13	transmitted but you started transmitting on Channel	01:11:57
14	2 before Channel 1?	01:12:01
15	MR. NIEBERG: Objection, form.	01:12:09
16	THE WITNESS: I don't understand the	01:12:11
17	question, but I will go with your hypothetical.	01:12:11
18	Q. Okay. So like imagine that you start	01:12:15
19	transmitting on like -- I think this is, you	01:12:24
20	know -- this may be a long time, but just for	01:12:28
21	simplicity sake, let's say that -- you know, that	01:12:32
22	the transmission sequence was -- was five seconds	01:12:36
23	long that's depicted here, you know, as far as the	01:12:42
24	time it takes to transmit both blocks. Okay?	01:12:45
25	A. You mean that first block of information?	01:12:50

1	Q.	Yeah, the first block of information that	01:12:53
2		is shown in Figure -- in Figure 2.	01:12:55
3	A.	Okay.	01:12:58
4	Q.	Okay. And let's say that at time one you	01:12:59
5		start transmitting on Channel 2 and then one second	01:13:09
6		later you start transmitting on Channel 1. So you	01:13:15
7		start transmitting on Channel 2 from device A on --	01:13:22
8		at time T1, and then one second after that you also	01:13:29
9		start transmitting on Channel 1 so that there's	01:13:32
10		basically four seconds of concurrent time.	01:13:36
11		Is that -- do you understand?	01:13:43
12	A.	Yes, and one second on either end.	01:13:45
13	Q.	Right, right.	01:13:48
14	A.	One second on the beginning and one second	01:13:49
15		on the end, yes.	01:13:52
16	Q.	Is it your understanding that that would	01:13:55
17		be consistent with the embodiments described in the	01:13:58
18		'551 Patent, inconsistent or neither?	01:14:01
19	MR. NIEBERG:	Objection, form.	01:14:08
20	THE WITNESS:	Well, at what point are you	01:14:14
21		testing the idle nature of the mandatory channel?	01:14:17
22	Q.	Let's say it's before time -- the time	01:14:23
23		that Channel 2 begins transmitting. So it would be	01:14:29
24		before both when Channel 2 starts transmitting and	01:14:33
25		before Channel 1 starts transmitting.	01:14:37

1	MR. NIEBERG: Object to the form.	01:14:49
2	THE WITNESS: That's not a disclosed	01:14:53
3	method of operation in the patent, and that	01:15:16
4	hypothetical is against the teachings of the patent	01:15:23
5	to avoid leakage between channels. So that would	01:15:30
6	be an undesirable architecture for a transceiver	01:15:35
7	attempting to be compliant with the '551 Patent.	01:15:43
8	Q. Okay. And why would there be a -- greater	01:15:49
9	leakage concerns where you start transmitting on	01:15:55
10	Channel 2 before Channel 1 as opposed to	01:15:59
11	concurrently transmitting on Channels 2 and 1?	01:16:03
12	A. If you concurrently transmit, you occupy	01:16:08
13	the channel for five seconds. If you transmit, as	01:16:09
14	in your hypothetical scenario, you transmit for	01:16:13
15	seven seconds. So you're occupying the channels	01:16:17
16	for a longer period of time, and you're interfering	01:16:20
17	with other users for a larger period of time.	01:16:24
18	Q. Okay.	01:16:27
19	A. So fundamentally what you want to do to	01:16:36
20	avoid leakage is to test the idle nature of the	01:16:39
21	mandatory channel. You want to format your data in	01:16:46
22	as many channels as you have available to use. You	01:16:53
23	want to transmit that data, and you want to get off	01:16:58
24	the channel.	01:17:00
25	Q. Okay.	01:17:03

1 A. So the faster you transmit and get off the
2 channel, the less interference or leakage you will
3 have to others in the system, and that's one reason
4 why the inventors included a single channel
5 wireless architecture with MIMO, because they could
6 use the MIMO subchannels to increase the throughput
7 and reduce the amount of time that they occupied
8 the channel.

9 Q. Okay. So is it your position that the
10 transmission times or the mandatory -- the
11 transmission time for the mandatory channel in the
12 nonmandatory channel, which in this hypothetical
13 we're calling Channels 1 and 2, that has -- that
14 has to be exactly concurrent, or would there be any
15 potential difference in transmission times?

16 MR. NIEBERG: Objection, form.

17 THE WITNESS: Per the claim, per the
18 teachings of the patent? I don't understand the
19 question.

20 Q. Well, to the extent there's a difference,
21 you can explain, but either -- let me know whether
22 either is incorrect.

23 A. Well, I'll answer one question at a time.
24 The teachings of the patent, as I've said before,
25 are to avoid interference, avoid leakage. And in

1 order to do that, you want to occupy the 01:18:44
2 radiofrequency channels in the smallest amount of 01:18:49
3 time possible, and you want to make sure that you 01:18:51
4 don't have a collision on a channel between 01:18:54
5 multiple transmitters, and that's really the 01:18:57
6 teachings of the patent. 01:19:02

7 Q. Okay. So -- 01:19:05

8 A. And so with regards to the claim, Claim 1 01:19:06
9 and 2, I haven't formed an opinion on whether your 01:19:10
10 hypothetical device would infringe those claims. 01:19:14

11 Q. Okay. So just so I understand your 01:19:18
12 position, your position is that nonconcurrent 01:19:21
13 transmissions would be contrary to the teachings of 01:19:25
14 the patent and you haven't formed an opinion about 01:19:30
15 whether or not that would -- a noncurrent 01:19:34
16 transmission would infringe Site Claim 1; is that 01:19:38
17 accurate? 01:19:42

18 MR. NIEBERG: Objection, form. Outside 01:19:45
19 the scope. 01:19:46

20 THE WITNESS: That's basically what I just 01:19:47
21 testified to, yes. 01:19:49

22 Q. Okay. All right. Hold on one second. 01:19:49

23 And the channels we're talking about 01:20:28
24 within the context of the '551 Patent, those are -- 01:20:32
25 those are frequency channels; is that correct? 01:20:36

1	A.	I'm working with the -- the agreed-upon	01:20:39
2		definition between parties.	01:20:45
3	Q.	Okay. Just to be clear -- hold on.	01:20:46
4		Sorry. I'm not seeing it. I'm sorry.	01:21:00
5		And that's the place we were talking about	01:21:23
6		earlier, frequency ranges provided to transmit	01:21:27
7		packets? That's the agreed definition you just	01:21:31
8		referred to?	01:21:35
9		If you need to look at the exhibit, it's	01:21:43
10		2023.	01:21:47
11	A.	Frequency ranges provided to transmit	01:21:50
12		packets, yes.	01:21:52
13	Q.	Okay. Would you mind turning in your	01:21:53
14		report, which is -- I'm sorry, not your report, but	01:22:15
15		your Declaration, Exhibit 1003? I think I see the	01:22:20
16		tab.	01:22:29
17	THE WITNESS:	Can I have that, please?	01:22:32
18	MR. ATKINSON:	It should be -- there you	01:22:34
19		go.	01:22:35
20	THE WITNESS:	Can I have it?	01:22:35
21	MR. ATKINSON:	Yeah. Can we give -- do	01:22:37
22		you not have control? Can we give him control?	01:22:39
23	THE TECHNICIAN:	He has control, Counsel.	01:22:42
24		He's asking for the exhibit on his own.	01:22:44
25	MR. ATKINSON:	Oh, I understand. The chat	01:22:46

1	box. Yeah, that's fine. Just let me know when	01:22:47
2	you're ready.	01:23:03
3	THE WITNESS: Okay. It's downloading now.	01:23:05
4	BY MR. ATKINSON:	01:23:22
5	Q. If you can turn to Paragraph 34. Let me	01:23:22
6	see if I can find the page. Yeah, it's on Page 14	01:23:27
7	of your Declaration. That's numbered Page 14.	01:23:56
8	That may be different. I'm not sure.	01:24:03
9	A. Okay. I have it.	01:24:07
10	Q. No, no. So it's numbered Page 14, not	01:24:08
11	necessarily PDF Page 14. Oh, there we go.	01:24:12
12	A. I have it.	01:24:16
13	Q. Okay. Yeah. So --	01:24:17
14	A. It's scrolling for some reason.	01:24:29
15	Q. Oh, okay. I'm sorry.	01:24:29
16	A. Is that me?	01:24:29
17	THE TECHNICIAN: No. I'm the one	01:24:29
18	scrolling through the document.	01:24:30
19	MR. ATKINSON: Okay.	01:24:32
20	Q. Okay. You will see language at the second	01:24:33
21	sentence of Paragraph 34, it says, "One common way	01:24:37
22	in the prior art (and to this day) to define a	01:24:41
23	channel is based on the center frequency of the	01:24:45
24	carriers waves of the signals being transmitted	01:24:49
25	over the channel."	01:24:52

1	Do you see that -- that language?	01:24:53
2	A. I do.	01:24:55
3	Q. So when you were writing your report, were	01:24:58
4	you applying the understanding that the channels	01:25:06
5	discussed in the '551 Patent are frequency ranges?	01:25:09
6	MR. NIEBERG: Objection, form.	01:25:27
7	THE WITNESS: Well, typically -- what I	01:25:27
8	had in mind here was an FCC-mandated channel in the	01:25:29
9	United States which has a center frequency and a	01:25:34
10	spectral mask that define the channel.	01:25:38
11	In the United States band, there is no	01:25:42
12	such FCC-mandated channel, but there is a 802.11	01:25:46
13	standardized channels included within the standard.	01:25:55
14	So that's an industry agreement as to what the	01:26:01
15	channels are.	01:26:06
16	Q. Okay.	01:26:06
17	A. And that -- that has a center frequency	01:26:07
18	and a spectral mask.	01:26:10
19	Q. Okay. Let me -- let me step through that	01:26:13
20	just to make sure that I -- that I understand your	01:26:15
21	position.	01:26:19
22	So just to -- just to take -- are you	01:26:21
23	familiar with, like, I think it's 2.4 gigahertz	01:26:28
24	band? Are you familiar with that within the	01:26:33
25	context of 802.11b and g?	01:26:36

1	A.	Yes. I've built equipment for those	01:26:41
2		bands, know companies that built chip sets and	01:26:45
3		devices for that band.	01:26:49
4	Q.	So just to make sure I understand, so --	01:26:50
5		so you have the -- you have this large block of	01:26:58
6		bandwidth defined by the 2.4 gigahertz band. Is	01:27:02
7		that an accurate description or --	01:27:09
8	A.	Yes. The FCC would call that a band. So	01:27:11
9		that is an instrument scientific and medical band	01:27:15
10		that is allowed for unlicensed experimentation and	01:27:20
11		transmission, and the FCC has allocated several	01:27:24
12		such bands throughout the spectrum for use in ISM	01:27:29
13		applications.	01:27:34
14		So the FCC does not get involved internal	01:27:36
15		to the band to identify what the channelization	01:27:41
16		within that band is, but they do limit radiation in	01:27:45
17		that band.	01:27:48
18	Q.	Right.	01:27:51
19		So just -- so they say, This is the entire	01:27:52
20		area that you're allowed to be within, and we	01:27:58
21		aren't going to get mad, but if you get outside of	01:28:04
22		that range we may.	01:28:07
23		Is that kind of correct?	01:28:09
24	A.	It's more like, Thou shalt not transmit	01:28:10
25		with more power than X, and thou shalt not provide	01:28:17

1 intentional radiation outside of these frequency 01:28:23
2 ranges. 01:28:25

3 Q. Okay. So within that -- that what we're 01:28:26
4 calling here the 2.4 gigahertz band, are -- does 01:28:33
5 the 802.11 standard define any subranges that we 01:28:41
6 would -- that we would call -- that person in the 01:28:47
7 skill of the art would call channels within that 01:28:51
8 band? 01:28:54

9 A. Yes, that's defined by the 802.11 standard 01:28:54
10 by industry agreement, not by FCC allocation. 01:28:58

11 Q. And so would it be accurate to call those 01:29:02
12 channels subranges, or is there some other language 01:29:07
13 that you would use to describe them? 01:29:11

14 A. You would call them a channel. 01:29:13

15 Q. Okay. But the channel would refer to a 01:29:17
16 subset of the greater band that you can be within; 01:29:24
17 is that correct? 01:29:29

18 A. Yes. And there is a spectral mask in 01:29:33
19 802.11. 01:29:37

20 Q. When you say "spectral mask," what are you 01:29:41
21 referring to? 01:29:46

22 A. Spectral mask defines the extent of the 01:29:46
23 intentional radiation away from the center 01:29:50
24 frequency of the channel. 01:29:54

25 Q. Okay. So is that -- is that -- can you 01:29:58

1	explain a bit further? The spectral mask, is	01:30:05
2	that -- is that a requirement that you stay within	01:30:09
3	the -- your -- your -- the transmitted power must	01:30:14
4	stay within the range of the channel, or is it	01:30:20
5	within the range of the -- of the entire 2.4	01:30:23
6	gigahertz band?	01:30:26
7	A. A spectral mask says that if you're going	01:30:28
8	to transmit on this particular channel, that your	01:30:33
9	transmit power has to be attenuated by this amount	01:30:38
10	by the time you get to this offset from the center	01:30:44
11	of frequency of the channel, and it has to be	01:30:47
12	attenuated by this other amount once you get to a	01:30:51
13	larger offset from the center of the channel.	01:30:57
14	Q. Okay. What are -- what are those offsets?	01:30:59
15	Like how big are they?	01:31:02
16	A. They define the channel and the	01:31:04
17	attenuation from the mid band of the channel.	01:31:10
18	Q. So is there -- is there a number that	01:31:15
19	would -- that you would associate in this -- just	01:31:18
20	to pick one 802.11, say, b and, you know, the 2.4	01:31:23
21	gigahertz band, just so that, you know, we aren't	01:31:30
22	drifting outside of -- just an example.	01:31:33
23	Are there -- are there number ranges that	01:31:39
24	you know that represent an offset, or do you not	01:31:42
25	know off the top of your head?	01:31:46

1	A.	I knew off the top of my head at one	01:31:47
2		point. I just don't remember them. I can look	01:31:50
3		them up. It's easy to look at. They're within the	01:31:52
4		standard.	01:31:58
5	Q.	Okay.	01:31:59
6	A.	I just don't remember the numbers off the	01:32:02
7		top of my head. I did at one time.	01:32:04
8	Q.	Have you ever heard of, say, you know, 20	01:32:07
9		megahertz channels? Is that a term that has any	01:32:15
10		meaning to you?	01:32:18
11	A.	Yes.	01:32:18
12	Q.	Okay. What does that refer to?	01:32:18
13	A.	That means -- that's -- that's a rough	01:32:20
14		measure of the width of the spectral mask that	01:32:28
15		we're talking about.	01:32:32
16	Q.	Okay. And that spectral mask, is it the	01:32:33
17		greater spectral mask that you're referring to	01:32:39
18		or -- or the lesser?	01:32:44
19	A.	I don't understand the question.	01:32:47
20	Q.	Well, maybe I misunderstood the -- the	01:32:48
21		explanation.	01:32:52
22		So you've indicated that there was a --	01:32:53
23		there was a first level that you had to be less	01:32:56
24		than, and then there was a second greater level	01:33:00
25		that your power had to be even less than the first	01:33:05

1	level, or did I -- or did I mischaracterize the	01:33:10
2	testimony?	01:33:12
3	A. No, that's correct.	01:33:13
4	Q. Okay. So does the -- does the 20	01:33:14
5	megahertz, does that -- does that refer to the	01:33:20
6	first range or the second range, or do you -- or do	01:33:24
7	you know sitting here today?	01:33:32
8	A. It's -- well, it depends on the specifics	01:33:35
9	of the mask, but 20 megahertz is, roughly speaking,	01:33:43
10	the first break point of the mask, the first extent	01:33:51
11	of the mask.	01:33:55
12	Q. Okay. And --	01:33:56
13	A. In the 20 megahertz --	01:33:58
14	Q. -- how large is the second break point,	01:34:00
15	if -- if you know?	01:34:03
16	A. I don't remember off the top of my head.	01:34:03
17	Q. Okay.	01:34:06
18	A. We're talking about the 20 megahertz	01:34:10
19	channel here.	01:34:12
20	Q. Right. Well, I think so.	01:34:13
21	The 20 -- the 20 megahertz, you know,	01:34:20
22	frequency range -- whenever the standard talks	01:34:25
23	about a 20 megahertz channel, that's what we're	01:34:31
24	talking -- that's what it's referring to?	01:34:36
25	A. Basically.	01:34:43

1	Q. Okay.	01:34:55
2	MR. NIEBERG: I think we've been going for	01:34:55
3	over an hour. Are we getting close to a point for	01:34:57
4	a break?	01:34:59
5	MR. ATKINSON: Sure. I mean, I still	01:35:00
6	have -- I still have some more questions on	01:35:02
7	channel -- on channels when we get back, but we can	01:35:05
8	take a break now.	01:35:08
9	THE WITNESS: Let's finish those channel	01:35:11
10	questions.	01:35:13
11	MR. ATKINSON: Well, it depends. So it	01:35:15
12	may take a while. So -- you know, so I'm -- I'll	01:35:17
13	leave it to the group. It may take, you know, 10	01:35:22
14	to 20 minutes. Do we want to keep going, or do we	01:35:26
15	want to take a break and --	01:35:28
16	THE WITNESS: Can we -- let's take a break	01:35:31
17	at 11:00.	01:35:32
18	MR. ATKINSON: Let's see what time is it.	01:35:36
19	Okay. All right. Let's just keep going then. I	01:35:37
20	think we're all on different time zones. 11:00	01:35:39
21	Pacific; is that right?	01:35:44
22	THE WITNESS: Yes.	01:35:49
23	MR. ATKINSON: Okay. Sorry about that.	01:35:50
24	Remote depositions, pandemic, what are you going to	01:35:52
25	do? But anyway, all right.	01:35:54

1 BY MR. ATKINSON:

01:36:04

2 Q. Okay. So not within the context of the --
3 necessarily within the context of the '551
4 channel -- I'm sorry -- within the '551 Patent, but
5 generally are there other types of wireless
6 channels that are used in wireless networking
7 technologies?

01:36:04

01:36:08

01:36:10

01:36:15

01:36:20

01:36:26

8 MR. NIEBERG: Objection, scope.

01:36:32

9 THE WITNESS: I don't understand the
10 question.

01:36:33

01:36:34

11 Q. So are the only channels that are involved
12 in wireless networking and wireless, you know --
13 well, withdrawn. Withdraw that.

01:36:34

01:36:37

01:36:45

14 Within packet I's data communications, are
15 the only channels that people refer to frequency
16 based channels, i.e., defined by frequency ranges,
17 or are there any other types of wireless channels
18 that people use?

01:36:47

01:36:53

01:36:59

01:37:03

01:37:07

19 MR. NIEBERG: Objection, scope.

01:37:11

20 THE WITNESS: I don't understand the
21 question.

01:37:13

01:37:14

22 Q. Are there any non-frequency based
23 channels? Would you define a channel by anything
24 other than its frequency range within the entire,
25 you know -- within packet -- packet I's data

01:37:14

01:37:19

01:37:22

01:37:27

1	communications?	01:37:33
2	A. Channel is a very generic word in the	01:37:35
3	communications industry. So it's highly	01:37:39
4	contextualized.	01:37:43
5	So we've been discussing channels in terms	01:37:45
6	of the 802.11 standard and 2.4 gigahertz band.	01:37:49
7	There are many other uses of the word channel.	01:37:56
8	Q. Let me -- are you familiar with the term	01:38:02
9	"CDMA"?	01:38:08
10	A. Yes.	01:38:09
11	Q. What does that stand for?	01:38:10
12	A. CDMA is a multiple access technique using	01:38:13
13	code division.	01:38:17
14	Q. Okay. And code division, is that -- how	01:38:19
15	are the channels defined in a CDMA system?	01:38:27
16	A. Depends on the system.	01:38:30
17	Q. Well, do you have an example of -- of a	01:38:32
18	CDA -- CDMA system that -- that you would	01:38:38
19	understand to have channels?	01:38:41
20	A. There are many types of systems that use	01:38:46
21	that multiple access technique.	01:38:50
22	Q. What about say within the -- the -- are --	01:38:53
23	do cell phones, for example, use any CDMA	01:39:00
24	technologies?	01:39:03
25	A. Yes.	01:39:04

1	MR. NIEBERG: Objection, scope.	01:39:07
2	THE WITNESS: Cell phones can use CDMA	01:39:08
3	technology.	01:39:11
4	Q. And is there any particular CDMA	01:39:16
5	technology that would be applicable to cell phones	01:39:21
6	that you're aware of?	01:39:23
7	A. There are several.	01:39:24
8	MR. NIEBERG: Objection, scope.	01:39:25
9	Q. Well, I'm just asking for, you know --	01:39:26
10	A. There -- there are several.	01:39:29
11	Q. Is there -- is there one that you would	01:39:31
12	name just to use as an example for purposes of	01:39:32
13	discussion?	01:39:36
14	MR. NIEBERG: Objection, scope.	01:39:38
15	THE WITNESS: So you're asking me to name	01:39:39
16	a wireless communication system that uses code	01:39:42
17	division as the multiple access technique?	01:39:46
18	Q. Yeah.	01:39:48
19	A. Well, we can talk about WCDMA.	01:39:49
20	Q. Okay. And so WCDMA, how does it define	01:40:03
21	channels?	01:40:11
22	A. Channels in the United States are defined	01:40:15
23	by the FCC.	01:40:18
24	Q. Okay. And is there a standard setting	01:40:19
25	body that sets standards for WCDMA?	01:40:27

1	A.	Yes.	01:40:32
2	MR. NIEBERG:	Objection, scope.	01:40:32
3	THE WITNESS:	For UMTS, for WCDMA, there	01:40:34
4		was, yes.	01:40:38
5	Q.	Okay. Is there no longer or -- you say	01:40:39
6		there was, so --	01:40:50
7	A.	They've moved on to different types of	01:40:50
8		systems.	01:40:52
9	Q.	Okay. And so in WCDMA --	01:40:53
10	A.	I suppose they still maintain the old	01:41:02
11		standards, but...	01:41:06
12	Q.	Okay. Let me understand the old	01:41:07
13		standards.	01:41:10
14		How are -- how are channels defined in --	01:41:10
15		in WCDMA?	01:41:13
16	MR. NIEBERG:	Objection, scope.	01:41:15
17	THE WITNESS:	The types of channels that	01:41:18
18		we're talking about are defined by the FCC. Again,	01:41:19
19		channels is a highly contextualized word.	01:41:25
20	Q.	So -- let me ask this. So are WCDMA	01:41:31
21		channels defined with respect to the frequency	01:41:34
22		range, or are they defined with respect to codes?	01:41:38
23	A.	They're defined with respect to the	01:41:47
24		frequency range.	01:41:49
25	Q.	And what is the -- the frequency range?	01:41:51

1	MR. NIEBERG: Objection, scope.	01:41:57
2	THE WITNESS: In which band?	01:41:58
3	Q. WCDMA band.	01:42:00
4	MR. NIEBERG: Objection, form.	01:42:02
5	THE WITNESS: There is no WCDMA band.	01:42:02
6	Q. Okay. Well -- and under WCDMA, what's	01:42:06
7	the -- what's the frequency range that defines the	01:42:09
8	channels? What are the frequency ranges that	01:42:13
9	define the channels?	01:42:16
10	MR. NIEBERG: Objection, scope.	01:42:18
11	THE WITNESS: I don't understand the	01:42:18
12	question.	01:42:21
13	Q. I don't know if I understand the answer.	01:42:22
14	Where am I -- where am I misunderstanding?	01:42:24
15	A. There are multiple bands which allow	01:42:32
16	transmission per the FCC of CDMA radiation,	01:42:35
17	radiation that is compliant with the WCDMA	01:42:42
18	standard, let's put it that way.	01:42:46
19	The WCDMA standard at one point	01:42:48
20	incorporated the code division multiple access	01:42:52
21	technique. A CDMA system is more of a marketing	01:42:55
22	term. So it's really a shorthand for the entire	01:42:59
23	standard.	01:43:04
24	Q. Let me ask this, are you familiar with the	01:43:09
25	term "spreading codes"?	01:43:12

1	A.	Yes.	01:43:14
2		MR. NIEBERG: Objection, scope.	01:43:15
3	Q.	And what is a spreading code?	01:43:16
4	A.	Spreading code is a code that is used for	01:43:18
5		spreading information to be transmitted.	01:43:23
6	Q.	Okay. And let's say you had two spreading	01:43:28
7		codes, A and B --	01:43:36
8		Okay?	01:43:39
9	A.	Yes.	01:43:39
10	Q.	-- and that both -- that both -- both were	01:43:45
11		spread within the same frequency band.	01:43:51
12		Do you understand the hypothetical so far?	01:43:54
13	A.	No.	01:43:56
14	Q.	So -- so you indicated that spreading code	01:43:59
15		would spread a signal within a frequency band, is	01:44:04
16		that correct, or am I misstating your testimony?	01:44:08
17	A.	You are misstating what I said.	01:44:10
18	Q.	Okay. How am I -- okay. What am I saying	01:44:12
19		that's incorrect?	01:44:17
20	A.	I just don't understand the question.	01:44:24
21	Q.	So what -- let me just ask you. So what	01:44:29
22		is the spreading code again?	01:44:37
23	A.	Spreading code is a code that allows for	01:44:38
24		the spreading of information.	01:44:42
25		THE WITNESS: Can I have my document back,	01:44:45

1	please?	01:44:47
2	Q. In that spreading of information, is it	01:44:57
3	occurring within a frequency range?	01:45:00
4	A. Not necessarily.	01:45:06
5	Q. Okay. So how are frequency ranges	01:45:08
6	applicable to CDMA environments?	01:45:14
7	MR. NIEBERG: Objection, scope.	01:45:20
8	THE WITNESS: The FCC allocates you as the	01:45:21
9	operator of a network or the operator of a	01:45:41
10	transmitter to transmit a significant radiated	01:45:44
11	power on particular frequencies with particular	01:45:50
12	frequency limits and particular power limits, and	01:45:55
13	that's done to organize the spectrum to provide the	01:45:59
14	most benefit to all users of the spectrum.	01:46:04
15	Within that -- within -- so that's --	01:46:09
16	we'll call that a channel. Within that channel	01:46:13
17	there are many ways to allow for multiple access,	01:46:17
18	multiple users to access that channel, you can have	01:46:24
19	time division multiple access, you can have	01:46:30
20	frequency division multiple access, you can have	01:46:34
21	spacial division multiple access, you can have code	01:46:39
22	division multiple access, or you can have carrier	01:46:44
23	sense multiple access.	01:46:47
24	These multiple access techniques are not	01:46:50
25	mutually exclusive. So you can have combinations	01:46:53

1	of them in your architecture. So that's the way	01:46:56
2	that CDMA applies to systems that you might design	01:47:01
3	to allow for multiple access.	01:47:07
4	Q. And so just to pick out two of the -- of	01:47:13
5	the -- of the technology that you described, how	01:47:18
6	does CDMA, code division multiple access, differ	01:47:27
7	from frequency division multiple access?	01:47:33
8	MR. NIEBERG: Objection, scope.	01:47:35
9	THE WITNESS: They're -- they're just two	01:47:42
10	different techniques for multiple access. They're	01:47:44
11	not mutually exclusive.	01:47:47
12	Q. Yeah, so I understand that they're not	01:47:50
13	mutually exclusive, but let's say you had -- how	01:47:51
14	would you -- how would you determine that -- that a	01:47:56
15	system met the criteria for a frequency division	01:48:00
16	multiple access, and how do you determine if a	01:48:04
17	system met the criteria for a code division	01:48:06
18	multiple access, even if you could use the -- even	01:48:08
19	if it could be both, how would you determine if it	01:48:12
20	was in either?	01:48:14
21	MR. NIEBERG: Objection, scope, form.	01:48:14
22	THE WITNESS: Well, for frequency division	01:48:19
23	multiple access, you would ask yourself the	01:48:24
24	question, how do multiple users access this	01:48:27
25	particular channel? And if they do that in a	01:48:32

1 frequency division manner, that would be an FDMA
2 architecture. If they do that in a code division
3 manner, that would be a code division multiple
4 access.

5 Q. Okay. In the frequency -- in the
6 frequency division manner, is it fair to say that
7 you're -- that you could be chopping a wide range
8 of frequencies into subfrequencies, or is that an
9 inaccurate description, to create channels?

10 MR. NIEBERG: Objection, scope, form.

11 THE WITNESS: Well, we're running into the
12 word channel again. Channel is highly
13 contextualized again.

14 So if you allocate between users, the
15 lower half would be a channel for user one, and the
16 upper half would be a channel that's been given to
17 you by the FCC for user two. That would be
18 frequency division multiple access.

19 Q. Okay. So just to make I -- make sure I
20 understand. So like you would -- you would
21 consider the entire range of frequencies or the
22 entire frequency range dedicated for -- are you
23 familiar with the terms "forward link" and "reverse
24 link"?

25 A. Yes.

1 Q. And so let me see if I understand what 01:50:07
2 you're saying, and correct me if I'm wrong. So 01:50:14
3 you're saying that the entire range of frequencies 01:50:16
4 provided for the forward link and the entire range 01:50:19
5 of frequencies dedicated for the reverse link in a 01:50:25
6 system, those are different channels? Is that 01:50:31
7 accurate or am I misunderstanding? 01:50:34

8 MR. NIEBERG: Objection to scope, form. 01:50:37

9 THE WITNESS: Now you're throwing in 01:50:40
10 duplexing. So multiple accessing is different than 01:50:44
11 duplexing. So a duplex is the difference between 01:50:51
12 the transmission -- transmission path and the 01:50:56
13 receive path. The multiple access is how do 01:50:59
14 multiple users use this allocated channel. 01:51:04

15 Q. Okay. And so -- 01:51:10

16 A. You're starting to mix the two. 01:51:12

17 Q. Okay. So in a frequency division system, 01:51:26
18 how are the -- how are the -- how is the frequency 01:51:31
19 band allocated? 01:51:43

20 MR. NIEBERG: Objection, scope. 01:51:45

21 THE WITNESS: I don't understand your 01:51:47
22 question. Frequency division duplexing? 01:51:49

23 Q. Frequency division system. You indicated 01:51:51
24 that there was multiple access for defining 01:51:53
25 channels; is that correct? 01:51:59

1	MR. NIEBERG: Objection, form.	01:52:01
2	THE WITNESS: I don't understand the	01:52:01
3	question. Are you talking about duplexing or	01:52:03
4	multiple accessing?	01:52:05
5	Q. Multiple access.	01:52:06
6	A. Can I have the question again, please?	01:52:08
7	Q. So in a frequency division multiple access	01:52:10
8	system, how is the frequency band divided for	01:52:12
9	various users' contentions?	01:52:21
10	MR. NIEBERG: Objection, scope.	01:52:24
11	THE WITNESS: Contentions? I don't	01:52:26
12	understand the question.	01:52:29
13	Q. For -- for their -- for their access.	01:52:29
14	How does channelization come to the	01:52:34
15	frequency division system?	01:52:38
16	A. In which system?	01:52:39
17	MR. NIEBERG: Objection.	01:52:41
18	THE WITNESS: I think I talked over Greg.	01:52:45
19	MR. NIEBERG: I was just objecting.	01:52:47
20	Scope.	01:52:49
21	THE WITNESS: What system are we talking	01:52:49
22	about?	01:52:50
23	Q. Frequency division system, just a	01:52:51
24	hypothetical frequency division system.	01:52:57
25	A. It could be many ways.	01:52:57

1	Q.	Okay. And so you -- you indicated that	01:52:59
2		frequency division provides the means for	01:53:05
3		controlling access to multiple potential	01:53:10
4		transmitters; is that correct?	01:53:19
5	A.	Users.	01:53:20
6		MR. NIEBERG: Objection, scope.	01:53:23
7	Q.	Users.	01:53:24
8	A.	Not potential.	01:53:26
9	Q.	Okay. What you have --	01:53:26
10	A.	It's the way to provide multiple access to	01:53:27
11		a channel that is given to you by the FCC in the	01:53:31
12		United States.	01:53:37
13	Q.	Okay. So let me break that up a little	01:53:37
14		bit.	01:53:41
15		So when you say "given to you by the FCC,"	01:53:42
16		that's the entire frequency range that's allocated	01:53:46
17		to you by the FCC?	01:53:50
18	A.	That's the channel that's allocated to you	01:53:56
19		by the FCC.	01:53:58
20	Q.	Okay.	01:53:59
21	A.	In other words, the FCC gives you a	01:54:01
22		license to transmit with particular power, within	01:54:05
23		particular frequency ranges for your use, and	01:54:12
24		that's a channel.	01:54:17
25	Q.	Okay. So I believe earlier we were	01:54:18

1	talking about in 802.11 that -- that there was	01:54:22
2	this -- this wide range of frequencies that was	01:54:27
3	allocated to you by the FCC; is that correct?	01:54:31
4	A. That would be called -- that would be	01:54:34
5	called a band.	01:54:38
6	Q. Okay. With the 2.4 gigahertz band that's	01:54:39
7	allocated to you by the FCC, is that an accurate	01:54:42
8	summary of what we discussed earlier?	01:54:46
9	A. Can I have the question again, please?	01:54:48
10	Can the court reporter --	01:55:09
11	(Pending question read.)	01:55:09
12	MR. NIEBERG: Objection, form.	01:55:09
13	THE WITNESS: No.	01:55:10
14	BY MR. ATKINSON:	01:55:10
15	Q. Okay. How -- how is that inaccurate?	01:55:10
16	A. The ISM band is an open band. It's not	01:55:13
17	licensed by the FCC. The FCC just says, here's a	01:55:16
18	band for anyone to be able to transmit in for	01:55:20
19	experimentation purposes; in instrument -- in	01:55:28
20	industrial, scientific and medical purposes; and as	01:55:29
21	long as you, the transmitter, transmit less than	01:55:33
22	this amount of power and you make -- and you do not	01:55:38
23	have intention radiation outside of the band, then	01:55:40
24	you are allowed to transmit.	01:55:44
25	Q. Okay. Can we turn to Paragraph 34 of your	01:55:45

1	declaration? Oh, we are already here?	01:55:50
2	A. Yes.	01:55:52
3	Q. All right.	01:55:52
4	MR. ATKINSON: Does he have control?	01:55:55
5	Because he may have to scroll a little bit. Do you	01:56:00
6	have control of the screen or --	01:56:00
7	THE WITNESS: No.	01:56:03
8	MR. ATKINSON: Can we give him --	01:56:05
9	THE TECHNICIAN: Yes, you do. Yes, you	01:56:06
10	do, Doctor.	01:56:07
11	Q. All right. So you'll see in Paragraph 34	01:56:07
12	it talks about -- you'll see at the three lines	01:56:12
13	from the bottom it says there's ranges between	01:56:18
14	2,400 and 2,483.5 megahertz.	01:56:23
15	Do you see that?	01:56:28
16	A. Yes.	01:56:28
17	Q. And you refer to this here as the	01:56:30
18	frequency band; is that -- is that right?	01:56:35
19	A. Yes.	01:56:38
20	Q. Okay. And that says, Within the 2.4	01:56:42
21	gigahertz ISM band, the 802.11b standard defines 14	01:56:46
22	channels."	01:56:53
23	Do you see that?	01:56:53
24	A. Yes.	01:56:54
25	Q. Are those 14 channels defined by the FCC,	01:56:57

1	or is that -- is that some other body that's	01:57:00
2	defining those channels that you refer to in	01:57:04
3	Paragraph 34?	01:57:07
4	A. Yeah. As the sentence says, that 802.11b	01:57:08
5	standard. So that's the industry.	01:57:13
6	Q. So it's not the FCC that's defining it?	01:57:14
7	It's the industry?	01:57:16
8	A. Yes, and I've testified several times	01:57:19
9	today about that.	01:57:22
10	Q. Okay. Okay. And that's within what	01:57:23
11	you -- what you -- what you call a band 2,400 to	01:57:27
12	2,483 correct?	01:57:31
13	A. What the -- what the industry calls a band	01:57:33
14	and what the FCC calls a band.	01:57:35
15	Q. Okay. So you call that a band. Is that a	01:57:37
16	channel, or is that not a channel?	01:57:44
17	A. It's a band.	01:57:49
18	Q. So you would not consider that to be a	01:57:53
19	channel?	01:57:56
20	A. A band is not a channel.	01:57:58
21	Q. Okay. What's the distinction between a	01:57:59
22	band and a channel?	01:58:04
23	A. Well, per the FCC, channels are -- the	01:58:08
24	band can be comprised of multiple channels.	01:58:15
25	Q. And that's the case with respect to	01:58:26

1	802.11b?	01:58:30
2	A. I don't understand the question.	01:58:32
3	MR. NIEBERG: Form.	01:58:35
4	Q. It's -- you -- this discussion in	01:58:35
5	Paragraph 34 is related to 802.11b; is that	01:58:40
6	correct?	01:58:44
7	A. It is.	01:58:44
8	Q. And the 14 channels, all of them are	01:58:48
9	subdivisions of the -- of the larger -- they're	01:58:51
10	subdivisions of the larger band; is that accurate?	01:58:55
11	A. What do you mean by the "larger band"?	01:59:00
12	Q. The range, 2,400 to 2,483.5.	01:59:02
13	A. That's the -- that's the rough extent of	01:59:11
14	the band. Within that band given by the FCC, the	01:59:14
15	industry has determined how they're going to use --	01:59:20
16	if agreed upon, how they're going to use that band,	01:59:26
17	and their agreement divides that band into 14	01:59:29
18	channels.	01:59:36
19	Q. Okay. Would you mind turning to Paragraph	01:59:57
20	123 of your Declaration?	02:00:00
21	A. Yes.	02:00:02
22	Q. And at the first line --	02:00:11
23	THE TECHNICIAN: The doctor has a control	02:00:16
24	of the document so he can scroll.	02:00:18
25	Q. Oh. Oh, okay. Are you on -- are you on a	02:00:21

1	separate screen or --	02:00:22
2	A. I have the document on my other screen.	02:00:25
3	Q. Oh, okay. So you're looking at your own	02:00:27
4	-- that's -- that's fine. We can -- we can go	02:00:30
5	locally.	02:00:32
6	So you'll see in Paragraph 123 it says,	02:00:32
7	"Through Lundby's -- though Lundby's preferred	02:00:35
8	embodiments are CDMA systems."	02:00:39
9	A. The -- "though Lundby's preferred	02:00:42
10	embodiments are CDMA systems."	02:00:45
11	Q. Right.	02:00:49
12	A. Channel coding, a POSA would have	02:00:49
13	recognized that Lundby's teaching applies to any	02:00:54
14	telecommunication system that have multiple	02:00:57
15	available channels, such as an 802.11b system --	02:00:58
16	Q. Okay.	02:01:04
17	A. -- as described above.	02:01:05
18	Q. So does Lundby describe the 802.11b	02:01:07
19	system, or -- or is it just -- or could it be	02:01:14
20	modified for a 802.11b system?	02:01:16
21	MR. NIEBERG: Objection, form.	02:01:22
22	THE WITNESS: The teaching is -- I'm	02:01:23
23	sorry.	02:01:25
24	MR. ATKINSON: I'm sorry. I didn't hear.	02:01:25
25	MR. NIEBERG: I was just objecting to	02:01:27

1	form.	02:01:29
2	BY MR. ATKINSON:	02:01:29
3	Q. Go ahead.	02:01:29
4	A. The teachings of Lundby can apply to many	02:01:30
5	types of communication systems, and that's clear in	02:01:37
6	the specification in Lundby. If we look at the	02:01:41
7	specification, I can point out the passages where	02:01:44
8	he specifically states that.	02:01:49
9	Q. Sure. We can pull Lundby up.	02:01:53
10	MR. ATKINSON: Can we get Exhibit 1008 on	02:01:55
11	the screen, please?	02:01:57
12	THE TECHNICIAN: Stand by.	02:02:02
13	1008 is on the screen.	02:02:22
14	(Mediatek Deposition Exhibit 1008 was	02:02:26
15	referenced.)	02:02:26
16	MR. ATKINSON: Well, I see we're kind of	02:02:26
17	hitting the 11 o'clock time that we talked about	02:02:29
18	earlier. Do you want to take a break before we --	02:02:33
19	THE WITNESS: I can just point out where	02:02:39
20	Lundby talks about such things, and then we can	02:02:40
21	take a break.	02:02:43
22	Q. Okay. When you say --	02:02:45
23	A. There's a question pending, so...	02:02:47
24	Q. Is there any, like, discussion relating --	02:02:49
25	or of 802.11b in Lundby?	02:02:52

1	MR. NIEBERG: Objection, form.	02:02:56
2	THE WITNESS: Which question would you	02:03:02
3	like me to answer?	02:03:03
4	A. That one, whether there is a description	02:03:04
5	of 802.11b in Lundby.	02:03:08
6	MR. NIEBERG: Objection, form.	02:03:14
7	THE WITNESS: So Lundby talks in the	02:03:19
8	abstract about "a method is taught for improving	02:03:28
9	the transmission of information signals in a	02:03:30
10	communication system having a base station and a	02:03:35
11	remote station." That is true of 802.11.	02:03:37
12	The terms of the art area in Lundby talks	02:03:45
13	about present invention relates to communications	02:03:55
14	in general and in particular to improving the	02:03:58
15	transmission of information signals in a	02:04:01
16	communication system that complies with the 802.11	02:04:03
17	purposes. The teachings of Lundby can also be	02:04:08
18	applied to 802.11.	02:04:14
19	If we look at column --	02:04:22
20	Q. When you say that, are you reading from	02:04:24
21	Lundby, or are you -- are you --	02:04:26
22	A. I am reading from Lundby.	02:04:30
23	Q. Where does it say 802.11 in Lundby?	02:04:32
24	A. Well, you asked me if 802.11 was discussed	02:04:35
25	in Lundby, and I am pointing the areas where a	02:04:40

1	POOSITA would understand that the teachings of	02:04:44
2	Lundby would apply to an 802.11 system.	02:04:45
3	And if I could finish my answer?	02:04:49
4	Q. Go ahead.	02:04:51
5	A. Column 20, Paragraph -- column 20, Line	02:04:52
6	28, "Thus, the present invention is not intended to	02:05:11
7	be limited to the embodiments shown herein but is	02:05:16
8	to be accorded the widest scope consistent with the	02:05:20
9	principles and novel features disclosed, which is	02:05:22
10	compatible with 802.11.	02:05:25
11	Q. But when you say "compatible with" --	02:05:28
12	A. A POOSITA would understand that the	02:05:32
13	teachings of Lundby would apply to 802.11.	02:05:37
14	Q. Does Lundby ever discuss specifically an	02:05:42
15	802.11 system?	02:05:46
16	A. No. It uses as his example a different	02:05:50
17	type of system, but clearly his teachings apply to	02:05:54
18	other types of systems.	02:05:59
19	THE WITNESS: I'd like to take a break	02:06:05
20	now.	02:06:07
21	MR. ATKINSON: Okay. Sure. We can take a	02:06:07
22	break.	02:06:08
23	THE VIDEOGRAPHER: Off the record, 2:06.	02:06:08
24	(Brief break.)	02:08:10
25	THE VIDEOGRAPHER: On the record, 2:20.	02:20:58

1	BY MR. ATKINSON:	02:21:09
2	Q. Dr. Williams, would you mind turning back	02:21:09
3	to your Declaration, please?	02:21:12
4	A. Yes.	02:21:16
5	Q. Okay.	02:21:18
6	A. Is the mic on?	02:21:28
7	Q. Yeah. No, I can hear you. I'm just	02:21:30
8	getting there too. Hold on.	02:21:32
9	A. Okay. I'm there.	02:21:34
10	Q. All right. And can we go back to	02:21:35
11	Paragraph 34?	02:21:43
12	THE WITNESS: I forgot to bring my coffee	02:21:47
13	cup back. Give me one second.	02:21:49
14	MR. ATKINSON: No problem.	02:21:53
15	Q. Now, when we talk in the -- in your	02:22:06
16	statement in lines --	02:22:07
17	THE TECHNICIAN: Mr. Atkinson, I	02:22:07
18	apologize. I don't mean to interrupt you, but it	02:22:08
19	does look like Mr. Williams stepped away from his	02:22:09
20	computer. So maybe we can just wait one second,	02:22:12
21	yeah.	02:22:28
22	MR. ATKINSON: Yeah. Let's just wait a	02:22:28
23	second.	02:22:30
24	THE TECHNICIAN: Okay.	02:22:30
25	MR. ATKINSON: Sorry. I wasn't looking at	02:22:31

1	the --	02:22:31
2	THE TECHNICIAN: That's all right. It	02:22:31
3	happens.	02:22:33
4	THE WITNESS: I have it now. Go ahead.	02:22:34
5	We're on Page 134?	02:22:36
6	BY MR. ATKINSON:	02:22:39
7	Q. No, not Page 134, Paragraph 34 on Page 14.	02:22:39
8	A. Okay.	02:22:42
9	Q. We were there earlier, but we're going	02:22:43
10	back.	02:22:45
11	A. Okay. Go ahead.	02:22:46
12	Q. Okay. You say, "Wireless communications	02:22:47
13	systems communicate over," quote, unquote,	02:22:55
14	"channels."	02:22:57
15	And then you say, "One common way in the	02:22:57
16	prior art (and to this day) to define a channel is	02:22:59
17	based on center frequency of the carrier waves of	02:23:02
18	the signals being transmitted over the channel."	02:23:05
19	Do you see that statement?	02:23:08
20	A. I do.	02:23:09
21	Q. Is that the -- the definition that you're	02:23:10
22	applying to the term "channels" that are -- you	02:23:14
23	know, that you quote there in Paragraph 34 in the	02:23:19
24	context of your Declaration?	02:23:23
25	A. Yes. That's how I normally refer to	02:23:27

1	channel in this context.	02:23:30
2	Q. Okay. And if you turn back to the joint	02:23:31
3	claim construction chart, which I believe is	02:23:44
4	Exhibit 2023 --	02:23:47
5	A. I have my document.	02:23:48
6	Q. Okay. Can we -- can we -- maybe we should	02:23:52
7	just give you all of the documents.	02:23:55
8	A. All right. Just put it on the screen.	02:24:04
9	THE TECHNICIAN: Yep, working on it.	02:24:06
10	THE WITNESS: Okay. Thanks.	02:24:07
11	Go ahead.	02:24:11
12	Q. So is -- so the definition that's in the	02:24:12
13	chart, "frequency ranges provided to transmit	02:24:17
14	packets," do you see that, hopefully? Yeah, it's	02:24:24
15	there.	02:24:27
16	A. Yeah.	02:24:27
17	Q. Do you see that language?	02:24:28
18	A. Yes.	02:24:31
19	Q. Do you -- do you consider your definition	02:24:31
20	to be essentially the same as or different from	02:24:35
21	this proposed construction and, if different, in	02:24:38
22	what way?	02:24:44
23	A. Well, the definition that I have in my	02:24:47
24	report is the more generic widely accepted	02:24:57
25	definition outside the context of the '551 Patent.	02:25:03

1 And, again, channel is highly 02:25:11
2 contextualized. So it depends on what context we 02:25:15
3 are discussing channel in. 02:25:19

4 But if the -- as I said before, if the 02:25:20
5 parties agree that this is how they want to 02:25:23
6 construe wireless channels with respect to the 02:25:25
7 '551, that's fine. 02:25:29

8 Q. So you would consider this -- let me 02:25:30
9 know -- you know, just let me know, if -- if I'm 02:25:35
10 wrong. 02:25:38

11 So you consider the -- the construction in 02:25:38
12 your -- in the joint claim construction chart to be 02:25:44
13 consistent with your definition; is that accurate? 02:25:49

14 MR. NIEBERG: Objection, form. 02:25:56

15 Q. The definition you have in Paragraph 34. 02:25:57

16 A. Is more generic and more commonly accepted 02:26:03
17 and does not -- it's more of a super set of the 02:26:10
18 definition than that definition agreed by the 02:26:21
19 parties in the '551 District Court case. 02:26:25

20 Q. How -- how do you view the '551 District 02:26:28
21 Court case definition to be more specific and/or 02:26:35
22 less generic, as you -- as you phrased it? 02:26:40

23 MR. NIEBERG: Objection, scope. 02:26:44

24 THE WITNESS: I'm sorry? 02:26:47

25 MR. NIEBERG: I said objection -- 02:26:48

1	objection, scope.	02:26:50
2	THE WITNESS: So the parties in the	02:26:52
3	District Court case agreed that it was frequency	02:26:56
4	ranges provided to transmit packets. So a channel	02:27:02
5	doesn't always have to be used to transmit a	02:27:09
6	packet.	02:27:13
7	Q. Okay. So it's the usage of the term	02:27:14
8	"packets" that -- that makes it less generic?	02:27:20
9	MR. NIEBERG: Objection, form, scope.	02:27:23
10	THE WITNESS: Well, if you look at what we	02:27:30
11	were just looking at in terms of the definition of	02:27:39
12	the ISM band at 2.4 gigahertz, that would be a	02:27:41
13	frequency range. So it would be difficult to draw	02:27:51
14	a distinction between the agreed-upon definition in	02:27:53
15	the District Court case and a band, according to	02:27:57
16	the FCC, in this definition if you take out	02:27:59
17	"transmit packets." I guess even if you leave in	02:28:03
18	"transmit packets," a band would be a range of	02:28:08
19	frequencies.	02:28:11
20	Q. Okay. And how -- how is a range of	02:28:13
21	frequencies more specific than -- or how -- how	02:28:16
22	does your definition overcome that problem?	02:28:23
23	MR. NIEBERG: Objection, scope, form.	02:28:30
24	Q. The definition that you presented in	02:28:33
25	Paragraph 34.	02:28:36

1 A. Because there's not a -- in a channel
2 there's a defined center frequency, and there's a
3 defined extent like we discussed about earlier. In
4 this definition, there's no center frequency and
5 extent. So if you look at the FCC rulings, it
6 would -- they would define a channel as having a
7 center frequency of X and in an extent calling it a
8 spectral mask of Y.

9 And this -- this definition is too general
10 to provide any information regarding the difference
11 between the channel and a band, for example.

12 Q. So when you talk about the extent of the
13 frequencies, that's denoted by a number, would it
14 not? That would be denoted by a number, would it
15 not?

16 A. If the spectral mask is, like we discussed
17 earlier, is often several numbers that define the
18 extent of the mask. But in shorthand, in marketing
19 speak, you might talk about a 20 megahertz channel
20 in the 802.11 standard.

21 Q. So when you say "marketing speak," does
22 the 802.11 standard talk about 20 megahertz
23 channels, or is that language absent from 802.11?

24 A. Well, they talk about the channels as
25 defined by a spectral mask and center of frequency.

1	Some people look at the standard as actually a	02:30:41
2	definition of a center frequency of channels and	02:30:43
3	spectral mask of those channels.	02:30:47
4	MR. NIEBERG: Hold on.	02:30:51
5	MR. ATKINSON: Go ahead.	02:30:51
6	MR. NIEBERG: I don't have real time. Is	02:30:52
7	the doctor saying mask or mass? Just so that we	02:30:55
8	can get the transcript accurate.	02:30:58
9	THE WITNESS: M-A-S-K, mask.	02:30:59
10	MR. NIEBERG: Okay. I'm sorry.	02:31:06
11	Q. And the lower and upper range of that	02:31:09
12	mask, that would define a range of frequencies,	02:31:11
13	would it not?	02:31:13
14	A. Yes. But as we discussed earlier, the	02:31:14
15	band, as shown in Paragraph 34 of my report, the	02:31:22
16	range of frequencies between 2.4 gig and 2.483 gig,	02:31:25
17	that's a range of frequencies, and that's not a	02:31:33
18	channel. It's a band.	02:31:37
19	Q. Okay.	02:31:38
20	A. So the range of frequencies from -- what	02:31:38
21	is it? -- the FM band is 108 to 185 megahertz? So	02:31:46
22	the FM radio commercial broadcast band is made up	02:31:59
23	of several channels. So you get KKSM, KKLW, CKLW.	02:32:05
24	You get different transmitters that are authorized	02:32:16
25	to transmit in that band for commercial FM	02:32:19

1 broadcast.

02:32:23

2 The range of frequencies of the FM band is
3 still a range of frequencies. It doesn't define
4 the channel. What defines the channel is what's
5 given by the FCC for a particular operator to
6 transmit frequencies in.

02:32:24

02:32:29

02:32:31

02:32:34

02:32:39

7 Q. So I understand your position, within the
8 context of the -- of the '551 Patent, you know,
9 just to limit the field of our -- of our
10 discussion, does the usage -- is the usage of the
11 term channel within the '551 Patent, would that
12 cover the range 2,400, 2,483.5 that you referenced
13 in Paragraph 34 of your report or not? I.e., is
14 that a channel or is that not a channel as you --
15 as you use the term in Paragraph 34?

02:32:42

02:32:45

02:32:50

02:32:55

02:33:03

02:33:06

02:33:12

02:33:17

02:33:19

16 A. Well, as they -- the government -- as the
17 U.S. government uses the term "band," it defines
18 the band for this ISM allocation as being between
19 2.4 and 2.483. That's -- that's not a channel.
20 The channels -- the channels are how the Standards
21 Committee agreed to use that particular band in
22 order to form channels for multiple transmitters
23 within that band.

02:33:23

02:33:28

02:33:33

02:33:38

02:33:44

02:33:49

02:33:53

02:33:58

24 Q. So I'm not asking how channel as it's used
25 within the 802.11 standard defines channels. I'm

02:33:59

02:34:03

1	asking whether you regard the term "channel" as	02:34:09
2	used in the '551 Patent, given the definition that	02:34:13
3	you have in Paragraph 34 of your report, to cover	02:34:21
4	the band 2,400, 2,483.5. You, Dr. Williams.	02:34:25
5	A. I don't understand the question.	02:34:35
6	Q. So where you have channels in Paragraph 34	02:34:37
7	of your report --	02:34:43
8	A. Yes.	02:34:44
9	Q. -- and it's in quotes, and then you have	02:34:44
10	the next sentence that we talked about previously	02:34:49
11	where you were like -- where you were -- I	02:34:55
12	understood you to be defining -- providing a	02:35:00
13	definition for the word channel; is that accurate?	02:35:02
14	A. I don't know what you're referring to,	02:35:04
15	but --	02:35:08
16	Q. The second sentence.	02:35:08
17	A. -- please ask a question.	02:35:09
18	Q. The second sentence of Paragraph 34.	02:35:10
19	A. Well, it says what it says, but I don't	02:35:13
20	understand.	02:35:17
21	Q. I'm asking whether you're providing a	02:35:18
22	definition for your usage of the term "channel" in	02:35:19
23	this paragraph or not.	02:35:24
24	A. I am.	02:35:25
25	Q. Okay. And so then we have in -- in the	02:35:25

1	next sentence that starts with the 802.11b	02:35:34
2	standard, we have this range between 2,400 and	02:35:39
3	2,483.5 megahertz.	02:35:41
4	Do you see that?	02:35:44
5	A. Yes.	02:35:44
6	Q. In your report, whenever you cite this	02:35:45
7	range, are you -- do you believe that it meets your	02:35:50
8	definition of the term "channel" or not?	02:35:54
9	MR. NIEBERG: Objection, form.	02:36:00
10	THE WITNESS: Well, as I've testified	02:36:01
11	multiple times, that's a band, that range of	02:36:04
12	frequencies is a band, and that's called the band	02:36:07
13	by the U.S. government. It's called a band by the	02:36:11
14	Standards Committee.	02:36:16
15	Q. So you don't regard that as a channel, as	02:36:17
16	you used the term in Paragraph 34 of your report?	02:36:20
17	A. No.	02:36:23
18	Q. Okay. And why is that?	02:36:24
19	A. Because it doesn't have a center frequency	02:36:26
20	and a spectral mask. These aren't channels as	02:36:33
21	would be discussed by the FCC.	02:36:46
22	Q. Right. But there would be a center	02:36:50
23	between 2,400 and 2,483 which would be around	02:36:54
24	'41.75 or 2,441.75, would it not?	02:36:59
25	A. Mathematically correct.	02:37:04

1	Q.	Okay. So --	02:37:08
2	A.	But that does not define channel.	02:37:12
3	Q.	And why not?	02:37:15
4	A.	Because that has not been -- that's not	02:37:16
5		specifying a center frequency for carrier waves and	02:37:32
6		signals to be transmitted over the channel.	02:37:36
7	Q.	Okay. If a reference does not identify a	02:37:38
8		center frequency and a spectral mask, you don't	02:37:46
9		believe it defines a channel?	02:37:49
10	MR. NIEBERG:	Objection, form.	02:37:52
11	THE WITNESS:	Well, again, channel is	02:37:55
12		highly contextualized, but I would have to look at	02:37:57
13		the reference.	02:38:01
14	Q.	Well, within the context of the 80 -- or	02:38:02
15		I'm sorry -- within the context of the '551 Patent.	02:38:06
16	A.	Well, this is how, in my opinion, a	02:38:09
17		POOSITA would understand the use of the word	02:38:13
18		channel within the '551 Patent.	02:38:15
19	Q.	Okay. And he would need -- you would need	02:38:18
20		something that identified -- that specifically	02:38:21
21		identified the center frequency? Is that what	02:38:24
22		you're saying?	02:38:27
23	A.	No. I'm saying that this is the	02:38:28
24		understanding of the POOSITA.	02:38:32
25	Q.	The understanding of a person of ordinary	02:38:37

1	skill in the art is what?	02:38:41
2	A. Is what? I'm sorry.	02:38:43
3	Q. I'm just trying to understand.	02:38:45
4	So a person of ordinary skill in the art	02:38:48
5	would define something to be a channel or not to be	02:38:52
6	a channel based on whether the reference defines a	02:38:55
7	center frequency, is that what you're saying, or	02:39:02
8	what -- why does a person of ordinary skill in the	02:39:04
9	art need to see in order to say, Ah, this is a	02:39:08
10	channel?	02:39:11
11	MR. NIEBERG: Objection, form, scope.	02:39:12
12	THE WITNESS: If I go into any company in	02:39:13
13	the United States and find a person with the	02:39:20
14	background of a POOSITA, as described in my report,	02:39:24
15	and I ask them -- I ask them, Given that the	02:39:31
16	802.11b standard operates in the ISM frequency	02:39:42
17	band, which ranges between 2.4 gigahertz and 2.438	02:39:46
18	-- 483 gigahertz, is that a channel, the answer	02:39:54
19	would be, No.	02:40:00
20	Q. Okay. Why is that?	02:40:03
21	A. Because it's a band.	02:40:04
22	Q. What distinguishes a band from a channel?	02:40:06
23	A. That there have -- there is a center	02:40:12
24	frequency of the carrier waves of the signals being	02:40:14
25	transmitted over the channel in a spectral lens for	02:40:17

1	that channel.	02:40:21
2	Q. And where are those descriptions of center	02:40:23
3	frequency and spectral mask discussed in the -- in	02:40:29
4	the '551 Patent, which if you need to take a look,	02:40:32
5	it is Exhibit 1001.	02:40:40
6	A. The specification, Column 1, Line 35 to	02:41:09
7	42.	02:41:21
8	Q. Okay. I'm not seeing any discussion of a	02:41:28
9	center frequency or spectral mask. I see where it	02:41:33
10	sites to the 802.11 standard, but I don't see	02:41:37
11	the -- anything discussing center frequency or	02:41:42
12	spectral mask.	02:41:45
13	A. Well, let's look -- let's look at that	02:41:47
14	document.	02:41:49
15	Q. So it isn't within the text of the -- of	02:41:51
16	the '551 Patent itself. You have to look at the	02:41:57
17	802.11 standard?	02:42:02
18	A. I don't understand the question.	02:42:09
19	Q. Is there any discussion of center	02:42:11
20	frequencies in the '551 Patent that you are aware	02:42:12
21	of sitting here today?	02:42:16
22	A. The --	02:42:21
23	MR. NIEBERG: Objection to form.	02:42:22
24	THE WITNESS: The word channel is used	02:42:23
25	multiple times in the '551 Patent.	02:42:26

1 Q. That wasn't my question. 02:42:28

2 A. The '551 Patent specifically points the 02:42:30

3 reader to the 802.11 spec, which, within it, 02:42:34

4 includes the channelization as agreed by the 02:42:37

5 Standards Committee for the ISM band of 2.4 02:42:41

6 gigahertz. 02:42:45

7 So a POOSITA would clearly understand 02:42:48

8 what's being used by the word channel in the '551 02:42:51

9 Patent as being a channel as the term is used in 02:42:54

10 the 802.11 standard. 02:43:02

11 Q. But those specific terms are not used in 02:43:04

12 the '551 Patent; is that accurate? 02:43:08

13 A. What specific terms? 02:43:10

14 Q. Center frequency and spectral mask. 02:43:12

15 A. No, because that is within -- clearly 02:43:20

16 within the understanding of the POOSITA coming to 02:43:23

17 this patent. 02:43:27

18 Q. Okay. And if you need to open it, is this 02:43:29

19 the -- is this the same conception that a person of 02:43:54

20 ordinary skill in the art would apply to the -- to 02:43:58

21 the -- Exhibit 1005 -- which we may have to give 02:44:03

22 you access to -- the Shpak reference? 02:44:06

23 A. I need access to it. 02:44:11

24 MR. ATKINSON: Can we give him access to 02:44:14

25 1005? 02:44:16

1	THE WITNESS: It's coming.	02:44:21
2	(Mediatek Deposition Exhibit 1005 was	02:44:48
3	referenced.)	02:44:48
4	Q. Okay. And just to -- just to kind	02:44:48
5	of guide you a bit, you'll see in Paragraph 5 it	02:44:50
6	talks about frequency channels.	02:44:55
7	A. The 802.11 standard provides a mechanism	02:45:08
8	for collision avoidance known as clear channel	02:45:12
9	assessment which causes a station to refrain from	02:45:16
10	transmitting one's senses or other transmissions on	02:45:17
11	its frequency channel.	02:45:21
12	Q. Right. So is it your understanding that	02:45:23
13	Shpak is using channel the same way as the -- as	02:45:30
14	the '551 Patent, or is it using channel in a	02:45:34
15	different way?	02:45:39
16	A. In this sentence, it's using channel in	02:45:39
17	the same way.	02:45:47
18	Q. Are you aware of any sections for it	02:45:50
19	using -- of Shpak where it's using channel in a	02:45:53
20	different way?	02:45:57
21	MR. NIEBERG: Objection, form.	02:45:59
22	THE WITNESS: Not that I recall.	02:46:05
23	Q. And can we turn to Bugeja Ex., and you'll	02:46:10
24	have to give him have access to this one as well, I	02:46:21
25	think, Exhibit 1007. And I may be butchering this	02:46:23

1	person's name, but I will call it Bugeja.	02:46:30
2	THE TECHNICIAN: Stand by.	02:46:34
3	(Mediatek Deposition Exhibit 1007 was	02:46:34
4	referenced.)	02:46:34
5	THE WITNESS: Yeah. I call it Bugeja, but	02:46:34
6	whatever.	02:46:36
7	I need to correct my earlier testimony.	02:46:58
8	FM band is 88 to 108.	02:47:01
9	Q. If you will turn to Paragraph 4 of	02:47:08
10	Bugeja --	02:47:12
11	A. Yes.	02:47:15
12	Q. Okay. Are you there?	02:47:20
13	A. Right.	02:47:22
14	Q. Okay. So you'll -- you see it	02:47:22
15	references -- it says the 802.11b protocol, and it	02:47:26
16	talks about having "adequate spectrum to provide	02:47:31
17	three independent channels, each having different	02:47:35
18	center frequency."	02:47:39
19	A. Right. So here Bugeja is drawing a clear	02:47:40
20	distinction between the band, 2.4 gigahertz band,	02:47:45
21	and the channels contained within the band.	02:47:46
22	Q. Okay. And so is that -- is your	02:47:49
23	understanding of Bugeja, does it use channels in	02:47:53
24	the same sense as the '551 Patent or a different	02:47:56
25	sense, as you defined it in Paragraph 34 of your --	02:48:00

1	of your declaration?	02:48:04
2	A. Well, here Bugeja specifically talks about	02:48:05
3	center frequency. So that complies with my	02:48:10
4	discussion in my Declaration, and so he and I are	02:48:15
5	talking about the same thing.	02:48:21
6	Q. Right.	02:48:24
7	So -- so the answer to -- the slightly	02:48:24
8	different -- different question, but I think	02:48:33
9	related, is that because you're talking about	02:48:37
10	channels within the context of the '551 Patent,	02:48:42
11	it's using it in the same way as the '551 Patent or	02:48:45
12	a different way?	02:48:51
13	MR. NIEBERG: Objection, form.	02:48:52
14	THE WITNESS: Well, to be precise, the	02:48:54
15	'551 Patent could apply to things other than -- to	02:49:15
16	systems other than 802.11b compliant systems.	02:49:19
17	But here, in specifically talking about	02:49:25
18	802.11b compliant systems, Bugeja in this sentence,	02:49:28
19	my report and the '551 are all talking about the	02:49:39
20	same types of channels.	02:49:42
21	Q. Can I just be clear? It says, "For	02:49:45
22	example, the IEEE 802.11b protocol."	02:49:51
23	So is Bugeja being limited by what it	02:49:59
24	says, "For example" -- in reference to the 802.11b,	02:50:02
25	is it being limited to 802.11b in your	02:50:07

1	understanding, or is it being applicable to systems	02:50:10
2	other than 802.11b?	02:50:13
3	A. Bugeja?	02:50:15
4	Q. Yes.	02:50:16
5	A. I haven't opined on that.	02:50:17
6	Q. Okay. That's not something you	02:50:19
7	considered?	02:50:21
8	A. I wasn't asked to.	02:50:22
9	Q. Okay. So you don't have an opinion about	02:50:23
10	whether Bugeja uses channel the same -- in the same	02:50:28
11	way as you define channel for '551?	02:50:32
12	MR. NIEBERG: Objection, form.	02:50:37
13	THE WITNESS: I just testified that	02:50:38
14	Bugeja, the '551 and my report all seem to be	02:50:40
15	discussing channels in the same manner.	02:50:44
16	Q. Okay. So it uses channel in the same	02:50:49
17	manner as you defined it for '551?	02:50:52
18	A. Yes.	02:50:57
19	Q. Okay. And for -- and in the instance we	02:50:58
20	were talking about just before we went off the	02:51:09
21	record, Lundby, Exhibit 1008 --	02:51:11
22	A. Yes.	02:51:21
23	Q. Let me get the reference here.	02:51:22
24	A. I'm there.	02:51:31
25	Q. I'm getting there.	02:51:33

1	A.	Okay.	02:51:34
2	Q.	Okay. If you'll turn to -- if you'll turn	02:51:39
3		to Column 1, I guess it's around Line 11, let me	02:51:52
4		know when you're there.	02:52:05
5	A.	Yes.	02:52:06
6	Q.	All right. It talks -- it says, The	02:52:07
7		quality of a communication link over a noisy	02:52:14
8		channel depends on the energy and interference	02:52:17
9		noise ratio E_b/N_0 of the signal.	02:52:21
10		I understand there there's other stuff in	02:52:24
11		the sentence besides just channel, but when it	02:52:25
12		talks about channel, is it using channel in the	02:52:28
13		same sense as the '551 or a different sense?	02:52:30
14	MR. NIEBERG:	Objection, form.	02:52:36
15	THE WITNESS:	In the same sense.	02:52:37
16	Q.	We've been talking earlier about -- or	02:52:47
17		earlier we mentioned carrier sense multiple access.	02:52:52
18		Do you recall talking about briefly about	02:52:58
19		carrier sensing?	02:53:01
20	A.	Yes.	02:53:02
21	Q.	What does carrier refer to in	02:53:05
22		communications generally and within, you know, data	02:53:09
23		communications specifically, digital data	02:53:13
24		communications specifically?	02:53:17
25	MR. NIEBERG:	Objection, form.	02:53:21

1	Q.	Let me clarify a bit.	02:53:21
2		When -- in the term carrier sense multiple	02:53:38
3		access, what does the term "carrier" refer to?	02:53:42
4	A.	CSMA comes out of the wired land industry	02:53:50
5		and was adopted for -- some of the techniques were	02:53:54
6		adopted for 802.11 and CSMA/CA.	02:53:59
7		The carrier here just primarily refers to	02:54:05
8		observing the intentional radiation in the channel	02:54:10
9		to determine the idle or available status of the	02:54:15
10		channel.	02:54:23
11	Q.	Okay. So I think we may be mixing -- or	02:54:23
12		as I understand it, we may be mixing up two	02:54:31
13		different things.	02:54:34
14		I think what you -- what you just	02:54:35
15		described is carrier sensing; is that -- is that	02:54:39
16		accurate? Within the context of the wireless	02:54:44
17		communication standards.	02:54:48
18	A.	Well, CSMA is a technique to determine if	02:54:49
19		the channel is available to be used. The way it	02:54:55
20		does that, there are many different techniques to	02:55:03
21		do that, since it's such an old technology. But	02:55:05
22		the purpose is to determine if a carrier -- if the	02:55:12
23		channel can be used for transmission.	02:55:15
24	Q.	And what is a carrier?	02:55:21
25	A.	Depends on the context.	02:55:25

1	Q.	In the context of 802.11.	02:55:27
2	A.	A carrier is a radio frequency in which	02:55:36
3		information is modulated on to.	02:55:40
4	Q.	Okay. And is that the -- when I -- let me	02:55:43
5		see. Just a second.	02:55:54
6	A.	Carrier is another highly contextualized	02:55:56
7		term.	02:56:01
8	Q.	Yeah, but the -- in the '551 Patent, it	02:56:02
9		talks about carrier sense at various points, does	02:56:05
10		it not?	02:56:14
11	A.	It does.	02:56:14
12	Q.	And so when the '551 Patent talks about	02:56:15
13		carrier sense, does it -- and carrier, does it use	02:56:19
14		those terms in -- in the same way that you	02:56:22
15		described or a different way?	02:56:24
16	A.	Well, the CSMA is a collection of	02:56:28
17		techniques. It's not -- you're breaking it down	02:56:34
18		into the word carrier. CSMA is an area of art for	02:56:40
19		a POOSITA and really can't be separated from the	02:56:48
20		word carrier.	02:56:54
21	Q.	Well, does -- does the word carrier, as	02:56:58
22		used in the '551 Patent, does that have the same	02:57:02
23		meaning as you just discussed where you talked	02:57:06
24		about a frequency modulated medium, or is it used	02:57:12
25		in a different context?	02:57:16

1	A.	In a different context, so...	02:57:17
2	Q.	What's the different context?	02:57:20
3	A.	So you wouldn't -- you wouldn't have a --	02:57:22
4		you wouldn't have a band sense multiple access,	02:57:25
5		for example.	02:57:33
6	Q.	Okay.	02:57:33
7	A.	So, again, CSMA is just the name given to	02:57:34
8		the technique because it started out in wired	02:57:39
9		lands, and it -- it's just a name like orange, and	02:57:46
10		that is a collection of techniques for multiple	02:57:55
11		access.	02:57:59
12	Q.	So carrier is -- oh, I'm sorry.	02:58:04
13	A.	CSMA is look at the channel, if the	02:58:04
14		channel is available for transmission, you can	02:58:09
15		transmit. If it's not available for transmission,	02:58:13
16		you won't transmit.	02:58:16
17	Q.	And that's not applicable to the entire	02:58:19
18		band?	02:58:23
19	A.	The POOSITA would not understand it to be	02:58:26
20		applicable to the entire band at once.	02:58:30
21	Q.	And to be clear, that's within the context	02:58:32
22		of the '551 Patent generally --	02:58:42
23	A.	Generally.	02:58:44
24	Q.	-- or both?	02:58:44
25	A.	Generally.	02:58:44

1	Q.	Okay. So -- well, let me --	02:58:45
2	A.	Both. Both, I guess.	02:58:50
3	Q.	Okay. And so in Lundby, the -- the --	02:58:52
4		Exhibit 1008, is the discussion of channel	02:59:32
5		consistent with -- with the discussion of channel	02:59:41
6		that we described for generally and for the '551	02:59:45
7		Patent?	02:59:47
8	MR. NIEBERG:	Objection, form.	02:59:52
9	THE WITNESS:	I already answered that	02:59:55
10		question.	02:59:56
11	Q.	So what -- just -- so I make sure I'm	02:59:57
12		understanding correctly, what was the answer?	03:00:01
13	A.	Lundby --	03:00:02
14	MR. NIEBERG:	Objection, form.	03:00:06
15	THE WITNESS:	Lundby's disclosure of	03:00:07
16		channels specifically in his teachings around	03:00:12
17		Figure 2, his use of the word channels is	03:00:22
18		consistent with my definition and the '551.	03:00:29
19	Q.	Okay. So just to make sure I understand,	03:00:37
20		so, yes, it is -- you do understand it to be the	03:00:39
21		same or, no, you don't understand it to be the	03:00:41
22		same, and this is the difference?	03:00:43
23	MR. NIEBERG:	Objection, form.	03:00:47
24	THE WITNESS:	I think I already answered	03:00:47
25		that question.	03:00:49

1	Q.	Well, so you may have. I'm just trying to	03:00:49
2		make sure that I understand the answer, that it --	03:00:54
3		I'm just trying to understand whether it is the	03:00:58
4		same or whether it's not the same, as per the	03:00:59
5		'551 -- as it's used per the '551.	03:01:05
6	MR. NIEBERG:	Objection, form.	03:01:08
7	THE WITNESS:	Can I have a clean question,	03:01:09
8		please?	03:01:11
9	Q.	Does the way Lundby uses the word channel,	03:01:12
10		is it used the same way as -- as the word is used	03:01:16
11		in the '551, or is it used in a different way?	03:01:19
12	A.	Lundby uses -- the teachings of the Lundby	03:01:21
13		with regards to Figure 2, his use of the word	03:01:27
14		channels in that figure are consistent with my	03:01:30
15		definition of channel and of the understanding of	03:01:32
16		the POOSITA reading the '551 Patent.	03:01:36
17	Q.	Okay. And are you aware sitting here	03:01:40
18		today of anything in Lundby besides the	03:01:43
19		descriptions of Figure 2 that would be	03:01:48
20		inconsistent?	03:01:50
21	A.	Well, again, channel is a highly	03:01:51
22		contextualized word. So the answer is -- you'd	03:01:54
23		have to be more specific with your question.	03:02:04
24	Q.	Well, so I'm asking whether you're aware	03:02:06
25		of anything that you can point to that's different	03:02:12

1	as you're sitting here right now?	03:02:15
2	MR. NIEBERG: Objection, form.	03:02:21
3	Q. Like do you know of any -- of anything --	03:02:22
4	of any usage of the word that is inconsistent?	03:02:25
5	MR. NIEBERG: Objection, form.	03:02:29
6	Q. And to be clear, I'm just -- I'm asking	03:03:34
7	whether you know of anything as you sit here right	03:03:37
8	now.	03:03:39
9	A. Under Lundby?	03:03:41
10	So Figure 1 -- yes, Figure 1 refers to	03:04:50
11	channel, and the transmission and reception of	03:04:54
12	coded bits over that channel refers to it as	03:05:02
13	element 8. And down in the spec, Lundby describes	03:05:08
14	at Column 1, Line 45, the end bits of the coded	03:05:17
15	stream 6 at the output of the rate, R encoder can	03:05:26
16	be transmitted over the transmission channel.	03:05:30
17	So that use of the word channel is	03:05:33
18	consistent with how a transmission channel would be	03:05:36
19	used in the '551.	03:05:43
20	Q. Is consistent?	03:05:48
21	A. That's what I said.	03:05:51
22	Q. Okay. So the question is whether there	03:05:53
23	is -- whether you see anything inconsistent, not	03:05:57
24	consistent.	03:06:02
25	A. Moving on to the next use of the word	03:06:03

1 channel in Lundby.

03:06:06

2 Figure 2 is the figure that we are
3 discussing, and I've already testified that a
4 POOSITA would understand the use of the word
5 channel in Figure 2 as consistent with the
6 understanding that they would have when reading the
7 '551.

03:06:10

03:06:15

03:06:20

03:06:23

03:06:25

03:06:27

8 Q. Okay. So the question isn't to go through
9 every usage of the word channel in Lundby.

03:06:29

03:06:35

10 A. Well, I'm answering --

03:06:39

11 Q. The question is whether as you're sitting
12 here right now are you aware of any inconsistent
13 uses of the word channel?

03:06:39

03:06:41

03:06:46

14 A. I'm answering the question.

03:06:49

15 Q. I -- I don't -- I don't think -- well, I
16 don't know the answer. Is the answer yes or no?

03:06:50

03:06:53

17 A. I'm answering your question.

03:06:57

18 MR. NIEBERG: Form.

03:07:00

19 Q. Without reading, like, the entirety of
20 Lundby, can you answer the question?

03:07:03

03:07:06

21 A. Well, as I've testified at least a dozen
22 times today, the word channel is highly
23 contextualized. So if you're asking me a generic
24 question like that, we're going to have to go
25 through every use of the word channel in Lundby in

03:07:07

03:07:11

03:07:14

03:07:18

03:07:19

1	order to --	03:07:23
2	Q. No. So to be clear, I'm asking whether	03:07:23
3	you know as you sit there right now.	03:07:25
4	A. Can I answer the question, please?	03:07:28
5	Q. As you sit there right now, do you know of	03:07:30
6	any --	03:07:31
7	A. Can I speak?	03:07:31
8	Q. Oh, go ahead. I thought you were asking	03:07:32
9	for the question.	03:07:35
10	A. No, I was not asking for the question.	03:07:35
11	So in order to answer your question -- as	03:07:39
12	I've testified at least a dozen times today, the	03:07:42
13	word channel is highly contextualized. So to	03:07:45
14	answer your question under the standards of a	03:07:50
15	deposition, we will have to look at each and every	03:07:52
16	use of the word channel in Lundby in order to	03:07:55
17	understand how Lundby is using that word.	03:07:59
18	Q. Okay. So let me -- let me clarify my	03:08:00
19	question.	03:08:03
20	So the question isn't -- the question that	03:08:05
21	you appear to be trying to answer of whether there	03:08:08
22	is an inconsistent usage of channel within Lundby,	03:08:10
23	whether you're aware of anything -- of any usage in	03:08:17
24	Lundby of an inconsistent usage, as you sit there	03:08:21
25	right now, without having to go through all of	03:08:25

1	Lundby.	03:08:28
2	MR. NIEBERG: Objection, form.	03:08:28
3	THE WITNESS: So you're asking me not to	03:08:30
4	answer this question under the standards of a	03:08:34
5	deposition?	03:08:38
6	Q. I don't know any -- so it's common in	03:08:39
7	depositions to ask the witness' current knowledge.	03:08:43
8	A. Okay.	03:08:50
9	Q. As you sit there right now, do you know?	03:08:50
10	A. Well --	03:08:52
11	MR. NIEBERG: Objection, form.	03:08:54
12	THE WITNESS: For example, in Figure 8	03:08:55
13	some -- some art describes the I and Q channels of	03:09:02
14	the transmission element 742 and 744 as being	03:09:09
15	channels. That's not the same as the channel that	03:09:15
16	we're discussing in the '551 and as defined in	03:09:18
17	my -- in my Declaration.	03:09:26
18	Q. Okay. And what's --	03:09:28
19	A. So, again, we can contextualize the use of	03:09:31
20	the word channel. And in order to accurately,	03:09:36
21	telling the truth, the whole truth and nothing but	03:09:39
22	the truth, to answer your question, we would need	03:09:42
23	to go through each and every use of the word	03:09:44
24	channel or implied use of the word channel in	03:09:47
25	Lundby.	03:09:50

1	Q.	Okay. And --	03:09:50
2	A.	But what's critical here is the teaching	03:09:53
3		of Figure 2 with regards to the '551, and Figure 2	03:09:56
4		clearly would teach a POOSITA that that channel is	03:10:03
5		the same kind of channel described in the '551 and	03:10:08
6		in my Declaration.	03:10:12
7	Q.	And what specifically about Figure 8 is	03:10:15
8		inconsistent?	03:10:19
9	MR. NIEBERG:	Objection, form.	03:10:22
10	THE WITNESS:	Figure 8 has not been placed	03:10:25
11		on a carrier. There is no carrier in Figure 8.	03:10:27
12	Q.	Okay. So it's because -- it's because	03:10:33
13		this is internal to the device and not yet	03:10:36
14		transmitted wirelessly, or what's the reason?	03:10:40
15	A.	There is no carrier frequency in Figure 8.	03:10:43
16	Q.	And is that because it hasn't been	03:10:50
17		modulated on to a wireless medium or --	03:10:53
18	A.	Right.	03:10:58
19	Q.	Okay. Turning back to Exhibit 1003, your	03:10:59
20		Declaration, and can you go to the next paragraph,	03:11:51
21		Paragraph 35?	03:11:56
22	A.	Yes.	03:11:57
23	Q.	You see in Paragraph 35 that you describe	03:12:00
24		CSMA/CA and CSMA, I guess, as well. Do you see	03:12:24
25		those references to these terms in Paragraph 35?	03:12:33

1 A. Yes. 03:12:36

2 Q. Does this represent your understanding of 03:12:42
3 how CSM -- how the term CSMA is used generally or 03:12:46
4 is this specific with reference to the '551 Patent? 03:12:51

5 A. Right here I'm talking about a 03:12:57
6 conventional 802.11-1999 standardized system. So 03:13:02
7 that's what I am discussing. 03:13:07

8 Q. So is that -- so is the answer generally 03:13:08
9 applicable in the industry? 03:13:15

10 A. As we discussed a while ago, CSMA is a 03:13:21
11 collection of techniques, and it's just a name for 03:13:24
12 a collection of techniques. The 802.11 standard, 03:13:27
13 and published in 1999, uses that one form of that 03:13:35
14 collection of techniques, the collision avoidance 03:13:40
15 process. And so that form of CSMA would be 03:13:48
16 understood in general and here is applicable to the 03:13:56
17 '551 Patent. 03:14:01

18 Q. And I think as we discussed earlier that 03:14:04
19 that involves -- for the '551 Patent involves the 03:14:07
20 detection of power modulated under the carrier; is 03:14:12
21 that accurate? 03:14:15

22 A. No. 03:14:16

23 Q. Okay. How -- how is that inaccurate? 03:14:17

24 A. The CSMA measures the intentionally 03:14:20
25 radiated power on a particular channel and 03:14:25

1	determines whether that channel is idle or busy.	03:14:29
2	Q. Okay. So it's intentionally radiated	03:14:32
3	power?	03:14:38
4	A. What is it?	03:14:41
5	MR. NIEBERG: Objection, form.	03:14:43
6	Q. The detection of intentionally radiated	03:14:44
7	power?	03:14:46
8	A. I don't understand the question.	03:14:47
9	Q. Well, I'm just trying to understand your	03:14:48
10	answer.	03:14:50
11	You mentioned intentionally radiated power	03:14:50
12	rather than power generally.	03:14:54
13	A. Yes.	03:14:56
14	Q. And so it's the detection of intentionally	03:14:57
15	radiated power that references the CSMA?	03:15:03
16	A. Yes.	03:15:07
17	Q. Okay. How is intentionally radiated	03:15:07
18	power -- how is the detection of intentionally	03:15:11
19	radiated power differentiated from	03:15:14
20	non-intentionally radiated power?	03:15:17
21	A. Typically by the level.	03:15:21
22	Q. Okay. Does it have a higher level?	03:15:26
23	A. What does?	03:15:32
24	Q. Does it have a higher level of power?	03:15:34
25	A. What does?	03:15:37

1	MR. NIEBERG: Objection to the form.	03:15:39
2	Q. Does CSMA for intentionally radiated	03:15:41
3	power, does it have a higher power level than	03:15:47
4	non-intentionally radiated power? How does one	03:15:52
5	determine?	03:15:56
6	MR. NIEBERG: Objection to the form.	03:15:57
7	Q. I do not understand the answer. So you	03:15:59
8	mentioned intentionally radiated power in	03:16:03
9	connection with the CSMA, did you not?	03:16:06
10	A. I did.	03:16:08
11	Q. How is a person skilled in the art	03:16:09
12	distinguish intentionally radiated power from	03:16:11
13	non-intentionally radiated power using that	03:16:14
14	detection?	03:16:19
15	A. Typically, by the level and sometimes by	03:16:19
16	the occurrence of correlation.	03:16:21
17	Q. When you say "level," that means the level	03:16:24
18	of power detected?	03:16:28
19	A. Yes.	03:16:30
20	Q. With intentionally being typically higher	03:16:33
21	than non-intentionally or vice versa?	03:16:35
22	A. The energy received.	03:16:38
23	Q. The energy received is higher for	03:16:40
24	intentionally radiated sources or --	03:16:44
25	A. I was asking the previous -- I was	03:16:46

1	answering the previous question that you asked.	03:16:48
2	So give me a clean question, please.	03:16:51
3	Q. Is the level -- you mentioned the level of	03:16:56
4	power detected.	03:17:00
5	Is it higher for intentionally radiated	03:17:03
6	power or lower?	03:17:07
7	A. Than unintentionally radiated power?	03:17:11
8	Q. Yes, correct.	03:17:14
9	A. Typically, it is higher. And oftentimes	03:17:15
10	has correlations, auto correlations.	03:17:18
11	Q. Okay.	03:17:34
12	A. But, again, the fundamental process here	03:17:36
13	is to determine whether the channel was available	03:17:39
14	to be used.	03:17:41
15	Q. Okay. So if it determines that there is a	03:17:46
16	high level of radiated power indicative of, as we	03:17:50
17	are calling it, intentionally radiated power, would	03:17:56
18	a device in CSMA be allowed to transmit on the	03:18:03
19	channel or not?	03:18:12
20	A. Well, you didn't have any temporal --	03:18:12
21	Q. At the moment -- you know, on or after the	03:18:26
22	time it makes the --	03:18:30
23	A. After a day? After a month?	03:18:36
24	Q. Well, within whatever period. I assume	03:18:40
25	that it -- that it is repeatedly checking or like	03:18:44

1 periodically checking, is that accurate, or -- 03:18:50

2 A. That's correct. And sometimes there's a 03:18:52

3 whole lot of recheck of the energy level out on the 03:18:55

4 channel in order to determine whether the channel 03:19:03

5 is busy or not busy. So the devil's in the details 03:19:05

6 there, I guess. 03:19:13

7 Q. Okay. So if it determines that it's busy 03:19:13

8 for a certain period of time, like immediately 03:19:17

9 after, would it be allowed to transmit within this 03:19:22

10 period, or would it be prevented from transmitting? 03:19:28

11 MR. NIEBERG: Objection. 03:19:31

12 THE WITNESS: Well, if there were only a 03:19:33

13 single measurement? 03:19:34

14 Q. I'm sorry. You broke up. 03:19:34

15 A. If there were only that single 03:19:36

16 measurement? 03:19:38

17 Q. Yes. 03:19:38

18 A. It depends on the exact algorithm used, 03:19:42

19 but, again, the fundamental purpose here is to 03:19:46

20 determine whether the channel is busy or not busy, 03:19:50

21 based on the occupancy of the channel by some other 03:19:54

22 transmitter. 03:19:59

23 Q. And if it determines that it's busy, what 03:20:01

24 does it do? 03:20:03

25 A. It depends on the algorithm, the specifics 03:20:03

1 of the algorithm. In some cases it goes to sleep,
2 kind of wakes up a few significant time periods
3 later, measures it again. If it's still busy, it
4 goes to sleep for a longer period of time, wakes up
5 after that longer period of time, checks. If it's
6 still busy, it goes to sleep for an exponentially
7 longer time, wakes up again, looks for activity on
8 the channel. If that's still -- if there's still
9 activity, it goes to sleep for an exponentially
10 longer time, et cetera. So it backs up off and --
11 we say it backs off in an exponential manner.

12 So it depends on the aspects of the
13 algorithm.

14 Q. Okay. Within the context of the '551
15 Patent, what happens when it determines that it is
16 busy?

17 A. I don't remember the exact algorithm of
18 the '99 version of 802.11, but I believe
19 there's a -- it determines it's busy, backs off for
20 some period of time and retries. Then it declares
21 the channel busy if it gets -- if it finds
22 significant radiated -- intentional radiated power.

23 Otherwise, it proceeds into a transmitting
24 process.

25 Q. Okay. So just so I --

03:20:09

03:20:14

03:20:18

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03:20:52

03:20:56

03:20:58

03:21:02

03:21:07

03:21:12

03:21:15

03:21:21

03:21:26

03:21:29

03:21:29

1	A.	That's my recollection. I would have to	03:21:29
2		refresh my recollection of the details of that	03:21:32
3		particular algorithm of the 802.11-'99 version in	03:21:36
4		respect.	03:21:40
5	Q.	Well, no, I mean, outside of the	03:21:40
6		802.11-'99 version --	03:21:43
7	A.	There are many papers. There are many	03:21:50
8		papers, many techniques in the CSMA. So probably	03:21:53
9		many patents as well.	03:21:59
10	Q.	Right. What's described with specific	03:22:01
11		reference to the '551 Patent?	03:22:04
12	A.	Well, it just says CSMA/CA, and it points	03:22:06
13		to 802.11. But then in the claims, the claims talk	03:22:10
14		about -- Claim 1, for example, talks about --	03:22:17
15		determined to be idle by carrier sense which is a	03:22:33
16		collection of algorithms.	03:22:37
17		So there are many ways to determine	03:22:40
18		carrier sense. CSMA/CA is one of those techniques.	03:22:42
19	Q.	Okay.	03:22:49
20	A.	If it's determined to be idle is -- the	03:22:50
21		determination to be idle can be done by CSMA/CA.	03:22:56
22		So the claim covers a broad number of techniques.	03:23:03
23	Q.	In your Declaration, if you can turn to	03:23:08
24		the next page, Page 16, you will see about four	03:23:10
25		lines down the sentence, Before transmitting, an	03:23:19

1	802.11 device or node 'first' listens to ensure no	03:23:23
2	other node is transmitting' (i.e., senses whether	03:23:28
3	the channel is idle) and will only transmit 'if the	03:23:29
4	communications channel is clear' (i.e., idle).	03:23:33
5	Do you see that?	03:23:38
6	A. I do.	03:23:39
7	Q. Okay. And so whenever we are talking	03:23:39
8	about idle, is that -- are you referring to what	03:23:45
9	we've previously been terming not busy; is that	03:23:50
10	correct?	03:23:53
11	A. I think the more accurate definition of	03:23:53
12	idle here is available for use.	03:23:59
13	Q. Okay. And if it's not available for use,	03:24:20
14	there would, therefore, be no transmission by the	03:24:27
15	transceiver that's trying -- that we're looking at	03:24:31
16	that's trying to transmit; is that -- is that	03:24:33
17	correct?	03:24:35
18	A. Well, you didn't put any temporal	03:24:36
19	restrictions on that.	03:24:43
20	Q. Well, at least for whatever period we're	03:24:43
21	determining busyness or non-busyness.	03:24:47
22	A. No, not correct.	03:24:55
23	Q. Why is that incorrect?	03:24:57
24	A. In Figure 1 of the '551 Patent, if it	03:24:58
25	determines that the mandatory channel is idle, is	03:25:07

1 available for use, then we proceed to step S4 in 03:25:11
2 which we do -- do some work to organize the data to 03:25:17
3 be transmitted, and then we transmit simultaneously 03:25:23
4 on every wireless channel that's available to that 03:25:27
5 transmitter. 03:25:31

6 Q. So I think we may be passing each other a 03:25:32
7 bit. 03:25:36

8 So idle has, in reading the term here, 03:25:37
9 is -- means not busy; is that correct? 03:25:46

10 A. Well, as I just said, idle should be 03:25:48
11 understood in terms of is the channel available for 03:25:55
12 use. 03:26:01

13 Q. Okay. And that's done by listening? 03:26:04

14 A. Yes, in this case. 03:26:10

15 Q. So you listen? 03:26:14

16 A. It can be done by other techniques, but 03:26:14
17 one way to determine whether the channel is idle is 03:26:19
18 by receiving -- measuring the received power on 03:26:23
19 that particular channel. 03:26:33

20 Q. Is that what's done in the '551 Patent? 03:26:34

21 A. It's not specific. The claim just says in 03:26:39
22 one case carrier sense, and in the other case idle, 03:26:53
23 in the other two cases idle. 03:27:08

24 Q. At the -- in -- further in Paragraph 35 03:27:27
25 you say, "In a conventional wireless packet 03:27:30

1	communication apparatus, the wireless packet	03:27:33
2	communication apparatus performs carrier sense to	03:27:36
3	determine whether or not that wireless channel is	03:27:40
4	idle, and cites implementing 802.11-1999, thus	03:27:42
5	confirming that 802.11-1999 devices were	03:27:52
6	packet-based communication apparatuses that sensed	03:27:52
7	whether a wireless channel was idle before	03:27:56
8	transmitting packets over the designated channel."	03:27:59
9	Do you see that?	03:28:02
10	A. I do.	03:28:03
11	Q. What in 802.11-'99 is sensed in order to	03:28:03
12	make this idle determination?	03:28:14
13	A. Can I hear that question again?	03:28:16
14	Q. What is done in 802.11-1999 detected or	03:28:23
15	sensed in order to make the idle determination you	03:28:32
16	reference at the end of Paragraph 35?	03:28:36
17	A. That version of the standard uses CSMA,	03:28:40
18	collision avoidance algorithm.	03:28:47
19	Q. And what does it -- what does it -- what	03:28:51
20	does it do to -- to detect idle?	03:28:52
21	A. Again, it measures the availability of the	03:28:56
22	channel to determine whether that channel is	03:29:02
23	available for use.	03:29:05
24	Q. And what does it measure to determine	03:29:06
25	whether that channel is available for use?	03:29:08

1	A.	It measures received intentionally	03:29:13
2		radiated power.	03:29:34
3	Q.	Is idle -- is idle, the word idle, as	03:29:44
4		you're sitting right here right now, are you aware	03:29:49
5		of any usage of the term "idle" in the '551 Patent	03:29:52
6		other than with respect to CSMA?	03:29:56
7	MR. NIEBERG:	Objection, form.	03:30:06
8	THE WITNESS:	I don't believe the claim	03:30:07
9		limits the extent of the invention to only CSMA/CA	03:30:10
10		algorithms. Again, there are multiple algorithms	03:30:21
11		that determine idleness.	03:30:24
12	Q.	In the specification is the term "idle"	03:30:25
13		used with respect to any context other than CSMA as	03:30:30
14		you -- as you -- that you're aware of sitting here	03:30:39
15		today?	03:30:41
16	MR. NIEBERG:	Object to the form.	03:30:41
17	Q.	And if you don't know as you're sitting	03:30:58
18		here today you can answer "I don't know."	03:31:00
19	A.	The use of the word idle is used through	03:31:08
20		the '551 Patent. But when specifically talking	03:31:14
21		about the 802.11 system, the authors point to	03:31:20
22		CSMA/CA algorithm, but a POOSITA would understand	03:31:24
23		that there are many algorithms and architectures	03:31:29
24		that can be used to determine whether the wireless	03:31:32
25		channel is idle.	03:31:38

1	Q.	So specifically with respect to the '551	03:31:39
2		Patent, are you aware of anything where -- of any	03:31:44
3		-- of any place where the '551 Patent specification	03:31:50
4		uses the word other than with respect to CSMA?	03:31:55
5		And if you're not aware, you can say "I am	03:32:04
6		not aware."	03:32:05
7	A.	Well, for example, the disclosure on	03:32:17
8		Column 11, starts at Line 64, it goes to Column 12,	03:32:21
9		Line 10, has no limitations with regards to the	03:32:27
10		algorithm used in 802.11-1999 for carrier sense,	03:32:33
11		specifically the CSMA/CA algorithm.	03:32:39
12	Q.	I'm sorry. Could you repeat the line	03:32:42
13		number?	03:32:44
14	A.	Column 12, Line 64 to Column 13, Line --	03:32:44
15		or Column -- Column 11 -- let's try it again.	03:32:55
16		Column 11, Line 64 to Column 12, Line 10.	03:33:00
17	THE WITNESS:	Can I have my document back	03:33:05
18		up, please? Thank you. Can I get control,	03:33:06
19		Jillian? Yeah, thanks.	03:33:28
20	Q.	So I see at Column 12, Line 5 where it	03:33:33
21		uses the word idle.	03:33:38
22		How is this inconsistent with the usage of	03:33:44
23		the term "idle" elsewhere in the '551 Patent?	03:33:48
24	A.	I didn't say that was.	03:33:51
25	Q.	That was the question, whether -- whether	03:33:53

1	you're aware of any place --	03:33:58
2	A. That wasn't -- that wasn't the question.	03:33:59
3	Q. What did you understand the question to	03:34:02
4	have been?	03:34:04
5	A. The '551 does not limit its	03:34:04
6	determination -- in its teaching, its determination	03:34:08
7	of idleness to the 802.11-1999 CSMA/CA algorithm.	03:34:13
8	Q. Correct.	03:34:19
9	A. My testimony was that a POOSITA would	03:34:21
10	understand that there were many techniques	03:34:25
11	described. There are multiple papers and years and	03:34:28
12	decades of determination of idleness on the channel	03:34:32
13	that could be used to determine idleness or to	03:34:37
14	determine -- actually, to be termed -- to determine	03:34:41
15	idleness by carrier sense, so...	03:34:45
16	Q. Are any of those specifically identified	03:34:49
17	in the '551 Patent as you sit here today?	03:34:52
18	A. I don't think the disclosures of the '551	03:34:57
19	intend to limit their disclosure of the	03:35:03
20	determination of idleness to that particular	03:35:05
21	algorithm, and one of our most skilled in the art	03:35:07
22	coming to this patent would understand that there	03:35:12
23	are multiple techniques that can be used.	03:35:13
24	THE WITNESS: And if I could take a lunch	03:35:19
25	break?	03:35:19

1	Q.	In where are multiple techniques	03:35:19
2		specifically described in the '551 Patent?	03:35:19
3	THE WITNESS:	I would like to take a lunch	03:35:23
4		break.	03:35:24
5		And, again, a POOSITA coming to the '551	03:35:24
6		Patent would understand that there are multiple	03:35:31
7		algorithms and techniques to determine idleness as	03:35:32
8		that term is used in the '551 Patent.	03:35:36
9	MR. ATKINSON:	All right.	03:35:39
10	THE WITNESS:	I would like to take a lunch	03:35:39
11		break.	03:35:42
12	MR. ATKINSON:	Do we go want to go for 30	03:35:43
13		minutes or an hour?	03:35:45
14	THE WITNESS:	Forty-five?	03:35:47
15	MR. ATKINSON:	Actually, let's go off the	03:35:47
16		record.	03:35:47
17	THE VIDEOGRAPHER:	Off the record, 3:35.	03:35:47
18		(Brief break.)	03:47:32
19	THE VIDEOGRAPHER:	On record, 4:23.	04:23:13
20	BY MR. ATKINSON:		04:23:27
21	Q.	All right. Dr. Williams, would you mind	04:23:27
22		turning to Paragraph 44 of your Declaration?	04:23:30
23	A.	Yes. Okay.	04:23:33
24	Q.	Yeah, I'm getting there. Sorry.	04:23:34
25		Okay. So you'll see in the first sentence	04:23:50

1	on the third line you refer to leakage power.	04:23:54
2	Do you see that?	04:24:01
3	A. Yes, I do.	04:24:02
4	Q. Okay. What is meant by the term "leakage	04:24:07
5	power," at least in the context of the '551 Patent?	04:24:11
6	A. In the '551 Patent, they equate leakage to	04:24:15
7	interference between transmitters.	04:24:21
8	Q. So it's inference between transmitters or	04:24:27
9	channels?	04:24:32
10	A. Well, transmitters transmit on channels.	04:24:32
11	So it's interference between transmitters --	04:24:40
12	Q. Are the --	04:24:45
13	A. I'm sorry.	04:24:46
14	-- and other equipment that may be in this	04:24:47
15	particular band that may not respect the	04:24:51
16	channelization of the 802.11 standard.	04:24:56
17	Q. Is it -- does it relate -- so we've talked	04:24:59
18	a lot about transmitters sharing a carrier or a	04:25:03
19	channel.	04:25:11
20	Is it -- does it relate to the	04:25:12
21	transmissions on the same channel, or would it be	04:25:18
22	limited to transmissions on different channels?	04:25:21
23	A. What is "it"?	04:25:27
24	Q. Power leak -- or leakage power.	04:25:30
25	A. Well, any -- any transmission -- any --	04:25:53

1	any intentional radiation that interferes with the	04:26:03
2	other users of the system or even other users of	04:26:10
3	not the system would be leakage or interference,	04:26:16
4	and I would point you to Column 5, Lines 58 to 61.	04:26:21
5	Q. All right.	04:26:37
6	A. Here he's talking about -- I'll let	04:26:38
7	you get there.	04:26:44
8	Q. Yeah, I'm here. Where it says "assumed	04:26:45
9	that the wireless channels 1, 2 and 3"?	04:26:47
10	A. Right. Here he's talking about	04:26:48
11	interference between channels, but you can also	04:26:50
12	have interference on the same channel.	04:26:53
13	Q. Okay. Where does the '551 discuss	04:26:54
14	interference on the same channel? I'm sorry.	04:26:58
15	Where does it discuss leakage power --	04:27:00
16	well -- so let me back up a second.	04:27:03
17	You understand leakage power and power	04:27:05
18	leakage to be the same thing, or are those	04:27:10
19	different concepts?	04:27:13
20	A. They are the same thing --	04:27:14
21	Q. Okay.	04:27:16
22	A. -- with regards to the '551.	04:27:16
23	Q. Okay. So where in the '551 is it	04:27:19
24	discussing leakage power within the same channel?	04:27:25
25	A. Column 2, Line 26 to 30. Also it's	04:27:28

1	primarily discussing between channels, but it can	04:27:55
2	also be interpreted as occupying the same channel	04:27:58
3	because not everything in this band is restricted	04:28:03
4	to the channelization per the 802.11 standard.	04:28:06
5	Q. So I'm not seeing where it talks about	04:28:18
6	power leakage or leakage power in the -- in the	04:28:21
7	citation there.	04:28:27
8	A. Column 2.	04:28:32
9	Q. Yeah.	04:28:34
10	A. 26 through 30.	04:28:34
11	Q. I may be on the wrong column. 26 through	04:28:36
12	30? Okay.	04:28:39
13	A. Yes. "In the case where center	04:28:41
14	frequencies of multiple wireless channels used at	04:28:45
15	the same time are close to each other, an effect of	04:28:48
16	leakage power from one wireless channel to a	04:28:51
17	frequency region used by another wireless channel	04:28:52
18	becomes large."	04:28:55
19	Q. Okay. So it's -- here it's talking about	04:28:58
20	multiple wireless channels; is that correct?	04:29:01
21	A. Yeah. Well, again, an intentional	04:29:03
22	radiation in that range of frequencies that's used	04:29:07
23	for the channel of the receiver is leakage. So if	04:29:12
24	there's something outside of the 802.11 compliant	04:29:18
25	transmitter in this band and say it has a -- let's	04:29:24

1	say it has a 50 megahertz bandwidth, it's not	04:29:27
2	complying with the 802.11 rules, and it may -- its	04:29:37
3	channelization is different than 802.11. It may	04:29:41
4	interfere with multiple 802.11 channels.	04:29:45
5	Q. So where is the '551 Patent talking about	04:29:48
6	power leakage between channels, you know, outside	04:29:53
7	of potential like non-discussed sources of	04:29:58
8	interference?	04:30:03
9	A. I don't understand the question.	04:30:05
10	Q. So is it not correct that -- that -- let's	04:30:07
11	see -- Line 26, it says center frequencies of	04:30:15
12	multiple wireless channels. Is that not -- am I	04:30:19
13	misreading Lines 26 through 27?	04:30:25
14	A. No, you're reading that correctly.	04:30:29
15	Q. Okay. So the question was where it	04:30:31
16	discusses power leakage within a single channel.	04:30:36
17	A. Well, there are multiple ways that	04:30:58
18	intentionally radiated power could -- could be on a	04:31:02
19	particular 802.11 compliant channel in the 2.4 gig.	04:31:05
20	Q. Is this discussed in the '551 Patent as	04:31:14
21	you're aware here sitting here today?	04:31:18
22	A. This would be knowledge of a POOSITA	04:31:19
23	understanding that one of the systems pointed to by	04:31:26
24	the '551 is the 802.11 compliant system.	04:31:31
25	Q. Okay. But there is nothing that you're	04:31:34

1	aware of in the '551 Patent discussing single	04:31:36
2	channel power leakage as you sit here today?	04:31:40
3	A. That statement is not correct.	04:31:44
4	Q. Okay. Why is that incorrect?	04:31:47
5	A. I just pointed you to a section that would	04:31:48
6	be understood by a POOSITA to disclose interference	04:31:51
7	from one channel to another channel that may occupy	04:31:55
8	the same range of frequencies.	04:32:00
9	Q. Okay. So it's your position that the --	04:32:02
10	that the knowledge of a person of ordinary skill	04:32:09
11	would -- would provide the -- the description of	04:32:14
12	power leakage or leakage power within a single	04:32:19
13	channel, or is it explicitly discussed in the '551	04:32:22
14	Patent?	04:32:27
15	MR. NIEBERG: Objection, form.	04:32:28
16	THE WITNESS: Well, the '551 at Column	04:32:34
17	3 -- Column 3, Lines 33 to 35 says, "It is an	04:33:11
18	object of the present invention to avoid leakage	04:33:18
19	power from affecting an adjacent channel so as to	04:33:21
20	improve throughput by simultaneous transmission."	04:33:26
21	So they're particularly discussing	04:33:29
22	adjacent channels with simultaneous transmissions,	04:33:32
23	but if a POOSITA coming to the '551 would	04:33:39
24	understand that any transmission would be -- in a	04:33:42
25	particular channel would be what they call leakage	04:33:45

1	against another receiver trying to listen to that	04:33:51
2	same channel.	04:33:55
3	Q. Just so I understand your position --	04:33:56
4	A. And it's understood -- it's widely	04:34:00
5	understood that 2.4 gig band is an ISM band which	04:34:03
6	is an unrestricted band which allows transmitters	04:34:06
7	of any nature to be put in there just so they	04:34:09
8	comply with the spectral mask requirements and the	04:34:11
9	transmission power requirements of the FCC. So	04:34:14
10	there is no restrictions to channels in this band	04:34:17
11	to have to be compatible with the 208.11.	04:34:22
12	Q. So just so I understand your position,	04:34:27
13	it's even -- although the sentence at -- well, from	04:34:31
14	Lines 33 -- yeah, 33 to 35 are talking about one	04:34:38
15	channel, an adjacent channel, that a person of	04:34:44
16	ordinary skill would understand it to relate also	04:34:48
17	to transmissions of the same channel?	04:34:52
18	A. No. You misrepresented my testimony.	04:34:57
19	Q. Okay. How is that incorrect?	04:34:59
20	A. Well, I think I said it accurately before.	04:35:03
21	Q. Well, what -- what did you perceive to be	04:35:06
22	inaccurate in my statement?	04:35:12
23	A. Almost everything.	04:35:13
24	Q. Okay. So just to -- just to be clear, it	04:35:15
25	says the object is, quote, to avoid leakage power	04:35:22

1	from affecting an adjacent channel, correct?	04:35:30
2	A. Yes.	04:35:33
3	Q. Is it your understanding that an adjacent	04:35:34
4	channel refers to the same channel?	04:35:38
5	A. No. But, again, a POOSITA would	04:35:43
6	understand that the ISM band transmitters don't	04:35:50
7	have to comply with the 802.11 channelization	04:35:53
8	standard. So they could be in an adjacent channel	04:35:59
9	and still interfering with an 802.11 compliant	04:36:04
10	receiver.	04:36:07
11	Q. But we are talking about a non-802.11	04:36:11
12	compliant device and an 802.11 compliant device.	04:36:16
13	So how is the noncompliant device using the same	04:36:21
14	channel as the compliant device?	04:36:26
15	A. For example, the 802.11 device may occupy	04:36:28
16	a channel of 20 megahertz. The noncompliant device	04:36:35
17	may occupy a channel of 50 megahertz. So the	04:36:40
18	noncompliant device is at the same time in an	04:36:44
19	adjacent 802.11 channel, as well as being on the	04:36:49
20	same channel as an 802.11 compliant receiver.	04:36:53
21	Q. Okay. So earlier we talked about channels	04:36:59
22	with respect to ranges of frequency.	04:37:02
23	Do you remember that discussion?	04:37:05
24	A. Yes.	04:37:05
25	Q. Although a 20 megahertz range is subsumed	04:37:08

1	within a 50 megahertz range, the two ranges would	04:37:13
2	be different ranges, would they not?	04:37:17
3	A. I can't answer your question without more	04:37:19
4	detail.	04:37:24
5	Q. Well, you just mentioned a 50 megahertz	04:37:24
6	range and a 20 megahertz range, did you not?	04:37:27
7	A. I did.	04:37:31
8	Q. And you were indicating that you felt the	04:37:31
9	50 megahertz range would be the same channel as the	04:37:36
10	20 megahertz range; is that inaccurate?	04:37:40
11	A. Yes.	04:37:43
12	Q. It is inaccurate? How so?	04:37:43
13	A. Because 20 megahertz does not equal 50	04:37:46
14	megahertz.	04:37:51
15	Q. Right. So it's a different range?	04:37:52
16	A. I didn't say that.	04:37:56
17	Q. How is a 20 megahertz range the same as a	04:38:01
18	50 megahertz range?	04:38:05
19	A. I didn't testify as to that.	04:38:07
20	Q. So you regard them as different ranges?	04:38:09
21	A. No.	04:38:16
22	Q. The same range?	04:38:18
23	A. No.	04:38:20
24	Q. I'm confused. Are they not either the	04:38:22
25	same or different?	04:38:26

1	Hello?	04:38:56
2	A. Hang on. Can you see that?	04:38:56
3	Q. Yes.	04:39:10
4	A. So the horizontal access is increasing	04:39:10
5	frequency. The vertical access is power. We have	04:39:14
6	a transmitter that is transmitting with a bandwidth	04:39:16
7	of 50 megahertz, and a transmitter that is	04:39:20
8	transmitting with a bandwidth of 20 megahertz and	04:39:23
9	intends to receive information in that bandwidth.	04:39:27
10	And so here we have a situation in which	04:39:31
11	the transmitter of 50 megahertz is interfering with	04:39:35
12	the receiver having a 20 megahertz channelization.	04:39:39
13	Q. Okay. So I maybe didn't state this	04:39:43
14	clearly, but earlier I mentioned -- I said that	04:39:48
15	although a 20 megahertz channel could be subsumed	04:39:52
16	within a 50 megahertz channel, i.e., the range of	04:39:57
17	frequencies represented by the 20 megahertz channel	04:40:02
18	is completely within the range of the 50 megahertz,	04:40:08
19	is it your contention that both ranges are the same	04:40:18
20	and/or are they the same channel?	04:40:20
21	MR. NIEBERG: Objection, form.	04:40:23
22	THE WITNESS: No.	04:40:25
23	Q. They are the same channel or are not the	04:40:30
24	same channel?	04:40:31
25	A. Well, 50 does not equal 20, so they are	04:40:32

1 not the same. 04:40:39

2 The question is whether the 50 megahertz 04:40:41
3 transmitter interferes with the 20 megahertz 04:40:43
4 receiver. So what the 20 megahertz system 04:40:47
5 perceives as a channel that it is supposed to work 04:40:51
6 on, which is an 802.11 compliant channel, the 50 04:40:58
7 megahertz transmitter will be providing intentional 04:41:02
8 radiation within the channel of the 20 megahertz 04:41:07
9 receiver. 04:41:12

10 Q. Where is that -- where is that 04:41:14
11 specifically discussed in the '551 Patent -- 04:41:17

12 A. It's not. 04:41:21

13 Q. -- the '551 Patent? 04:41:23

14 A. It's not. This is the knowledge of a 04:41:23
15 POOSITA that would come to the '511 Patent. 04:41:24

16 Q. Okay. 04:41:27

17 A. So this is -- this is inherent in the use 04:41:28
18 of the ISM band because the ISM band is not 04:41:32
19 channelized by the FCC. The FCC simply allocates 04:41:35
20 the ISM band. And as I've testified multiple times 04:41:40
21 before, the FCC specifies the band limits by a 04:41:45
22 spectral mask, as well as the radiated power that 04:41:51
23 can take place within that band, and then the 04:41:55
24 industry has specified a use, one use of many, for 04:41:58
25 that ISM band in terms of 802.11 compliant 04:42:03

1	transceivers.	04:42:08
2	Q. Okay. What is leakage power or power	04:42:14
3	leakage, and how does leakage power or power	04:42:18
4	leakage occur?	04:42:22
5	MR. NIEBERG: Objection, form.	04:42:22
6	THE WITNESS: Well, one can --	04:42:26
7	Q. Wait a second. Hold on.	04:42:29
8	What is -- what is leakage power or power	04:42:31
9	leakage?	04:42:33
10	A. Well, in terms of the '551, it is	04:42:35
11	interference of one -- interference of one receiver	04:42:39
12	by another's transmitter.	04:42:44
13	Q. Could you repeat that? It's interference	04:42:48
14	by one transceiver with another transceiver?	04:42:51
15	A. No. It is interference of a receiver by	04:42:54
16	another transmitter.	04:42:59
17	Q. So two transmitters, basically?	04:43:01
18	A. No.	04:43:05
19	Q. No?	04:43:06
20	A. It is --	04:43:08
21	Q. Okay. Just to be clear, two transmitters	04:43:09
22	with a receiver or is it a single transmitter and a	04:43:11
23	receiver?	04:43:16
24	A. No. It is inference at a receiver by	04:43:16
25	another transmitter.	04:43:19

1	Q.	So it's interference with the receiver's	04:43:26
2		transmissions, or are we talking about a	04:43:30
3		transceiver?	04:43:34
4	A.	Ceivers do not transmit.	04:43:35
5	Q.	So it's interference at a receiver --	04:43:37
6	A.	Ceivers do not intentionally transmit.	04:43:41
7	Q.	Okay. So it's interference at a receiver	04:43:44
8		by a single transmitter or multiple transmitters?	04:43:47
9	A.	Could be either.	04:43:56
10	Q.	And how could it be the same transmitter?	04:44:07
11		Is it a transmitter having two different antennas	04:44:10
12		and transmitting at the same time, or how does it	04:44:16
13		work?	04:44:19
14	A.	I didn't say it was the same transmitter.	04:44:19
15	Q.	Or transceiver.	04:44:23
16	A.	I don't understand the question.	04:44:26
17	Q.	So we have interference. We have a	04:44:26
18		connection between the transmitter and a receiver,	04:44:33
19		correct?	04:44:36
20	A.	No. I'll assume that in your	04:44:36
21		hypothetical, I guess.	04:44:41
22	Q.	So Transmitter 1 is transmitting on	04:44:41
23		Channel 1 to transmitter -- or to Receiver A,	04:44:44
24		Transmitter 1, Channel 1, Receiver A.	04:44:48
25	A.	You've got TX1 going over to Channel 1 to	04:44:53

1	Receiver A.	04:44:57
2	Q. Correct.	04:44:58
3	A. Okay.	04:44:59
4	Q. So what is interfering with that -- what	04:45:00
5	is power leakage vis-a-vis that connection?	04:45:07
6	A. Anything that causes intentional radiation	04:45:11
7	on Channel 1 that can affect the receiving ability	04:45:18
8	of Receiver A.	04:45:22
9	Q. And how -- what would be necessary in	04:45:25
10	order for the -- what would Transceiver 1 have to	04:45:31
11	do in order to interfere with itself in this	04:45:40
12	hypothetical?	04:45:44
13	A. Well, there isn't a transceiver in your	04:45:44
14	hypothetical.	04:45:49
15	Q. Or Transmitter or Transceiver 1.	04:45:51
16	A. Well, you said transmitter.	04:45:54
17	Q. Okay. Transmitter 1. What would need to	04:45:56
18	interfere with Transmitter 1.	04:46:02
19	A. Nothing interferes with Transmitter 1.	04:46:04
20	You're talking at interference at the receiver, not	04:46:07
21	the transmitter.	04:46:11
22	Q. Right.	04:46:12
23	How would Transmitter 1 interfere with	04:46:13
24	itself as receiver -- the receiver?	04:46:14
25	A. Which receiver?	04:46:20

1	Q.	I think we called it A.	04:46:22
2	A.	How would Transmitter 1 interfere with	04:46:27
3		itself at Receiver A?	04:46:30
4	Q.	Yeah, I could -- unless I'm	04:46:32
5		misunderstanding. I thought you were testifying	04:46:33
6		that you felt that the transmitter could interfere	04:46:35
7		with itself.	04:46:37
8	A.	It can.	04:46:38
9	Q.	Okay. And how would that be?	04:46:39
10	A.	A transceiver can interfere with itself.	04:46:41
11	Q.	Okay. How would a transceiver interfere	04:46:45
12		with itself?	04:46:47
13	A.	So we talked about Transmitter 1. Let's	04:46:49
14		talk about Transceiver 1 in your hypothetical. We	04:46:51
15		are not talking about Receiver A. We're talking	04:46:57
16		about Receiver 1.	04:46:59
17		So radiation that is radiated by	04:47:00
18		Transceiver -- by Transmitter 1 may affect the	04:47:06
19		receiving ability of Receiver 1. That typically	04:47:10
20		occurs when the transmitter is transmitting at the	04:47:19
21		same time the receiver is receiving.	04:47:22
22	Q.	And are those different channels or the	04:47:25
23		same channel?	04:47:27
24	A.	Depends on the duplexing scheme. We	04:47:28
25		talked about duplexing this morning.	04:47:35

1	Q.	Can you point to where the '551 discusses	04:47:37
2		that, the single channel power leakage?	04:47:49
3	A.	Well, we just discussed --	04:47:59
4		MR. NIEBERG: Objection to form.	04:48:01
5		THE WITNESS: -- it a few minutes ago.	04:48:03
6	Q.	Okay. And it's your contention that	04:48:05
7		that's within -- I believe it was -- is it Column	04:48:07
8		1, Lines 33 to 35 or --	04:48:13
9	A.	No, Column 2.	04:48:16
10	Q.	I'm sorry. Column 3, I meant to say.	04:48:18
11		Go ahead. You said Column 2?	04:48:23
12	A.	So the focus of the '551 is as expressed	04:48:45
13		in Column 3, Lines 33 to 35, is to avoid leakage	04:48:52
14		from adjacent channels, not the same channel.	04:48:57
15	Q.	Correct.	04:49:01
16	A.	And so depending on the duplexing scheme,	04:49:03
17		the -- depending on the duplexing architecture, the	04:49:13
18		adjacent channel may be the same transmitter in the	04:49:20
19		same -- it may be the transmitter within the same	04:49:23
20		transceiver.	04:49:27
21		Now, in 802.11 it's time vision duplex.	04:49:36
22		So ostensibly the intentionally radiated power has	04:49:43
23		died out before the receiver becomes active, but	04:49:47
24		still there's residual power in the channel which	04:49:50
25		is why the guard periods are there in the	04:49:54

1	protocols.	04:49:58
2	Q. Is duplexing discussed anywhere that you	04:49:58
3	aware of sitting here today in the '551 Patent?	04:50:03
4	A. Duplexing is a communications engineering	04:50:06
5	101 subject. So it's -- would be well understood	04:50:11
6	by a POOSITA even graduating with a bachelor's of	04:50:16
7	science degree in communication systems.	04:50:21
8	Q. So just to be clear, your contention is	04:50:23
9	that it would be understood by a person of ordinary	04:50:27
10	skill in the art but not specifically discussed in	04:50:32
11	the '551 Patent?	04:50:35
12	A. What is "it"?	04:50:37
13	MR. NIEBERG: Objection, form.	04:50:37
14	Q. The duplexing.	04:50:38
15	Is the word duplex mentioned anywhere in	04:50:41
16	the '551 Patent regardless -- as you're sitting	04:50:45
17	here today, are you aware of any place where	04:50:49
18	duplexing is mentioned?	04:50:51
19	A. I just did a search of the patent, and I	04:50:54
20	did not find the word duplex. However, duplexing	04:50:56
21	is an elemental fundamental concept that would be	04:51:00
22	taught in undergraduate school communications	04:51:05
23	engineering.	04:51:08
24	Q. So leaving this single channel aspect	04:51:08
25	aside, how does power leakage occur between two	04:51:15

1	different channels or two adjacent channels?	04:51:19
2	MR. NIEBERG: Object to the form.	04:51:26
3	THE WITNESS: Well --	04:51:27
4	Q. How does power leakage occur in two	04:51:31
5	adjacent channels?	04:51:34
6	A. Your example, TX1 transmits on a channel,	04:51:36
7	and it has intentional radiation in a set -- in a	04:51:40
8	particular channel, but that radiation may go	04:51:46
9	outside the bounds of its mask or may interfere	04:51:51
10	with a receiver that intends to receive information	04:51:56
11	on frequencies that are contained within its	04:52:01
12	transmission mask.	04:52:04
13	Q. Okay. Turning back to Paragraph 44 of	04:52:09
14	your Declaration, do you see on the fourth line	04:52:14
15	where you mentioned -- you see the words "becomes a	04:52:19
16	problem" in quotes?	04:52:25
17	A. Yes.	04:52:28
18	Q. Are you referencing the leakage power	04:52:28
19	issue that you discussed in the prior line, or is	04:52:34
20	there something else that is the problem here?	04:52:38
21	MR. NIEBERG: Objection to form.	04:52:43
22	THE WITNESS: I am quoting the patent	04:52:45
23	here.	04:52:48
24	Q. Okay.	04:52:55
25	A. The quotes are from the patent, the quotes	04:53:01

1	according from the patent.	04:53:01
2	Q. So that would be at Column 2, Lines 30 to	04:53:03
3	38, I assume, or --	04:53:07
4	A. As I recall, yes.	04:53:07
5	Q. Line 38, it says -- well, I can read the	04:53:18
6	prior language. It says, "The effect of leakage	04:53:25
7	power from another wireless channel used for	04:53:27
8	simultaneous transmission becomes a problem.	04:53:31
9	It says "becomes a problem." Is it your	04:53:33
10	understanding that's talking about the effect of	04:53:35
11	leakage power?	04:53:37
12	A. Well, this paragraph that starts on Line	04:53:48
13	26 and ends on Line 38 is talking about	04:53:51
14	interference or leakage. So that's the -- that's	04:53:57
15	the subject of this paragraph.	04:54:01
16	Q. And this one is specifically referencing	04:54:02
17	at least two channel power leakage since it says	04:54:09
18	"another wireless channel," is it not?	04:54:14
19	MR. NIEBERG: Object to the form.	04:54:16
20	THE WITNESS: I don't understand the	04:54:21
21	question.	04:54:22
22	Q. So do you see where it says "another	04:54:22
23	wireless channel" on Line 36?	04:54:25
24	A. Yes, I see it.	04:54:36
25	Q. Okay. That's referring to -- you know,	04:54:37

1	that's not referring to the same channel leaking	04:54:43
2	upon itself. That's referring to a second --	04:54:48
3	another wireless channel, is it not?	04:54:50
4	A. Well, we just had a discussion of the 50	04:54:52
5	megahertz channel and the 20 megahertz channel.	04:55:01
6	Q. Yeah, but that's not discussed in -- I	04:55:04
7	don't see anything about 20 megahertz and 50	04:55:06
8	megahertz in this paragraph.	04:55:10
9	A. Yes, but you do see the disclosure -- the	04:55:12
10	ISM band which is well known to not be channelized	04:55:15
11	by the FCC. So we've discussed this many times	04:55:19
12	today.	04:55:22
13	Q. Do you have any understanding of the term	04:55:22
14	"code-based channels"?	04:55:38
15	MR. NIEBERG: Objection, form.	04:55:42
16	THE WITNESS: In what context?	04:55:43
17	Q. Just either generally or to the extent	04:55:46
18	that you can answer within a CDMA system.	04:55:52
19	MR. NIEBERG: Objection, scope.	04:55:58
20	THE WITNESS: Can I have the question	04:56:04
21	again, please?	04:56:06
22	Q. Do you have any understanding of whether	04:56:07
23	there -- or do you have a -- oh, sorry. Strike	04:56:20
24	that.	04:56:23
25	Do you have an understanding of what	04:56:24

1	code-based channels are in the context of a CDMA	04:56:31
2	system?	04:56:37
3	MR. NIEBERG: Objection, scope.	04:56:37
4	THE WITNESS: Yeah.	04:56:39
5	Q. What are code-based channels in the CDMA	04:56:40
6	system?	04:56:44
7	MR. NIEBERG: Object to form.	04:56:45
8	THE WITNESS: They are channels -- sorry.	04:56:46
9	I interfered with you, Greg.	04:56:48
10	MR. NIEBERG: Objection, scope.	04:56:49
11	THE WITNESS: They are channels, not the	04:56:51
12	same kind of channels we have been discussing in	04:56:54
13	the '551, that are separated based on the code	04:56:57
14	applied to that channel.	04:57:03
15	Q. Okay. What does power leakage mean with	04:57:04
16	respect to such code-based channels in the CDMA	04:57:18
17	system?	04:57:23
18	MR. NIEBERG: Objection, scope, form.	04:57:23
19	THE WITNESS: I have not expressed an	04:57:25
20	opinion about this.	04:57:27
21	Q. Okay. Do you understand -- do you have an	04:57:28
22	opinion about whether it's possible for one	04:57:33
23	code-based channel to have power leakage with	04:57:36
24	another code-based channel in the CDMA system.	04:57:40
25	MR. NIEBERG: Objection, form, scope.	04:57:43

1	THE WITNESS: Not that I've expressed in	04:57:45
2	this case.	04:57:48
3	Q. I mean, do you have an opinion sitting	04:57:49
4	here right now or no?	04:57:53
5	MR. NIEBERG: Objection, form, scope.	04:57:57
6	THE WITNESS: I don't think it's -- I	04:58:00
7	don't think your question is relevant to this case,	04:58:04
8	but I can give you a technical answer.	04:58:06
9	Q. Sure. Go ahead.	04:58:08
10	A. Can I have the question again?	04:58:09
11	Q. What is your understanding of -- do you	04:58:12
12	have an understanding about whether there could be	04:58:17
13	power leakage between code-based channels in the	04:58:19
14	CDMA system?	04:58:22
15	MR. NIEBERG: Objection, form, scope.	04:58:24
16	THE WITNESS: Again, it's not relevant to	04:58:26
17	this particular case, but to the extent that the	04:58:29
18	codes used to separate the channels, and, again,	04:58:33
19	it's not the channels we are talking about here in	04:58:37
20	the '551 case, to the extent those codes are not	04:58:40
21	mutually orthogonal, there would be interference	04:58:44
22	between the decoding of those channels if they are	04:58:50
23	transmitted simultaneously.	04:58:52
24	Sorry. Was there a question pending?	04:59:20
25	Q. Can code-based channels occupy the same	04:59:21

1	frequency range in a CDMA system?	04:59:33
2	MR. NIEBERG: Objection, form, scope.	04:59:35
3	THE WITNESS: The same as what?	04:59:37
4	Q. Like let's say that the range of -- the	04:59:39
5	range transmitted by a channel coded with code one	04:59:44
6	is zero to twenty and the range of frequencies	04:59:51
7	transmitted in -- for code Channel 2 or code two is	05:00:00
8	also is zero to twenty in a CDMA system, is that	05:00:05
9	possible?	05:00:10
10	MR. NIEBERG: Objection, form, scope.	05:00:10
11	THE WITNESS: You wouldn't have	05:00:11
12	transmission at zero.	05:00:14
13	Q. Well --	05:00:15
14	A. 20 megahertz is not a --	05:00:16
15	Q. Let's pick another range.	05:00:19
16	A. 20 megahertz is not a radio frequency.	05:00:24
17	Q. Let's go with, you know, say 2,400 to	05:00:24
18	2,420, or something like that.	05:00:28
19	MR. NIEBERG: Objection, form, scope.	05:00:30
20	THE WITNESS: So, again, I haven't opined	05:00:33
21	on this, and it's not -- your question isn't	05:00:38
22	relevant to the '551 case. So I can answer	05:00:40
23	technically.	05:00:48
24	Q. Yes, please.	05:00:50
25	A. If you have two coded transmissions both	05:00:51

1	occupying the same frequency at the same time,	05:00:59
2	those two code transmissions can interfere with	05:01:11
3	each other if the codes are not mutually -- if the	05:01:15
4	codes don't have zero auto correlation, zero	05:01:26
5	correlation between the two.	05:01:31
6	Q. And whenever you talk about -- oh, I'm	05:01:32
7	sorry. Go ahead.	05:01:36
8	A. If the two -- if the two codes don't have	05:01:37
9	zero cross correlation, then they will interfere	05:01:41
10	with each other at the receiver.	05:01:47
11	Q. And does that have to do with	05:01:49
12	orthogonality or some other aspect?	05:01:55
13	A. Yes. Orthogonality is another way to say	05:01:56
14	zero cross correlation.	05:02:00
15	Q. So is it your understanding that non-zero	05:02:06
16	cross correlation is a type of power leakage?	05:02:09
17	MR. NIEBERG: Objection, form, scope.	05:02:15
18	THE WITNESS: I've not expressed an	05:02:19
19	opinion.	05:02:20
20	Q. Do you know sitting here today?	05:02:21
21	MR. NIEBERG: Objection, form, scope.	05:02:25
22	THE WITNESS: Again, power leakage is used	05:02:26
23	in the '551 and the -- if we have two code-based	05:02:31
24	channels, the interference is not based on	05:02:46
25	leakage -- leakage of power. The interference is	05:02:51

1	based on nonorthogonality.	05:02:57
2	Q. So just to clarify. Is that a, yes, it is	05:03:02
3	due to hour power leakage or, no, it is not due to	05:03:08
4	power leakage?	05:03:12
5	A. Well, it -- again, what does "it" mean?	05:03:14
6	What do you mean by "it"?	05:03:21
7	MR. ATKINSON: Can we have the last answer	05:03:23
8	read back, please.	05:03:25
9	(Pending answer read.)	05:04:03
10	THE WITNESS: So it's not based on power	05:04:03
11	leakage.	05:04:06
12	Q. Okay. Hold on just a second.	05:04:12
13	Do you mind turning to Figure 1 of the --	05:04:30
14	of the '551 Patent?	05:04:47
15	A. Yes.	05:04:48
16	Q. Okay. We talked a little bit about this	05:04:52
17	flow chart earlier.	05:04:55
18	Is it your understanding that Figure 1	05:04:58
19	represents at least one of the ways per the way	05:05:03
20	that the '551 Patent attempts to solve the problem	05:05:07
21	of power leakage?	05:05:11
22	A. So Column 3, Lines 33 to 35, "It's an	05:05:30
23	object of the present invention to avoid leakage	05:05:35
24	power from affecting an adjacent channel so as to	05:05:39
25	improve the throughput of simultaneous	05:05:42

1	transmission."	05:05:47
2	And then Column 5, Line 4, "Figure 1 is a	05:05:48
3	flow chart according to the first embodiment of the	05:05:50
4	present invention.	05:05:54
5	"Figure 2 is a time chart of an exemplary	05:05:55
6	option -- operation in the first embodiment of the	05:06:00
7	present invention."	05:06:02
8	Column 5, Line 48, "Figure 1 is a flow	05:06:15
9	chart of a wireless packet communication method	05:06:18
10	according to the first embodiment of the present	05:06:20
11	invention."	05:06:23
12	So yes.	05:06:25
13	Q. Okay. Would you mind turning to Paragraph	05:06:26
14	52 of your Declaration?	05:06:51
15	A. Fifty-two. Yes.	05:06:55
16	Q. Yes.	05:06:56
17	A. Okay.	05:07:01
18	Q. Let me get there myself. Okay.	05:07:01
19	So you see Figure 2, I guess, like	05:07:19
20	reproduced above the Paragraph 52? Do you see	05:07:23
21	that?	05:07:28
22	A. I do.	05:07:28
23	Q. Then you say, "If channel 3 were the	05:07:29
24	mandatory channel, then the STA could not transmit	05:07:35
25	packets over idle channels 1 and 2 at time (1)	05:07:39

1	because the mandatory channel is not also idle."	05:07:44
2	Do you see that?	05:07:47
3	A. Yes.	05:07:47
4	Q. All right. Is it your understanding that	05:07:50
5	if the mandatory channel in this example you	05:07:56
6	describe were not -- is not idle or -- it is not	05:08:00
7	idle, that there could be no transmission on	05:08:05
8	Channel 2? I'm sorry. Hold on. Strike that.	05:08:11
9	Okay. I'm sorry. The -- hold on. Okay.	05:08:15
10	Yeah, so the hypothetical is at Channel 3 is the	05:08:25
11	mandatory channel.	05:08:29
12	A. Yes.	05:08:30
13	Q. Would it be possible for the --	05:08:31
14	A. The spec talks about Channel 1 being the	05:08:34
15	mandatory channel.	05:08:38
16	Q. Okay. But in 52 you say, at Figure 2	05:08:39
17	example, at time T1, 1 and 2 are idle while Channel	05:08:45
18	3 is busy transmitting a wireless packet, right?	05:08:49
19	A. Yes.	05:08:54
20	Q. Yeah. Then you say if channel 3 were the	05:08:56
21	mandatory channel, then you cannot transmit packets	05:09:00
22	over idle Channels 1 and 2?	05:09:06
23	A. Depends on one at time one.	05:09:10
24	Q. Right, because the mandatory channel,	05:09:14
25	a/k/a Channel 3, is not also idle; is that right?	05:09:18

1	A.	Yes, you read that correctly.	05:09:19
2	Q.	So at least with respect to Channels 1 and	05:09:22
3		2, there could be no transmission in this example?	05:09:26
4	A.	If the transceiver that -- if the	05:09:37
5		transmitter that intends to transmit on Channels 1	05:09:47
6		and 2 were established to have a mandatory channel	05:09:51
7		of Channel 3, that would be true.	05:09:57
8		In other words, if you look at the flow	05:10:00
9		chart, there would be a test of the mandatory	05:10:02
10		channel, and if it were not idle, the loop would	05:10:06
11		just loop back to continually testing the mandatory	05:10:13
12		channel.	05:10:18
13	Q.	So would it be fair to say that this test	05:10:20
14		of the idleness of Channel 3 is determinative of	05:10:27
15		whether that transceiver can at that time transmit	05:10:32
16		on Channels 1 or 2?	05:10:37
17	A.	I'm not sure I understood your question,	05:10:49
18		but if you look at Figure 1, flow chart, which	05:10:51
19		Figure 2 is an example of, you have the test of the	05:10:55
20		mandatory channel before you create the packets to	05:11:00
21		be transmitted. So there's -- there's the	05:11:04
22		requirement that the mandatory channel be available	05:11:10
23		before you can transmit.	05:11:14
24	Q.	Right. Well, at least on Channels, you	05:11:16
25		know, 1 and -- well, so in the flow chart, we look	05:11:24

1	at the mandatory channel being idle or not idle.	05:11:30
2	And if it's no, you go in a loop, and if it's yes,	05:11:34
3	you go down, and you can -- and you transmit on --	05:11:39
4	in this example, that hypothetical that we're going	05:11:44
5	through with Figure 2, you cannot transmit on	05:11:47
6	Channels 1 or 2 when the mandatory Channel 3 is not	05:11:56
7	idle; is that correct?	05:12:03
8	A. So let's assume that in this hypothetical	05:12:04
9	Channel 1, 2 and 3 are all -- are all transmissions	05:12:16
10	by the same transceiver, just to make it simple.	05:12:23
11	We can do it for other transceivers too, but let's	05:12:28
12	just make it simple that Channels 1, 2 and 3 are	05:12:32
13	all transmissions by the same transceiver.	05:12:33
14	Q. Okay.	05:12:38
15	A. Okay. So if you go down through this flow	05:12:38
16	chart, you get to S2, the flow chart of Figure 1,	05:12:41
17	you get to S2 which is search idle wireless channel	05:12:45
18	by carrier sense, and there's the decision, is the	05:12:52
19	mandatory channel idle?	05:12:54
20	So in our hypothetical the mandatory	05:12:56
21	channel is number 3, and at high point one, Channel	05:12:58
22	3 is being used for transmission which is shown by	05:13:05
23	the hashed box.	05:13:08
24	So that -- that decision would be no, and	05:13:11
25	we would loop back around to -- from S3 back to S2	05:13:17

1	and we would just stay in that loop until the	05:13:22
2	Channel 3 transmission ended.	05:13:25
3	Q. Okay. Let's expand that hypothetical a	05:13:28
4	little.	05:13:33
5	A. Sorry. Then once it ends, then S3 would	05:13:34
6	succeed on getting yes, and then you would fall	05:13:40
7	through to S4 where you look at your packets -- you	05:13:42
8	look at your channels and the transceiver would	05:13:48
9	say, Oh, I have three channels to transmit. So it	05:13:51
10	would organize its packets based on its	05:13:54
11	availability of having three channels to transmit,	05:13:57
12	and then it would take those packets and send them	05:14:02
13	out over the Channels 1, 2 and 3.	05:14:04
14	Q. Okay. I want to modify that just a bit	05:14:09
15	and say -- let's say that there -- that	05:14:13
16	transceiver -- that the transceiver we're talking	05:14:19
17	about is not itself transmitting on Channel 3, but	05:14:22
18	let's say that it detects a transmission by another	05:14:30
19	STA, S-T-A, on Channel 3. Okay?	05:14:40
20	A. That's what the patent says, that other	05:14:46
21	transceivers aren't informed as to which channel is	05:14:49
22	the mandatory channel.	05:14:54
23	Q. Right, yeah. Just to be clear, we're	05:14:56
24	keeping Channel 3 the mandatory channel in this	05:14:58
25	hypothetical. The only thing I'm changing is other	05:15:02

1	than it being its own --	05:15:04
2	A. The transmitters -- the second transmitter	05:15:06
3	may know that Channel 3 is the mandatory channel.	05:15:12
4	The second transmitter may make its decisions based	05:15:15
5	on Figure 1 and have a result showing Figure 2.	05:15:19
6	Q. Okay. So just to be clear, we're -- I'm	05:15:23
7	talking about Transceiver 1. But here, the same as	05:15:26
8	prior sample, rather than transmitting on mandatory	05:15:34
9	Channel 3, it detects a transmission by another STA	05:15:38
10	on Channel 3. Okay?	05:15:42
11	A. Yes.	05:15:45
12	Q. So would the determination of nonidleness	05:15:45
13	be determinative of whether the original station we	05:15:57
14	were talking about being able to transmit on	05:16:01
15	Channels 1 and 2?	05:16:05
16	A. Would it be --	05:16:08
17	Q. Would the mandatory channel be	05:16:10
18	determinative of whether transmission would be	05:16:13
19	possible for the original station on Channels 1 and	05:16:16
20	2 where mandatory Channel 3 detects nonidleness?	05:16:22
21	A. I'm not sure I understand your	05:16:30
22	hypothetical. So Channel 3 is transmitting.	05:16:32
23	Q. Well, Channel 3 doesn't transmit. Channel	05:16:35
24	3 either has a transmission or it doesn't have a	05:16:39
25	transmission. I'm pausing -- in the earlier	05:16:41

1	example --	05:16:44
2	A. There is potential radiation on Channel 3	05:16:44
3	in your hypothetical, and the question is whether a	05:16:48
4	second --	05:16:50
5	Q. It's not by Channel 1. It's by something	05:16:52
6	else. I'm sorry. I said Channel 1. I meant	05:16:54
7	Station 1.	05:16:58
8	A. So you've got Station 1 and Station 2, and	05:17:01
9	Station 2 is currently transmitting on Channel 3.	05:17:11
10	Q. Correct. The mandatory channel, Channel	05:17:17
11	3, and that's detected by Station 1.	05:17:19
12	A. So that's either informed by the system or	05:17:23
13	that's determined by carrier sense in this S2 state	05:17:28
14	of Figure 1.	05:17:34
15	Q. Correct.	05:17:37
16	A. So the carrier sense is the mandatory	05:17:38
17	channel is not idle.	05:17:40
18	Q. Correct.	05:17:42
19	A. Okay. So your question is what?	05:17:42
20	Q. Can -- is that determination -- is that	05:17:46
21	determination at step S3 in this example	05:17:51
22	determinative whether the -- determine whether or	05:17:53
23	not transmission is possible for that station on	05:17:57
24	Channels 1 and 2, or 2, either one?	05:18:00
25	A. And by "that station," you mean Station 1?	05:18:18

1	Q.	Station 1.	05:18:21
2	A.	And Station 1 is configured to be capable	05:18:23
3		of transmitting on Channel 1 and Channel 2?	05:18:26
4	Q.	It can -- it can transmit on all -- on,	05:18:29
5		you know, all three channels.	05:18:34
6	A.	And it knows the mandatory channel is	05:18:35
7		Channel 3?	05:18:38
8	Q.	Right.	05:18:38
9	A.	So it will, according to the teachings of	05:18:39
10		the patent, it will -- Station 1 will idle itself.	05:18:44
11		It will just keep circling between S2 and S3 until	05:18:49
12		Station 2 stops transmitting on Channel 3. Then	05:18:55
13		the carrier sense algorithm will determine that	05:19:02
14		Channel 3 is available. Then Station 1 will	05:19:06
15		transmit on the mandatory channel, Channel 3, and	05:19:12
16		potentially Channel 1 or Channel 2 depending on its	05:19:19
17		configurations.	05:19:23
18	Q.	Okay.	05:19:24
19	A.	That's the teachings of the patent.	05:19:29
20	Q.	And in this example, it can't transmit on	05:19:31
21		Channels 1 and 2 until Channel 3 is determined to	05:19:36
22		be idle; is that correct?	05:19:38
23	A.	Yes. And according to the claim, it must	05:19:39
24		transmit on Channel 3. "It" being Station 1.	05:19:47
25	Q.	Okay. Is it fair to say that because	05:19:56

1 transmission on these two channels depends on 05:20:10
 2 whether Channel 3, the mandatory channel, is idle, 05:20:14
 3 that this determination of idleness of Channel 3 is 05:20:19
 4 more important than the determination of Channels 1 05:20:25
 5 and 2? 05:20:29

6 MR. NIEBERG: Objection, form. 05:20:31

7 THE WITNESS: What do you mean by 05:20:32
 8 "determination of Channels 1 and 2"? 05:20:34

9 Q. Well, I actually don't know if there is a 05:20:36
 10 determination of Channels 1 and 2 in this example, 05:20:38
 11 but let's say that the idle state of mandatory 05:20:44
 12 Channel 3 is more important than the idle states of 05:20:49
 13 Channels 1 and 2. Would that be accurate? 05:20:53

14 MR. NIEBERG: Objection, form. 05:20:55

15 THE WITNESS: I don't know what you mean 05:20:57
 16 by "more important." I think -- I think the claims 05:20:58
 17 in the flow charts are -- and their disclosures of 05:21:06
 18 the spec are straightforward about this. You 05:21:10
 19 must -- you must transmit on Channel 3 in this 05:21:13
 20 example. 05:21:15

21 Q. Okay. Are you aware of any embodiments 05:21:15
 22 discussed in the '551 Patent where there are 05:21:28
 23 transmissions on adjacent channels when the 05:21:33
 24 mandatory channel is not idle or busy? 05:21:36

25 MR. NIEBERG: Objection, form. 05:21:42

1	THE WITNESS: When the mandatory channel	05:21:46
2	is not idle or --	05:21:48
3	Q. Can you transmit on adjacent channels?	05:21:51
4	A. It's both cases, and it's idle or not	05:21:54
5	idle.	05:21:58
6	Q. Not idle. Whenever mandatory Channel 3 is	05:21:58
7	not idle, is there any description in '551 that	05:22:01
8	indicates that transmissions can also occur on	05:22:08
9	Channel 1 and Channel 2, the adjacent channels?	05:22:14
10	MR. NIEBERG: Objection, form.	05:22:17
11	THE WITNESS: By a device that is	05:22:24
12	compliant with the '551?	05:22:28
13	Q. Yeah, yeah. So any embodiments in the	05:22:30
14	'551 patent, not -- I mean, obviously you cannot	05:22:33
15	follow '551 Patent and do such a thing. But	05:22:38
16	following the teachings of the embodiments of the	05:22:43
17	'551 Channel -- I mean, the '551 Patent, are there	05:22:45
18	any embodiments where transmission on adjacent	05:22:48
19	channels, such as Channel 1 and 2, are possible	05:22:53
20	while another station is using Channel 3 and that's	05:22:57
21	detected?	05:23:04
22	MR. NIEBERG: Objection to form.	05:23:04
23	THE WITNESS: And in this hypothetical,	05:23:09
24	Channel 3 is the mandatory channel?	05:23:11
25	Q. Correct, correct. Channel 3 is the	05:23:13

1	mandatory channel.	05:23:16
2	A. I have not opined on this hypothetical.	05:23:18
3	Q. Are you aware of anything -- any teachings	05:23:21
4	of that as you sit here today?	05:23:26
5	MR. NIEBERG: Objection, form.	05:23:32
6	THE WITNESS: Just so I understand the	05:23:39
7	hypothetical, so in this architecture, Channel 3 is	05:24:23
8	the mandatory channel, Channels 1 and 2 are not	05:24:28
9	mandatory channels of another '551 compliant	05:24:30
10	transceiver?	05:24:37
11	Q. No, just -- just for that transceiver. So	05:24:40
12	you have the transceiver --	05:24:43
13	A. Which transceiver?	05:24:46
14	Q. Transceiver 1. I don't know whether -- we	05:24:48
15	don't know whether other transceivers would be	05:24:52
16	practicing the '551 Patent or not, but what we're	05:24:54
17	saying is, okay, Transceiver 1 is practicing the	05:25:00
18	'551 Patent.	05:25:04
19	A. You mean Transceiver 2? That was the one	05:25:06
20	in our example that was transmitting on Channel 3.	05:25:09
21	Channel 1, you were asking about whether	05:25:13
22	it could transmit on Channels 1 and 2.	05:25:15
23	Q. I'm sorry. Channel 3, the mandatory	05:25:18
24	channel. Actually, withdrawn.	05:25:21
25	Would you agree that the '551 Patent	05:25:25

1	treats the, quote, mandatory channel different than	05:25:32
2	other adjacent channels?	05:25:36
3	MR. NIEBERG: Objection, form.	05:25:40
4	THE WITNESS: What do you mean by	05:25:47
5	"different"?	05:25:48
6	Q. Not the same.	05:25:49
7	A. Okay. So the mandatory channel has	05:25:52
8	restrictions placed upon it that other channels do	05:26:03
9	not have restrictions placed upon it.	05:26:08
10	Q. According to the teachings of the '551	05:26:11
11	Patent?	05:26:13
12	A. Yes. I mean, well, let me be	05:26:15
13	more precise. A transceiver complying with the	05:26:18
14	'551 Claim 1 would have particular criteria placed	05:26:22
15	upon the mandatory channel that would not be placed	05:26:29
16	on adjacent channels.	05:26:31
17	Q. Okay. All right. Let's go back to	05:26:33
18	Lundby, which is -- hold on. I will help you out.	05:26:42
19	It's Exhibit 1008. Yeah.	05:26:49
20	A. Yes.	05:26:52
21	Q. Okay. Would you mind looking at Column 2,	05:26:53
22	Lines 53, I think that's right, 53 to 61? Column	05:27:03
23	2, Lines 53 to 61. Tell me when you're there.	05:27:11
24	A. I'm there.	05:27:17
25	Q. Okay. I went too far.	05:27:17

1	I guess -- did I say Column 2, right, or	05:27:24
2	did I say Column 3?	05:27:32
3	A. You said Column 2.	05:27:32
4	Q. Okay. Good. Yay.	05:27:33
5	What is -- just as a general matter,	05:27:35
6	what -- what do you perceive to be the problem that	05:27:54
7	Lundy -- that Lundby is trying to address?	05:27:59
8	MR. NIEBERG: Objection, form.	05:28:11
9	Q. If you have such an understanding.	05:28:13
10	A. Column 3, Line 64, "A method is taught	05:28:16
11	from improving the transmission of information	05:28:18
12	signals in a communications system having a base	05:28:21
13	station and a remote station."	05:28:25
14	Q. Okay. And you see around Line 58 to 59, I	05:28:35
15	guess, maybe 60, the whole sentence, I guess, of --	05:28:58
16	A. Of Column 2?	05:29:05
17	Q. Yeah, for Column 2, and it talks about the	05:29:07
18	number of users that the telecommunications system	05:29:12
19	can simultaneously support.	05:29:18
20	Do you see that?	05:29:21
21	A. Yes.	05:29:21
22	Q. Are you familiar with the term "code	05:29:22
23	limited" as it is used in the -- in the Lundby	05:29:26
24	patent?	05:29:34
25	A. Yes.	05:29:34

1	Q. Okay. And what does it mean to be code	05:29:37
2	limited?	05:29:39
3	A. If you have, for example, an infinite	05:29:42
4	number of codes, all of which have zero auto	05:29:50
5	correlation, the -- zero cross correlation, sorry,	05:29:53
6	then you could put an infinite number of users on	05:30:05
7	the same channel.	05:30:09
8	Q. Okay. So is -- you mentioned having an	05:30:11
9	infinite number of codes.	05:30:13
10	Does code limited refer to there not being	05:30:16
11	such an infinite number of codes or --	05:30:21
12	A. Yes. There are practical limits to the	05:30:23
13	number of codes that you can use for -- for this	05:30:31
14	purpose.	05:30:37
15	Q. Okay. And what about the phrase "power	05:30:39
16	limited"? Do you have an understanding of what	05:30:45
17	that means?	05:30:47
18	A. Yes.	05:30:47
19	Q. What does that mean in the context of the	05:30:48
20	Lundby patent?	05:30:52
21	A. Well, we've been discussing all morning	05:30:53
22	the FCC limits, the amount of intentional radiation	05:30:55
23	in a particular band and on particular channels.	05:31:00
24	So that would be the power limit.	05:31:04
25	Q. Okay. If you will look at Column 1 around	05:31:06

1	Lines -- well, I don't know whether it is -- it is	05:31:18
2	unclear whether it is 21 or 22 because --	05:31:20
3	A. I'm there.	05:31:25
4	Q. -- the patents -- anyway, so around	05:31:26
5	line -- we'll call it 21 where it starts, "CDMA	05:31:31
6	systems," do you see that?	05:31:36
7	A. Yes.	05:31:37
8	Q. All right. It talks about "the sum of the	05:31:38
9	power required by each link in the system," do you	05:31:41
10	see that, in CDMA systems?	05:31:45
11	A. Yes.	05:31:49
12	Q. Is there something particular about CDMA	05:31:49
13	systems that look to the overall capacity of the	05:31:57
14	system --	05:32:00
15	MR. NIEBERG: Objection, form.	05:32:04
16	Q. -- as described here?	05:32:08
17	The overall power capacity, I'm sorry, the	05:32:08
18	sum of power required.	05:32:12
19	A. Power capacity.	05:32:12
20	Q. So when I -- when I say "power capacity,"	05:32:16
21	I'm referencing -- it says, "The sum of the power	05:32:21
22	required," do you see that, "by each link in the	05:32:24
23	system"?	05:32:27
24	A. Yes.	05:32:30
25	Q. Is that related to the concept of being	05:32:30

1	power limited?	05:32:36
2	A. I don't understand the question, but if	05:32:41
3	you read the two sentences before that, "In	05:32:43
4	practice, communications systems of this type are	05:32:46
5	power limited." So that's the -- for example, the	05:32:48
6	FCC limits. "In power limited systems the	05:32:51
7	transmitter cannot necessarily transmit the amount	05:32:56
8	of power required to maintain a desired bit error	05:32:58
9	rate." So you can't provide a, for example, ten	05:33:03
10	minus seven bit error rate at the receiver based on	05:33:08
11	increasing the transmit power that you are	05:33:13
12	transmitting to that receiver.	05:33:16
13	So the power limits apply to all	05:33:17
14	communication systems, all legal communication	05:33:24
15	systems.	05:33:27
16	Q. Okay. And this amount of power, is that	05:33:27
17	measured with respect to a single transceiver, or	05:33:34
18	is it measured with respect to the -- all of the	05:33:38
19	devices in the system?	05:33:43
20	A. What do you mean by "this power"?	05:33:44
21	Q. What do you understand "this power" to	05:33:51
22	refer to?	05:33:54
23	A. Well, this -- the FCC --	05:33:54
24	Q. Or the amount of power that's -- that's	05:33:58
25	described in, I guess, Line 20.	05:34:02

1 A. The FCC mandates the maximum amount of
2 power in a particular band for use with
3 communications systems. Even in the ISM band,
4 there's a maximum amount of power that can be
5 transmitted. So that's the -- that's the limit on
6 how much power you can put into the transmitters.

7 Q. And when it's talking about overall
8 capacity of the system, that's at Line 24, I guess,
9 is that referring to a single device in the system
10 or to the system -- or to multiple devices that are
11 within the system?

12 A. Yeah. Yes, that sentence is somewhat
13 shorthand for the entire set of books and papers,
14 but basically the power that each of the
15 transmitters in the system is -- is intentionally
16 radiating determines the overall user capacity in
17 the system.

18 Q. Okay. So at least potentially multiple
19 devices are being looked at and not just a single
20 device or determine the overall --

21 A. Well, we're designing a communications
22 system here. We have to comply with the federal
23 government's requirements, and we want to be able
24 to provide service to as many users as possible,
25 which is the capacity term.

1 And so the question is, how do you do 05:35:54
2 that? And what Mr. Lundby is pointing out is that 05:35:57
3 the number of users that you can service in the 05:36:03
4 system is limited by the radiated power by the 05:36:06
5 transceivers in the system. 05:36:13

6 Q. Like the accumulative power of the -- of 05:36:14
7 the transceivers in the system, correct? 05:36:19

8 A. Yes, because the more transceivers, the 05:36:21
9 more intentionally radiated power, the more 05:36:26
10 interference, the more power leakage, to use the 05:36:30
11 '551 term, in the system. 05:36:35

12 Q. If you look at the Lundby at -- you know, 05:36:43
13 it discusses NCDMA systems -- or it references CDMA 05:36:52
14 systems at numerous points. There's around Lines 05:37:00
15 21 to 22 and 26 to 27, 37 to '8 and then like Line 05:37:04
16 51. 05:37:18

17 Do you see those? 05:37:21

18 A. I'm not sure where you are reading, but go 05:37:22
19 ahead with your question. 05:37:25

20 Q. Oh, I'm sorry. I'm looking at Column 1. 05:37:26

21 A. Oh, yes. I see the word CDMA. 05:37:28

22 Q. You see CDMA systems come up, repeated 05:37:33
23 quite a few times and -- so anyway. 05:37:37

24 Are there issues in CDMA systems where 05:37:45
25 being power limited and/or code limited are 05:37:49

1	applicable that are different from FDMA systems?	05:37:55
2	MR. NIEBERG: Objection, form, scope.	05:38:04
3	THE WITNESS: Well, again, CDMA systems	05:38:11
4	and FDMA systems are not mutually exclusive. So I	05:38:16
5	don't understand your question.	05:38:19
6	Q. Okay. Does Lundby explicitly address any	05:38:20
7	non-CDMA systems in its description?	05:38:29
8	A. In this spec, yes. We discussed it this	05:38:36
9	morning.	05:38:40
10	Q. Okay. And where was that at again?	05:38:40
11	A. Column 1, Line 7 to 10, "The present	05:38:47
12	invention relates to communications in general and,	05:38:51
13	in particular, it's improving the transmission of	05:38:54
14	information signals in a communications system,"	05:38:58
15	which does not limit this disclosure to CDMA.	05:39:00
16	Q. Does it identify --	05:39:06
17	A. I'm not done with the question, answering	05:39:08
18	the question.	05:39:10
19	Q. Okay. I'm sorry. I thought you were.	05:39:11
20	A. Column 1, Line 11 to Line 22, "The quality	05:39:13
21	of a communication link over a noisy channel	05:39:36
22	depends on the energy to interference noise	05:39:37
23	ratio E_b over N_0 of the signal."	05:39:43
24	And then it goes, Practice to	05:39:46
25	communicate -- continues, "In practice,	05:39:47

1 communications systems of this type are power
2 limited. In power limited systems the transmitter
3 cannot necessarily transmit the amount of power
4 required to maintain a desired signal -- bit error
5 rate."

05:39:50

05:39:52

05:39:54

05:39:57

05:40:02

6 So then --

05:40:03

7 Q. So let's just take this paragraph as an --
8 as an example. It does reference CDMA systems
9 specifically in this paragraph at Line 21 to 22,
10 does it not?

05:40:04

05:40:08

05:40:14

05:40:18

11 A. Can I finish my answer?

05:40:19

12 Q. Well, so I don't want to go through the
13 whole patent, if -- if that's okay, just citing
14 every point where it says "communication."

05:40:21

05:40:24

05:40:31

15 Taking this as a representative example,
16 Paragraph 1, specifically identifies CDMA systems,
17 does it not?

05:40:38

05:40:42

05:40:46

18 A. After the section that I just read to you,
19 correct. They describe the problem, communications
20 systems, which apply to the (indiscernible) and
21 then -- somebody is clicking.

05:40:47

05:40:52

05:40:55

05:40:58

22 MR. NIEBERG: I apologize. I got knocked
23 off, and I had to reconnect.

05:41:07

05:41:08

24 THE WITNESS: So the patent, the Exhibit
25 1008, describes communication systems, and then

05:41:13

05:41:18

1 they go on to a specific type of communication
2 systems, which is CDMA, in the following sentences
3 of that paragraph. So they're not limiting their
4 comments to CDMA systems.

5 Q. Is it fair to say that the '292 Patent,
6 the Lundby patent, does not specifically identify
7 any FDMA systems?

8 MR. NIEBERG: Objection, form, scope.

9 THE WITNESS: Specifically, yes, they are
10 talking about communication systems. He uses CDMA
11 as an example, and this patent was filed in 2000 by
12 a Qualcomm employee, and Qualcomm being important
13 in the development of CDMA technology. So I would
14 expect this employee to be discussing the CDMA.

15 Q. Is the word frequency division multiple --
16 are the words frequency division multiple access or
17 FDMA, do those -- either of those appear anywhere
18 in Lundby? As you sit here today, do you know of
19 any place?

20 A. I'm just going to do a quick scan here.
21 Certainly, they don't limit their comments to just
22 CDMA systems.

23 Q. Just to be clear, the question is whether
24 the words FDMA or frequency division multiple
25 access do not appear in the Lundby patent; is that

1	correct?	05:43:36
2	A. I will answer your question in a second.	05:43:37
3	FDMA does not appear. Frequency division	05:44:56
4	does not appear.	05:45:12
5	Q. Thank you.	05:45:13
6	In a typical CDMA system, is each code	05:45:32
7	assigned to a single device or do multiple devices	05:45:37
8	compete for the same code?	05:45:43
9	MR. NIEBERG: Objection, form, scope.	05:45:46
10	THE WITNESS: I did not opine on this, and	05:45:51
11	it depends on what system you're talking about.	05:45:54
12	Q. Well, are you aware of any systems where	05:45:57
13	there -- codes are assignable to multiple devices	05:46:04
14	at the same time?	05:46:08
15	MR. NIEBERG: Objection, form, scope.	05:46:09
16	THE WITNESS: I have not opined on this.	05:46:14
17	Q. So you are not aware or you are aware --	05:46:17
18	A. I have not opined on this.	05:46:20
19	Q. -- as you sit here right now?	05:46:21
20	A. Not that I recall.	05:46:23
21	Q. Okay. Does Lundby ever use the word idle	05:46:25
22	to describe a code-based channel?	05:46:47
23	A. The word idle does not appear in the	05:46:54
24	Lundby reference.	05:47:11
25	Q. Okay. Does Lundby describe power leakage	05:47:19

1	anywhere? As you sit here today, do you know any	05:47:30
2	discussion of power leakage in Lundby?	05:47:37
3	A. The word power -- the words power leakage	05:47:43
4	or the concept of power leakage?	05:47:44
5	Q. Well, let's take it one at a time. Do the	05:47:45
6	words power leakage appear anywhere in Lundby?	05:47:48
7	A. No.	05:47:51
8	Q. And do you regard anything as describing	05:47:52
9	power leakage in Lundby?	05:47:56
10	A. Yes.	05:47:58
11	Q. Where?	05:47:58
12	A. "In CDMA systems, the sum of the power	05:47:58
13	required by each link in the system determines the	05:48:08
14	overall capacity of the system." That sentence we	05:48:08
15	were discussing earlier, which is Column 1, Lines	05:48:11
16	21 to 24.	05:48:15
17	Q. So that's describing power limit systems;	05:48:21
18	is that correct?	05:48:26
19	A. It's describing a practical system, yes.	05:48:26
20	Q. Okay. Is it describing power leakage?	05:48:33
21	A. Yes, as the term is used in the '551	05:48:39
22	Patent, yes.	05:48:43
23	Q. Can you explain, please?	05:48:43
24	A. So the power from multiple transmitters --	05:48:45
25	we just discussed this earlier. The power from	05:48:53

1 multiple transmitters occupy -- in the system 05:48:55
2 occupy the same frequency ranges will interfere 05:48:58
3 with each other, and they will raise the 05:49:02
4 intentionally radiated power level to the point 05:49:06
5 where the EB over N0 cannot be maintained at a 05:49:09
6 point where you can deliver the required ten minus 05:49:16
7 seven or the ten minus nine bit error rate required 05:49:22
8 by the standardized CDMA system. 05:49:24
9 Q. How would code-based channels within a 05:49:28
10 common frequency range be adjacent to each other? 05:49:35
11 A. In? 05:49:40
12 Q. In the context that the '551 Patent 05:49:44
13 discusses adjacent channels. 05:49:47
14 A. In the standard compliant CDMA 05:49:50
15 architecture? 05:49:53
16 Q. Yes. 05:49:54
17 A. Well, adjacency -- they just would be. 05:49:54
18 Q. Can you explain why? Give me -- give me 05:50:12
19 an example of -- 05:50:16
20 A. In the band of the system its operating 05:50:18
21 in, the channels would receive intentionally 05:50:21
22 radiated power from other transmitters in that 05:50:29
23 band. So the same way that the '551 talks about 05:50:35
24 adjacent channel interference or power leakage. 05:50:41
25 You would get the same effects in a CDMA system. 05:50:47

1	Q. So leaving aside the issue that there	05:50:51
2	could be other systems operating --	05:50:53
3	A. No. Here I'm talking about the standard	05:50:59
4	compliant FCC regulated cellular system, for	05:51:02
5	example. You would get the same kind of power	05:51:08
6	leakage that the '551 describes in the CDMA system.	05:51:11
7	Q. But between code-based channels within the	05:51:15
8	system itself, is there a concept of adjacency	05:51:21
9	between those channels? Not between, you know,	05:51:26
10	potential other systems that are operating in the	05:51:29
11	same air space?	05:51:33
12	A. I don't understand the question, and I'm	05:51:34
13	not talking about other systems operating in the	05:51:36
14	same, quote, unquote, air space.	05:51:39
15	Q. So in the CDMA system itself --	05:51:41
16	A. You're talking about the standard	05:51:45
17	compliant CDMA cellular system that is authorized	05:51:50
18	by the FCC.	05:51:54
19	Q. Correct.	05:51:54
20	A. So there would be no other licensed legal	05:51:54
21	transmitters in that bandwidth.	05:51:58
22	Q. Okay. How would one code-based channel be	05:52:01
23	adjacent to a second code-based channel in that	05:52:04
24	system?	05:52:08
25	A. Are we talking about code-based	05:52:08

1	channels --	05:52:10
2	MR. NIEBERG: Objection, form, scope.	05:52:10
3	THE WITNESS: -- are we talking about	05:52:12
4	power leakage?	05:52:12
5	Q. What was it? We -- I didn't hear what you	05:52:14
6	said.	05:52:16
7	A. Are we discussing power leakage, or are we	05:52:18
8	discussing code-based channels? Earlier we --	05:52:21
9	Q. We're discussing both. We're asking	05:52:25
10	whether -- I'm asking --	05:52:27
11	A. If you'd let me answer the question, that	05:52:28
12	would be great.	05:52:32
13	Q. I'm trying to form the question so that we	05:52:33
14	can answer the question. Would that be okay?	05:52:34
15	A. If you let me get the answer completely	05:52:37
16	out, that would be great for understanding both of	05:52:40
17	our parts.	05:52:42
18	Q. Okay. Well, so what is your answer?	05:52:42
19	A. All right. I just answered.	05:52:47
20	Q. Can you repeat the answer?	05:52:49
21	A. I think the court reporter can read it	05:52:53
22	back.	05:52:57
23	Q. Can you repeat the answer?	05:52:57
24	(The Reporter read the record as follows:	05:53:32
25	Are we discussing power leakage, or are	05:53:32

1 we discussing code-based channels? 05:53:32

2 Earlier we --) 05:53:32

3 THE WITNESS: Earlier we discussed the 05:53:32

4 distinction between those two. 05:53:34

5 Q. And what is the distinction between those 05:53:36

6 two? 05:53:38

7 A. So separating channels, not the channels 05:53:38

8 described by the '551 Patent, by codes does not 05:53:47

9 have a power leakage issue. Separating those 05:53:53

10 channels by codes has a code-limiting interference. 05:53:59

11 Power leakage is caused by intentional radiators on 05:54:11

12 the same set of frequencies used by the receivers 05:54:14

13 in the system. 05:54:19

14 Q. So let me see if I can understand it. 05:54:22

15 A. It's consistent with '551, and it's 05:54:25

16 consistent with Lundby, and it's consistent with 05:54:27

17 my -- my statement. 05:54:29

18 Q. So let me see if I understand, and you can 05:54:32

19 correct me if I'm wrong. 05:54:37

20 So are you saying that the concept of any 05:54:39

21 interference between channels in the code-based 05:54:47

22 system makes them adjacent channels within the 05:54:51

23 context of the '551? 05:54:56

24 A. No. 05:55:00

25 Q. Okay. What makes them adjacent within the 05:55:02

1	context of the '551 CDMA system?	05:55:05
2	A. What is "them"?	05:55:08
3	Q. The channels, the communications on the	05:55:09
4	code-based channels.	05:55:16
5	A. So the FCC allocates a band of frequencies	05:55:28
6	for use. And let's talk about a CDMA based	05:55:34
7	cellular system. All right?	05:55:39
8	Q. Okay.	05:55:42
9	A. Within that band of frequencies, there are	05:55:43
10	individual channels allocated.	05:55:46
11	Q. And what are some examples of these	05:55:51
12	individual channels?	05:55:54
13	A. They're numbered in different bands	05:55:54
14	allocated to different cellular use. For example,	05:55:59
15	the 900 megahertz band has, I forget the number,	05:56:07
16	126 channels allocated within that band, let's say,	05:56:12
17	for example.	05:56:17
18	So there could be 126 transmitters	05:56:19
19	transmitting on each of those channels at any	05:56:23
20	geographic point in the country, and each of those	05:56:31
21	transmitters is intentionally radiating power that	05:56:36
22	may affect the receiver that's trying to listen to	05:56:41
23	one of those channels regardless of whether those	05:56:44
24	transmitters are CDMA, FDMA, CCSMA, et cetera.	05:56:48
25	Q. Are all 126 channels adjacent to each	05:56:56

1	other?	05:57:02
2	A. They are all within the same band.	05:57:02
3	Q. Okay. So within the context of the '551	05:57:06
4	Patent, you would view all 126 as adjacent?	05:57:09
5	A. Well, because --	05:57:17
6	MR. NIEBERG: Objection, form, scope.	05:57:20
7	THE WITNESS: Again, I opined on this, but	05:57:22
8	the channels most affecting Channel 100 would	05:57:28
9	Channel 99 and Channel 101, and then other channels	05:57:32
10	may also have intentionally radiated power that	05:57:37
11	shows up in the Channel 1 range --	05:57:41
12	Q. And to be --	05:57:46
13	A. -- by a third or by, for example, a third	05:57:47
14	order distortion or fifth order distortion within	05:57:50
15	the transmitter.	05:57:54
16	Q. Okay. And this 900 megahertz system --	05:57:54
17	and you'll have to forgive me because I don't know	05:57:57
18	the systems -- that is a CDMA system?	05:58:02
19	A. We're taking this as an example, a	05:58:05
20	hypothetical system.	05:58:09
21	Q. Okay. So, I don't know, is it a CDMA	05:58:10
22	system or --	05:58:14
23	A. That's where CDMA started, yeah, in a 900	05:58:15
24	megahertz band. I should say, that's where	05:58:22
25	cellular use of CDMA technology started in the 900	05:58:27

1	megahertz frequency band.	05:58:31
2	Q. So, yes, I'm just -- yes or no or --	05:58:33
3	A. Cellular technology was first applied to	05:58:39
4	using CDMA -- CDMA technology was first applied to	05:58:44
5	cellular use in the 900 megahertz band in the	05:58:48
6	United States.	05:58:52
7	Q. Okay.	05:58:52
8	MR. NIEBERG: We've been on the record for	05:59:11
9	a while. I don't know, Dr. Williams, if you want a	05:59:12
10	break or not? Counsel?	05:59:15
11	THE WITNESS: Fifteen minutes?	05:59:17
12	MR. NIEBERG: I think I can wrap up this	05:59:18
13	section in just a second if we -- so can I ask a	05:59:20
14	couple of more questions and then we can take a	05:59:26
15	break or --	05:59:28
16	THE WITNESS: Sure.	05:59:29
17	MR. ATKINSON: Okay.	05:59:31
18	THE WITNESS: Unless anyone else wants to	05:59:31
19	take a break? I'm fine.	05:59:35
20	MR. ATKINSON: Well, so I don't think	05:59:36
21	that -- I think we are almost done. So I think I	05:59:38
22	would rather take a break like whenever there's a	05:59:41
23	natural stopping point, but if someone has, you	05:59:45
24	know, bathroom urgency, please let me know. All	05:59:47
25	right.	05:59:51

1	MR. NIEBERG: I'm okay.	05:59:52
2	BY MR. ATKINSON:	05:59:56
3	Q. Is there such a thing as carrier sensing	05:59:56
4	in the context of CDMA systems?	06:00:00
5	MR. NIEBERG: Objection, form, scope,	06:00:03
6	THE WITNESS: Carrier sense multiple	06:00:08
7	access?	06:00:12
8	Q. Yes. Is CSMA -- we can take that as an	06:00:14
9	example.	06:00:19
10	Would CSMA be applicable to a CDMA system?	06:00:19
11	A. Yes.	06:00:24
12	Q. And --	06:00:24
13	A. Like I said, all of these multiple access	06:00:28
14	techniques are not mutually exclusive.	06:00:31
15	Q. Are there any implemented CDMA systems	06:00:33
16	that use CSMA that you're aware of?	06:00:38
17	MR. NIEBERG: Object to form, scope.	06:00:46
18	THE WITNESS: Standards compliant legal in	06:00:48
19	the United States potentially, but I can't think of	06:00:51
20	an example off the top of my head. In other words,	06:01:00
21	there is nothing about CSMA that precludes it from	06:01:06
22	being used.	06:01:10
23	MR. ATKINSON: Okay. Let's go ahead and	06:01:11
24	take a break.	06:01:13
25	THE VIDEOGRAPHER: Off the record, 6:01.	06:01:13

1	(Brief break.)	06:04:10
2	THE VIDEOGRAPHER: On the record, 6:55.	06:55:30
3	MR. ATKINSON: Okay. I guess I'll just	06:55:38
4	state for the record that Dr. Williams has	06:55:40
5	indicated during the break that he -- that he had	06:55:45
6	a -- a nose -- his nose won't stop bleeding, and he	06:55:47
7	indicated that he might have to go to the hospital,	06:55:54
8	and there's been a tentative agreement between	06:55:58
9	counsel to continue the remainder of the deposition	06:56:02
10	and that counsel will -- that we'll discuss	06:56:06
11	accommodations therefrom during the -- I guess,	06:56:09
12	during the continuous; is that accurate?	06:56:14
13	MR. NIEBERG: That's accurate.	06:56:16
14	THE VIDEOGRAPHER: Anything else before we	06:56:21
15	close?	06:56:22
16	MR. ATKINSON: One thing I -- so I know	06:56:25
17	that during P tab depositions, typically during	06:56:27
18	the -- during the case you're not supposed to talk	06:56:31
19	to the witness. I -- you know, I would only -- I	06:56:36
20	would only say that, you know, maybe we can do that	06:56:40
21	until we can like connect and discuss, you know,	06:56:43
22	the continuance, you know, and then, you know, we	06:56:46
23	can begin to talk about -- you know, does that make	06:56:49
24	sense?	06:56:54
25	MR. SPEED: Yeah. No, that's fair. We	06:56:56

1	certainly won't talk to him about the substance of	06:56:57
2	anything, unless it coordinates with his medical --	06:56:57
3	MR. ATKINSON: Right. Right. I	06:56:59
4	understand. You've got to talk to him about	06:57:05
5	rescheduling, so all right.	06:57:09
6	THE VIDEOGRAPHER: Anything else?	06:57:09
7	MR. ATKINSON: Not for NTT.	06:57:13
8	MR. SPEED: Nothing for the Mediatek, and	06:57:15
9	thank you, everyone, for the accommodation.	06:57:19
10	THE VIDEOGRAPHER: The time is 6:57 p.m.	06:57:20
11	This concludes today's deposition of Tim Williams,	06:57:23
12	Ph.D. We are off the record.	06:57:26
13	MR. NIEBERG: We'll just want to review it	06:59:32
14	for any errors in the transcript but standard	06:59:40
15	order.	06:59:41
16	MR. ATKINSON: Standard order, plus rough.	
17	(Off the record at 6:59 p.m.)	
18		
19		
20		
21		
22		
23		
24		
25		

ACKNOWLEDGMENT OF DEPONENT

I, TIM A. WILLIAMS, Ph.D., do hereby
acknowledge that I have read and examined the
foregoing testimony, and the same is a true,
correct and complete transcription of the testimony
given by me and any corrections appear on the
attached Errata sheet signed by me.

(DATE)

(SIGNATURE)

CERTIFICATE OF SHORTHAND REPORTER

I, Lori Roy, Registered Professional Reporter, Certified Shorthand Reporter, the officer before whom the foregoing deposition was taken, do hereby certify that the foregoing transcript is a true and correct record of the testimony given; that said testimony was taken by me stenographically and thereafter reduced to typewriting under my supervision; that reading and signing was requested; and that I am neither counsel for or related to, nor employed by any of the parties to this case and have no interest, financial or otherwise, in its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd day of April 2021.

Lori Roy

LORI ROY, RPR, CCR

A			
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