

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.
Petitioner

v

LBT IP I LLC
Patent Owner

Inter Partes Review Case No. IPR2020-01189
US Patent No. 8,497,774

VIDEOTAPED DEPOSITION

DEPONENT: SCOTT ANDREWS
DATE: Wednesday, May 12, 2021
TIME: 8:00 a.m. Pacific Time
LOCATION: VIA ZOOM VIDEOCONFERENCE
REPORTER: Karen Fortna, CRR/RMR/RPR/CSR-5067
VIDEO: Bailey Wellman
JOB NO: 14947

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14 Inter Partes Review Case No. IPR2020-01190

15 US Patent No. 8,542,113

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20 DATE: Wednesday, May 12, 2021

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14 Inter Partes Review Case No. IPR2020-01191

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23 REPORTER: Karen Fortna, CRR/RMR/RPR/CSR-5067

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14 Inter Partes Review Case No. IPR2020-01192

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24 VIDEO: Bailey Wellman

25 JOB NO: 14947

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11 LBT IP I LLC

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14 Inter Partes Review Case No. IPR2020-01193

15 US Patent No. 8,421,619

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23 REPORTER: Karen Fortna, CRR/RMR/RPR/CSR-5067

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W I T N E S S

SCOTT ANDREWS

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EXHIBIT	DESCRIPTION	PAGE
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(Exhibit 9 not attached.)

1 * * * *

2 SCOTT ANDREWS,

3 having first been duly sworn, was examined and
4 testified as follows:

5 MR. SEAL: Mr. Andrews, thank you for
6 joining us this morning. I understand it's quite
7 early where you are, so we appreciate your
8 accommodation.

9 THE WITNESS: I get up early.

10 EXAMINATION

11 BY MR. SEAL:

12 Q. I understand you have been deposed before; is that
13 correct?

14 A. That's correct.

15 Q. Okay. So I won't go over all the procedures, but
16 just if you need to take a break for any reason,
17 let me know and we'll do our best to accommodate
18 you.

19 So since you submitted your declarations
20 in connection with the five IPRs related to the LBT
21 patents, have any of your opinions changed?

22 A. No. I identified a handful of typographical errors
23 in the declarations, but that's it. If we come
24 across them, I hopefully will be able to point them
25 out.

1 Q. Okay. Anything that would have changed the
2 substance of your testimony or these are just minor
3 typographical errors?

4 A. Minor typographical errors.

5 MR. SEAL: Okay. Thank you.

6 Well, we'll dive right in with the first
7 IPR petition, which is related to the '774 patent.
8 So if you have a copy of the '774 patent, we'll go
9 ahead and mark that as Exhibit 1.

10 (Marked for identification:
11 Deposition Exhibit No. 1.)

12 BY MR. SEAL:

13 Q. Do you have that available to you?

14 A. I have it in front of me, yes.

15 Q. Okay. I would like to direct you specifically to
16 claim 8 of the '774 patent, which you can find in
17 column 16. Within claim 8, there is a limitation
18 or a phrase near lines 56 and 57 that reads, "a
19 multitude of threshold values." Do you see that?

20 A. I see that.

21 Q. Did you have an opinion about the meaning of a
22 multitude as one of ordinary skill in the art would
23 have understood it at the time of invention of the
24 '774 patent?

25 A. Well, I think there are a lot of meanings that

1 people might apply to it, but it really just means
2 more than one.

3 Q. And is that the understanding that you applied in
4 preparing your declaration regarding the '774
5 patent?

6 A. Yes, that's one.

7 Q. And what is the basis for that opinion?

8 A. Because multitude is based on multiple, and that
9 means it is clearly more than one, could be any
10 number, but something greater than a single level.

11 Q. Did you consult any dictionaries to come up with
12 that understanding?

13 A. I don't recall. It just seemed self-evident that a
14 multitude can be any number greater than one.

15 Q. Are you aware of any context in which the term
16 multitude might mean a number necessarily greater
17 than two, as one of ordinary skill in the art would
18 have understood it at the time of invention of the
19 '774 patent?

20 A. Well, I don't know that I'm aware of any
21 applications where it would be required to be more
22 than two. I was certainly aware of uses of the
23 word when it is applied to, you know, wildlife in
24 the Serengeti or something where you have millions
25 of things, but it's clearly more than -- if I had

1 to specify it, it would be more than one, and, you
2 know, you could say that ten is a multitude, you
3 could say that two is a multitude, you could say
4 that 100 million is a multitude, but clearly one is
5 not.

6 MR. SEAL: Okay. Thank you.

7 That's actually the only line of
8 questioning I have for the '774 patent, so we can
9 move on to the next petition, which is IPR 1190
10 regarding the '113 patent.

11 THE WITNESS: '113, you said?

12 MR. SEAL: Yes, sir.

13 THE REPORTER: Will that be Exhibit 2?

14 MR. SEAL: Not yet. Actually, Exhibit 2
15 is going to be the Sakamoto reference.

16 THE WITNESS: Last book I looked at.

17 MR. SEAL: It's always the last.

18 So we'll mark the Sakamoto, which I
19 believe was Exhibit 1004 in the IPR petition, as
20 Exhibit 2 to your deposition.

21 (Marked for identification:

22 Deposition Exhibit No. 2.)

23 BY MR. SEAL:

24 Q. Do you have Sakamoto in front you, Mr. Andrews?

25 A. Yes, I do.

1 Q. Okay. Just a couple of general questions about
2 Sakamoto, but please feel free to take as much time
3 as you would like to review the reference before
4 answering.

5 In the Sakamoto reference, it teaches that
6 GPS receiver 10 is responsible for receiving
7 signals from GPS satellites; is that correct?

8 A. Well, I can search through to find a place where it
9 probably says that, but Sakamoto has a GPS receiver
10 and GPS receivers are generally known to receive
11 signals from GPS satellites.

12 Q. Okay. Are you aware of any other component
13 disclosed by Sakamoto that would receive GPS
14 signals from a satellite?

15 A. Well, when you say GPS signals, are you meaning the
16 specific radio signal that's transmitted by the
17 satellite?

18 Q. Yes.

19 A. The GPS receiver would be the element that
20 actually -- or antenna of the GPS receiver and then
21 the components within the GPS receiver would be the
22 elements that would receive those particular
23 signals.

24 Q. Okay. So just to be clear, you're not aware of any
25 other component outside of the GPS receiver 10 in

1 Sakamoto that would receive GPS signals from a
2 satellite?

3 A. Let me think about that for a moment. I don't
4 recall if Sakamoto also talks about receiving --
5 yeah, he has communication control unit 11.

6 Q. Okay.

7 A. And communication control unit 11, it doesn't
8 receive directly -- the radio signals directly from
9 the satellite, but it receives GPS information from
10 the network, so it's able to -- if you look at
11 Figure 1, communication control unit 11 is
12 described as receiving application data or GPS
13 satellite information and so that's information
14 that is sent from satellites in the GPS signal, but
15 it's also provided quite often through a cellular
16 communications link.

17 Q. Okay. And that information, as I understand
18 Sakamoto, that's information related to the
19 positioning of the satellite?

20 A. Yes, it's known as ephemeris data, and that is
21 basically information that can be used to determine
22 the locations of the satellites in their orbits at
23 any given time.

24 Q. Okay.

25 A. And that's necessary to be able to determine the

1 distance to the satellites, which is how you
2 actually determine your position on the earth.

3 MR. SEAL: Okay. Now I would like you to
4 look at the '113 patent itself, which we're going
5 to mark as Exhibit 3.

6 THE WITNESS: Okay.

7 (Marked for identification:
8 Deposition Exhibit No. 3.)

9 BY MR. SEAL:

10 Q. And specifically, I would like to direct you to
11 claim 1, which is in column 10.

12 A. Okay.

13 Q. And do you see the limitation in claim 1 that
14 reads, "Reducing applied power level to the primary
15 location tracking circuitry in response to
16 measurement of a received communication signal less
17 than a first signal level"?

18 A. I see that.

19 Q. Okay. And in your declaration, you opine that
20 Sakamoto discloses that limitation when it moves
21 into what we'll call the stop-position mode; is
22 that correct?

23 A. Yes, that's correct.

24 Q. Okay. And it is also your opinion that when
25 Sakamoto moves into stop-position mode, it turns

1 off the power to the GPS receiver; is that correct?

2 A. Sakamoto says that in order to reduce power, he
3 turns off -- he says the positioning is stopped,
4 position searching is stopped, I think. He
5 specifically says that, in part, that is to
6 maintain a lower power consumption.

7 MR. SEAL: And if you could now look at
8 your declaration for the '113 patent, which we're
9 going to mark as Exhibit 4.

10 THE WITNESS: Okay.

11 (Marked for identification:
12 Deposition Exhibit No. 4.)

13 BY MR. SEAL:

14 Q. And I want to direct you to paragraph 175.

15 A. Okay.

16 Q. In that first line in paragraph 175 of the
17 declaration you state that, "I also note that a
18 POSITA" -- which stands for person of ordinary
19 skill in the art, I believe -- "would have
20 understood Sakamoto as teaching turning off the
21 power of the GPS receiver 10 in the stop-position
22 searching mode." Do you see that?

23 A. I see that.

24 Q. And that's consistent with your statement a few
25 moments ago that when moving into stop-position

1 mode, Sakamoto teaches cutting off power to GPS
2 receiver 10, correct?
3 A. Yes, that's correct. He describes that in normal
4 mode, it is essentially the power -- depending on
5 the way it's been configured, the power either
6 switches on and off regularly, so at some
7 predefined interval the system comes on and
8 measures the position, or when a user requests that
9 a position be provided.

10 He also describes this in connection with
11 claim 9 at paragraph 50 of Sakamoto. He says,
12 "Power consumption can be reduced by stopping the
13 position search when positioning is not possible."

14 Q. So when Sakamoto cuts off power to the GPS
15 receiver 10 in stop-position mode, GPS receiver 10
16 can no longer receive a GPS signal; is that
17 correct?

18 A. That's correct.

19 Q. Okay. Moving back to the '113 patent for a moment.
20 If you would look at claim 3, which is also in
21 column 10.

22 A. Okay.

23 Q. You see there claim 3 has a limitation that
24 requires, "Reactivating the primary location
25 tracking circuitry in response to measurement of

1 the received communication signal above the first
2 signal level." Do you see that?

3 A. I see that.

4 Q. And to be clear, the primary location tracking
5 circuitry in that claim, as you understand it to be
6 taught by Sakamoto, is GPS receiver 10?

7 A. That's correct.

8 Q. Okay. And your opinion with regard to claim 3 is
9 that Sakamoto teaches this reactivating limitation
10 by moving out of the stop-position mode into either
11 what Sakamoto calls normal mode or high mode; is
12 that correct?

13 A. Let me check something in my declaration here.
14 Yeah, so I respond to this in paragraph 212 of my
15 declaration.

16 You would need to -- Sakamoto clearly
17 turns the thing back on when the signal is
18 recovered or is back up on the threshold, which
19 means that at some point he has to turn the
20 receiver on briefly enough to at least measure the
21 signal level. He may not be positioning with it,
22 but he's at least turning on the radio part to
23 actually check the level of the GPS signals,
24 otherwise, he would turn the GPS off and it would
25 never come back on, right?

1 Q. In that case, however, when Sakamoto turns on GPS
2 receiver 10, it does not do so in response to a
3 signal level, correct?

4 A. That's correct. He turns on -- and he may not
5 actually turn on the entire GPS receiver.
6 Remember, the GPS receiver has a radio that
7 receives radio signals and it has a processor which
8 consumes a great deal of power that actually
9 processes those radio signals to determine a
10 position.

11 All he has to do is detect the radio
12 signal to determine whether the signal is now above
13 that stop-position threshold, and if it is, he
14 would then reactivate the entire receiver so that
15 he would receive the GPS signals or be able to
16 determine position from the GPS signals.

17 Q. So in that example, what is the trigger that
18 Sakamoto uses to reactivate the GPS receiver when
19 in stop-position mode?

20 A. The trigger would be that the level of the received
21 GPS radio signals would be above the
22 stop-positioning threshold.

23 Q. Sakamoto can't know that until it has already
24 turned on the GPS receiver 10, correct?

25 A. Well, it has to at least turn on a portion of the

1 receiver to detect the radio signals. You don't
2 have to turn on the entire receiver, you have to
3 detect the level of the signals after the logo is
4 amplified, essentially, to see what level they are,
5 and that could be that that portion of the receiver
6 stays on all the time.

7 He doesn't talk about it particularly, but
8 he certainly, as I said earlier, doesn't
9 contemplate that once the -- once the GPS signal
10 level went below that threshold, the system would
11 turn off and never turn on again. That would be --
12 that wouldn't be very practical. So clearly he has
13 some ability to detect the level of that signal and
14 turn the GPS receiver back on when it's above that
15 threshold.

16 And as I said, I would -- given that
17 Sakamoto is seeking to reduce power consumption, it
18 would not make any sense that he would turn on the
19 entire GPS receiver to do that because you don't
20 need the whole GPS receiver to do that.

21 Q. What portion of the GPS receiver do you need to
22 receive a signal from a GPS satellite in order to
23 determine whether it meets a pre-determined
24 threshold?

25 A. You would need at least the antenna and the low

1 noise amplifier at the front end of the receiver.
2 It has a great many components to it to pull out
3 these very complex signals from all of the
4 different satellites and it would be to at
5 least feel -- to detect the level of the radio
6 signals.

7 Q. And the antenna and the power amplifier that you
8 just described are components of GPS receiver 10?

9 A. It's not a power amplifier, it's a low noise
10 amplifier.

11 Q. Pardon me. Let me re-ask the question.

12 So the antenna and the low noise amplifier
13 that you just described are components of
14 Sakamoto's GPS receiver 10, correct?

15 A. They are a portion of the components, but certainly
16 not all of them.

17 Q. Okay. So when you stated in your declaration that
18 Sakamoto cuts off power to the GPS receiver 10 when
19 in stop-position mode, you didn't mean that it cuts
20 off power to all components of GPS receiver 10 in
21 stop-position mode?

22 MR. SNADER: Objection. Form.

23 THE WITNESS: Could you ask that again or
24 could you read it back?

25 MR. SEAL: Sure.

1 BY MR. SEAL:

2 Q. We discussed earlier that your opinion, as stated
3 in your declaration, was that when Sakamoto is in
4 stop-position mode, it cuts off power to GPS
5 receiver 10. Do you recall that testimony?

6 A. Yes.

7 Q. And is it your opinion now that when Sakamoto cuts
8 off power to GPS receiver 10, it does not cut off
9 power to all components of GPS receiver 10?

10 A. Well, Sakamoto doesn't describe how he determines
11 that the signal level is above that threshold.
12 It's possible that he periodically turns on the GPS
13 receiver just briefly to check so that it's -- most
14 of the time it's off and every now and then he
15 turns it on and looks, and if it's not above the
16 level, he turns it back off, or maybe even just
17 turns those components that he needs to use to
18 examine the signal, and it's possible that he might
19 leave some of the components on, but probably not
20 given that he's after minimum power consumption.

21 So presumably he would turn the GPS
22 receiver off and then maybe once a minute, once
23 every five minutes, would turn it back on briefly,
24 check the power level, and if it was above that
25 level, he would then transition to the normal mode

1 or to the high mode, and if he was below, he would
2 turn it back off and keep it off until he decided
3 to check the next time.

4 This is a -- this is based on the
5 understanding that I think is reasonable for a
6 person of skill in the art, that without a method
7 like that, Sakamoto would turn the GPS receiver off
8 when the signal level went below that threshold and
9 it would never come back on again, which would not
10 be a practical solution to the problem.

11 Q. You just mentioned that one of the triggers for
12 reactivation could be performing a periodic check
13 of the signal level to see if it is now above a
14 threshold, correct?

15 A. Yes, I think that's a reasonable -- especially
16 given Sakamoto's emphasis on minimal power
17 consumption, you would change the GPS receiver
18 to -- you would turn the GPS receiver on and then
19 every now and then, at whatever period you thought
20 was appropriate, turn on at least the parts of it
21 necessary to check the signal level, and then you
22 turn them off if it wasn't above that level, and if
23 it was above that level you would activate the
24 whole receiver and go back to one of the other
25 positional points.

1 Q. In that example where Sakamoto periodically
2 activates the GPS receiver to check the signal,
3 that activation is not in response to a signal
4 level, correct, in other words, it's in response to
5 a time period?

6 A. No, you wouldn't -- well, the turning on some
7 portion of the receiver to check the signal level
8 would presumably be in response to a time period,
9 but that doesn't necessarily mean the entire
10 receiver is on.

11 And more importantly, the claim requires
12 reactivation when the signal is above that
13 threshold, and it doesn't say that once you
14 deactivate the GPS receiver you can never
15 reactivate it unless it's above that threshold,
16 otherwise, the '113 patent would suffer from the
17 same problem that I'm talking about Sakamoto not
18 suffering from. You would turn the receiver off
19 and never ever turn it back on again.

20 Q. Well, as we discussed, one of the triggers for
21 turning it back on could be a periodic check,
22 another trigger could be a user of Sakamoto
23 manually activating the GPS receiver, correct?

24 A. Could be. But in '113, in claim 3, if you have
25 deactivated in claim 1 this GPS receiver and you --

1 the only time that you're allowed to reactivate the
2 GPS receiver is when the signal is above this
3 threshold, then in claim 3, you would never turn on
4 the receiver because you would only be allowed --
5 if you interpret claim 3 as -- or all these claims
6 as only allowing the GPS receiver to turn on when
7 the signal level is above the threshold, then
8 claim 3 could never be performed because you turned
9 off the receiver and you can't turn it back on.
10 It's the same problem that Sakamoto would have.

11 So clearly, there's no prescription in
12 these claims that once the receiver is turned on it
13 can only be returned or reactivated -- once it's
14 been deactivated, it can only be reactivated by
15 that signal coming above the threshold. You can
16 reactivate it as many times as you want, but what
17 it says is that when the signal is above that
18 threshold, then you absolutely reactivate it and
19 you can keep it on while it's above that threshold.

20 Q. The '113 patent discusses placing the GPS receiver
21 into a sleep mode or standby mode; are you aware of
22 that?

23 A. Yes.

24 Q. Okay. And are you aware that one of ordinary skill
25 in the art would understand how to activate the GPS

1 receiver and the '113 patent out of sleep mode or
2 standby mode in response to a signal level?

3 MR. SNADER: Objection. Form.

4 THE WITNESS: Probably the same with
5 Sakamoto.

6 BY MR. SEAL:

7 Q. Leaving aside the claim in the '113 patent for the
8 moment, I'm still trying to understand what in
9 Sakamoto teaches reactivating the GPS receiver in
10 response to a signal level, and I think what we've
11 discussed so far is that it can reactivate the GPS
12 receiver or some component of the GPS receiver
13 periodically to check to see whether the signal
14 level is above a threshold. And we discussed that
15 a user of Sakamoto could manually turn on the GPS
16 receiver to check whether the signal level is above
17 the threshold, and I believe those are the only two
18 mechanisms in Sakamoto that we've discussed so far
19 for reactivating the GPS receiver out of
20 stop-position mode.

21 A. I don't know that I said that a user would
22 reactivate it in order to check the signal level.
23 The user can simply cause it to turn on, they can
24 modify the threshold and have the receiver turn on,
25 but as I said, clearly Sakamoto -- I say this at

1 paragraph 213 of my declaration. "A POSITA would
2 have understood that a location tracking device
3 that transitioned to stop-positioning mode (i.e.
4 deactivated GPS) when the signal level was low, but
5 did not transition to a positioning mode (i.e
6 activate GPS) when the signal was high enough to
7 obtain positioning would never generate position
8 values at all after the first GPS deactivation."

9 So clearly Sakamoto either goes into a
10 sleep mode like you described in the '113 patent or
11 he periodically turns on a portion of the GPS
12 receiver to check what the signal level is, but
13 there has to be some way in which he is able to
14 transition back to normal mode or to high
15 sensitivity mode other than just keeping the thing
16 off forever.

17 Q. If you can look at paragraph 20 of Sakamoto,
18 please. This is in reference to embodiment 1 of
19 Sakamoto. It states that, "The position
20 information communication terminal 1 waits in a
21 state in which the power of the GPS receiver 10 is
22 cut off; in order to obtain terminal user A's own
23 position, a position request is sent to the
24 positioning control unit 13 by pressing the button
25 provided on the man-machine interface control

1 unit 14." Do you see that?

2 A. I see that.

3 Q. And this is describing a user's manual reactivation
4 of the GPS functionality?

5 A. That's one of the embodiments of Sakamoto.

6 Q. Okay. And the next sentence reads, "The
7 positioning control unit 13 that has received the
8 position request turns on the power of the GPS
9 receiver 10 via the GPS control unit 12 and the GPS
10 receiver 10 starts the position detection process."
11 Do you see that?

12 A. I see that. And this is the mode of operation of
13 Sakamoto where the position is determined in
14 response to a user requesting that position.

15 Sakamoto also talks about other
16 operational modes where the position is
17 automatically and cyclically determined not on
18 request by a user, and that's what would happen in
19 normal mode or in high sensitivity mode.

20 Q. So in the sentence we just read from Sakamoto's
21 paragraph 20, the GPS receiver is powered on in
22 response to a position request, correct, not a
23 signal level?

24 MR. SNADER: Objection. Form.

25 THE WITNESS: In paragraph 20, it's

1 describing an embodiment where the user makes a
2 request for a position and the system turns on the
3 GPS receiver, determines the position and tells it
4 and presumably then turns back off.

5 BY MR. SEAL:

6 Q. Referring back to your declaration for a moment in
7 paragraph 213, which you just referenced, you rely
8 on paragraph 27 from Sakamoto to discuss
9 transitioning from stop-position mode.

10 Now if you could, please, review
11 paragraph 27 from Sakamoto and direct me to the
12 portion of the paragraph that in your opinion
13 discloses transitioning from stop-position mode to
14 either normal mode or high mode.

15 A. So what was your question again?

16 Q. I would like you to identify for me the portion of
17 paragraph 27 in Sakamoto that teaches activating
18 the GPS receiver while in stop-position mode to
19 move into either normal mode or high mode.

20 A. Well, in 27, he's saying that when the environment
21 is such that it's easy to receive GPS signals, the
22 receiver is in normal mode, and then when that
23 signal level drops below a certain threshold, he
24 transitions to -- and in normal mode, he only
25 periodically is checking the -- or computing the

1 GPS position, and then when you drop below that
2 level, you transition to the high sensitivity mode.
3 He's not talking here about transitioning from the
4 stop-positioning mode to the start-positioning mode
5 or to normal or high.

6 So his -- in this paragraph, he's talking
7 about these two different levels, K1 and K2, and
8 these are the threshold levels that determine
9 whether, if you're in high mode, high sensitivity
10 mode, whether you go to normal sensitivity mode, or
11 if you're in normal sensitivity mode, whether you
12 go back to high sensitivity mode. That's what he's
13 describing in this paragraph.

14 Q. Going back to the claim language of the '113 patent
15 for a moment. You were testifying earlier that it
16 would not make sense for the '113 patent to teach
17 deactivation in response to a signal level when it
18 could not reactivate in response to a signal level.

19 A. I don't know that I phrased it that way, but what I
20 said was that Sakamoto does talk about deactivating
21 some -- all or some portion of the GPS receiver
22 when the signal level drops below a certain
23 threshold, not one of the thresholds in
24 paragraph 27, and I said if he dropped below that
25 threshold and never had any ability to turn himself

1 back on by checking the signal level, then he would
2 be permanently off until somebody lowered that
3 threshold.

4 Q. If the '113 patent requires that the GPS receiver
5 reactivate in response to a signal level, does that
6 not suggest to you that the deactivation is
7 something other than a complete powering off of the
8 GPS receiver?

9 MR. SNADER: Objection. Form.

10 THE WITNESS: You could do it in any
11 number of ways. You could completely power off the
12 GPS receiver and then periodically turn back on a
13 portion of it to test the signal. If you're
14 actually interested in minimizing power
15 consumption, that's probably the best way to do it.

16 You could turn off the processor portion
17 of the GPS receiver, which is certainly the highest
18 power consumption component, and leave the radio
19 portion on and continually check -- if you're
20 actually interested in power consumption, that
21 would probably not be the optimal approach -- or
22 you could just simply periodically turn on the
23 portion -- turn everything off and then
24 periodically turn on the portion that you would
25 need to turn on to check the signal level, and if

1 it was above that threshold, then reactivate the
2 whole rest of the receiver.

3 I think my point earlier was that in
4 '113, you are faced with the same problem and
5 they -- of how you determine the signal level so
6 that you can reactivate the GPS receiver and they
7 don't provide any great detail about how you would
8 do that, so Gotoh -- I mean -- not Gotoh.

9 Sakamoto describes turning the power off
10 and describes going into various other positioning
11 modes in various ways, some of them automatic, and
12 the only reasonable way to do that would be to be
13 able to check to see whether you're back above that
14 threshold.

15 BY MR. SEAL:

16 Q. Right. But if the claim language of the '113
17 patent requires deactivating the GPS functionality
18 in response to a signal level threshold and then
19 reactivating the GPS functionality in response to a
20 signal level threshold, that would require that
21 deactivation does not mean completely shutting off
22 the GPS receiver so that it cannot receive signals,
23 correct?

24 MR. SNADER: Object to form.

25 THE WITNESS: Go ahead, Robin.

1 MR. SNADER: Objection. Form.

2 THE WITNESS: I think I've answered that.
3 There are a number of ways that you could do that.
4 You could turn off the GPS receiver entirely -- and
5 remember, '113, just like Sakamoto, is interested
6 in minimizing power consumption, so they would
7 presumably turn off the GPS receiver in a way that
8 allowed them to minimize power consumption. How
9 they would then determine that that signal level
10 was above the threshold to turn it back on could be
11 done in a number of ways.

12 They could decide to turn off only a
13 portion of the GPS receiver, which would still
14 consume power even when they weren't checking the
15 GPS signal level, they could turn off the entire
16 GPS receiver, which would be consuming no power
17 until they decided to check, and then they'd have
18 two options. One of them is to turn on the entire
19 receiver just in order to check the signal level,
20 which would consume a lot of power because you
21 don't need position yet, or to turn on some portion
22 of the GPS receiver that allows them to check the
23 power, and if it's above the threshold, turn the
24 rest of the receiver on.

25 The '113 patent doesn't talk about that

1 in any great detail and neither does Sakamoto,
2 but a person of skill in the art would understand
3 that there are numerous ways in which you could
4 perform that.

5 MR. SEAL: Okay. And I'm not trying to
6 be argumentative here and I'm not trying to have
7 you answer the question multiple times, so if I
8 come across as if I'm doing that, I apologize. I
9 am trying to understand your answer, though, so I'm
10 trying to get a little more detail, but if my
11 question is unclear or if you think I'm being
12 unfair, let me know. It's certainly not my
13 intention.

14 THE WITNESS: I understand.

15 BY MR. SEAL:

16 Q. Specifically in the circumstance in which Sakamoto
17 turns off power to the GPS receiver completely, how
18 could it then reactivate the GPS receiver in
19 response to a signal level?

20 A. He would have to periodically measure that signal
21 level and he would need to do that by turning on
22 some portion of the receiver that would allow him
23 to measure that signal level to determine whether
24 it was above the threshold.

25 Q. And what --

1 A. And so not the entire receiver, he just has to turn
2 on a portion of it, and if he is above that
3 threshold, then he activates the entire receiver
4 and starts positioning and starts calculating
5 positions either in high sensitivity mode or on a
6 periodic basis in normal sensitivity mode.

7 Q. Now you say that Sakamoto doesn't have to turn on
8 the entire receiver, but he would have to turn on
9 the portion of the receiver that is capable of
10 receiving a GPS signal and measuring its strength,
11 correct?

12 A. Yes, and so would the '113 patent. You know, you
13 mentioned earlier that -- there was a statement
14 about GPS receiver being in standby mode. Well,
15 that would mean that the GPS receiver hasn't
16 actually been deactivated, right? If it's in
17 standby mode, then it's still partially turned on.

18 So, you know, possibly Sakamoto could do
19 that. Sakamoto could also turn it off and then
20 periodically turn on a portion of it. So there are
21 many ways that that could be done, but both '113
22 and Sakamoto have the same problem, that if you
23 turn off the entire GPS receiver, completely power
24 it down because the signal is below a threshold,
25 and you want to turn it back on when it's above

1 that threshold, you have to turn something back on
2 in order to measure whether it's above the
3 threshold. You either have to turn something back
4 on or something has to have not been turned on.

5 Q. Alternatively, you could have an understanding of
6 the term deactivate that does not include powering
7 off, correct?

8 MR. SNADER: Objection. Form.

9 THE WITNESS: In which case you would be
10 deactivating the major power-consuming portions of
11 the GPS receiver. And I don't think that Sakamoto
12 is inconsistent with that. I described it as
13 turning the power off, but Sakamoto is very clear
14 that he says that you stop position searching, and,
15 you know, you could stop position searching by
16 turning off all of the correlators and processors
17 and everything else and still leave the receiver
18 detector on and be able to measure the signal
19 level. So, you know, I think you could do it in
20 any number of ways and neither the '113 patent nor
21 Sakamoto are explicit in how that's done.

22 MR. SEAL: Okay. I think we're through
23 with the '113.

24 We'll now look at the '256 patent,
25 please, which I'll mark as Exhibit 5.

1 (Marked for identification:

2 Deposition Exhibit No. 5.)

3 BY MR. SEAL:

4 Q. And specifically, I would like to direct you to
5 claim 10, which is in column 12. Claim 10 includes
6 a limitation that reads, "A battery powered monitor
7 configured to activate and deactivate at least one
8 portion of the electronic tracking device to
9 conserve battery power in response to a signal
10 level of the received communication signal." Do
11 you see that?

12 A. I see that.

13 Q. And your opinion, as reflected in your declaration,
14 is that Sakamoto's GPS receiver 10 is the "at least
15 one portion of the electronic tracking device" that
16 is activated and deactivated in response to a
17 signal level; is that correct? If it helps, I'm
18 referring to paragraph 146 of your declaration.

19 A. I'm reading that right now. Thanks.

20 MR. SEAL: We'll go ahead and mark your
21 declaration as Exhibit 6.

22 (Marked for identification:

23 Deposition Exhibit No. 6.)

24 THE WITNESS: Okay. So your question
25 was is the portion that is being activated and

1 deactivated in response to a signal level -- so
2 your question was, is the electronic -- portion of
3 the electronic tracking device on the GPS receiver?
4 I believe in this section of my declaration, that
5 is correct.

6 BY MR. SEAL:

7 Q. Okay. Looking at paragraph 146 from your
8 declaration, there's -- on page 185, there is a
9 sentence that reads, "In my opinion, similar to the
10 '256 patent, Sakamoto teaches activating the GPS
11 receiver by selecting the normal mode due to a
12 signal level that is good (above a particular
13 threshold value, e.g., K2) and deactivating the GPS
14 receiver when the stop-positioning mode is selected
15 when the signal level value is below a
16 pre-determined threshold (i.e., poor signal level)
17 and positioning cannot be performed." Do you see
18 that?

19 A. Yes.

20 Q. I want to direct your attention specifically to the
21 part about activating the GPS receiver by selecting
22 the normal mode due to a signal level that is good.

23 A. Okay.

24 Q. So --

25 A. What about it? Is there a question?

1 Q. There is. One second.

2 A. Okay. Sorry.

3 Q. That's all right.

4 You reference the threshold value K2 in
5 that paragraph, and that value K2 represents the
6 threshold to transition into normal mode; is that
7 correct?

8 A. Yes, that's correct, from high sensitivity mode.

9 Q. From high sensitivity mode?

10 A. From high sensitivity mode or from stop-positioning
11 mode. It's just that when you are above K2, you
12 are -- from wherever you were when signal level is
13 above K2, you go to normal mode.

14 Q. Okay. It is not your opinion, is it, that moving
15 from high mode to normal mode activates the GPS
16 receiver, is it?

17 A. No, because the GPS receiver is already active and
18 being continuously used in high mode.

19 Q. Okay. So this limitation, if met by Sakamoto,
20 would have to be met by moving from stop-position
21 mode into normal mode at threshold K2, correct?

22 A. Yes, you can transition to -- if, in stop-position
23 mode, you had a signal level below the level that
24 you can receive or calculate positions, an example
25 that I've used in thinking about this is you're in

1 a tunnel and so the signal level goes below where
2 you can reliably calculate positions, and then you
3 drive out of the tunnel and suddenly your signal
4 level is above this K2 level, you immediately go to
5 normal mode.

6 Q. Okay. And the method by which Sakamoto moves from
7 stop-position mode into normal mode for purposes of
8 the '256 patent would be the same mechanism that we
9 discussed for the '113 patent; is that correct?

10 A. I think so, yes.

11 MR. SEAL: Okay. I would now direct your
12 attention to the Gotoh reference, which we're going
13 to mark as Exhibit 7.

14 (Marked for identification:
15 Deposition Exhibit No. 7.)

16 BY MR. SEAL:

17 Q. Before I ask specific questions about the Gotoh
18 reference, I believe your testimony is that a
19 person of ordinary skill in the art would modify
20 Sakamoto by adding the accelerometer from Gotoh
21 when Sakamoto was in stop-position mode; is that
22 correct?

23 A. I think that's correct. Let me find it in my
24 declaration. I just want to make sure I'm at the
25 right place for why he would do that.

1 Yes, so you would add Gotoh's
2 accelerometer in reckoning calculations to
3 Sakamoto's so that you would still be able to
4 determine, at least to some level of accuracy or
5 position, when the GPS signal was too low to
6 measure -- to reliably compute a position.

7 Q. So one of ordinary skill in the art would use
8 Gotoh's accelerometer in combination with Sakamoto
9 only when Sakamoto is operating in the
10 stop-position mode; is that correct?

11 A. Yeah, and this is very common in GPS receivers.
12 They include an accelerometer, and when the signal
13 is not sufficient to be able to compute a GPS fix,
14 they then -- sometimes it's called flywheeling.
15 You essentially use the accelerometer to compute
16 position values, position fixes that are estimated
17 position fixes based on your trajectory, which was
18 measured by the accelerometer, and then when GPS
19 comes back, you stop doing that and go back to
20 using your GPS position.

21 Q. If you look at paragraph 158 of your declaration on
22 the '256 patent, I do have a question there.

23 There's a sentence in the paragraph that
24 reads, "Sakamoto, as modified by Gotoh, teaches
25 that Gotoh's accelerometer 13 activates or

1 deactivates based in part on the signal level of
2 the GPS satellite signal (the 'received
3 communication signal') as taught by Sakamoto." Do
4 you see that?

5 A. Yes.

6 Q. And it's your testimony that the accelerometer
7 activates when the signal level drops below a
8 certain threshold and Sakamoto enters into
9 stop-position mode, correct?

10 A. Yes.

11 Q. Can you describe for me the mechanism by which the
12 accelerometer of Gotoh would deactivate when it is
13 operating in stop-position mode, when Sakamoto is
14 operating in stop-position mode?

15 A. Well, it would not deactivate until it was -- until
16 the signal level came above the stop-positioning
17 threshold. So the claim requirement is, "Wherein
18 the accelerometer activates or deactivates based in
19 part on the signal level of the received
20 communication signal."

21 So in Gotoh, or Sakamoto as modified by
22 Gotoh, when the signal level dropped below the
23 threshold for stop-positioning, the accelerometer
24 would take over and calculate positions, and when
25 the signal level went above that threshold, the GPS

1 receiver would take over and the accelerometer
2 would not be necessary.

3 And certainly, again, both Sakamoto and
4 the '256 are concerned with power consumption, so
5 there would be no need to continue to use the
6 accelerometer and calculate those positions when
7 you had GPS fixes because it adds no new value.

8 Q. So the mechanism by which Sakamoto would detect a
9 signal level to exit stop-position mode and
10 deactivate the accelerometer, that's the same
11 mechanism that we discussed in context -- in the
12 context of the '113 patent earlier, correct?

13 A. Well, he would -- I don't know that it's exactly
14 the same mechanism, but, you know, basically what
15 you would do is when the GPS was being used, the
16 GPS receiver was being used, you would deactivate
17 the accelerometer, and when the GPS receiver was
18 deactivated, you would activate the accelerometer.
19 You're using one or the other.

20 I don't know whether, you know, you would
21 necessarily use the threshold of the signal to turn
22 on the accelerometer. You might just have
23 something that said, you know, I'm only going to
24 power one of these at a time, and, you know, on the
25 basis of that, the accelerometer would be activated

1 and deactivated.

2 I mean, the trigger for it is clearly that
3 the GPS signal level -- for activation, the GPS
4 signal level has gone below that threshold and for
5 deactivation it's gone above that threshold, but
6 there are many ways you could implement that from
7 an electronics perspective.

8 MR. SEAL: If you'd look at the Kulach
9 reference, which we're going to mark as Exhibit 8.

10 (Marked for identification:
11 Deposition Exhibit No. 8.)

12 MR. SEAL: Actually, I want to refer to
13 you to paragraph 171 of your declaration which
14 discusses the Kulach reference.

15 THE WITNESS: Give me a second to
16 reorient myself here.

17 Okay. 171, you said?

18 MR. SEAL: Yes.

19 BY MR. SEAL:

20 Q. So referring to that paragraph and to Kulach as
21 necessary, could you describe for me the mechanism
22 by which the accelerometer in Kulach deactivates?

23 A. So in paragraph 90 of Kulach, the right-hand
24 column, it says, "While not in use, the apparatus
25 10 can disable most of its sensors to conserve

1 energy and enable a subset of sensors, such as the
2 one or more accelerometers, only frequently enough
3 to maintain context awareness."

4 So Kulach describes that when it's not
5 necessary to use the sensors -- and these are
6 sensors 12, which are described elsewhere in Kulach
7 as accelerometers -- that when you don't need them
8 to -- when you don't need to use them, you power
9 them off in order to conserve energy.

10 Q. Is there anything in paragraph 90 of Kulach or
11 elsewhere that describes maintaining that context
12 awareness in response to a signal?

13 A. In Kulach, in response to a signal level?

14 Q. Correct.

15 A. Are you saying any signal level or...

16 Q. A GPS signal level.

17 A. I don't think the Kulach has a GPS receiver.

18 Q. Okay.

19 A. So it wouldn't be turning those sensors on and off
20 in response to a signal level. It turns them on
21 and off to conserve power so that when they are not
22 needed, it turns them off. And then according to
23 paragraph 90, just as I had described for Gotoh and
24 his receiver, it periodically turns them on so that
25 it can figure out where it is, but then turns them

1 back off again.

2 Q. How does Kulach determine that the sensors are not
3 needed as a prelude to deactivating them?

4 A. He says that, "While not in use, the apparatus can
5 disable most of its sensors to conserve energy and
6 enable a subset of the sensors, such as one or more
7 accelerometers, only frequently enough to maintain
8 context awareness."

9 So when there is not a lot of activity --
10 and Kulach is specifically directed to detecting
11 motion of the user. So when the user is
12 essentially stationary, not particularly active,
13 you can power down most of the sensors and might
14 periodically turn them on just to sort of see if
15 there's been any change, and if there has, you
16 would power them up again and understand the user
17 is not moving.

18 MR. SEAL: Thank you.

19 I would now like you to take a look at
20 the IPR petition itself for the '256 patent, which
21 I'm going to mark -- I think we're at Exhibit 8.
22 If you could turn to page 48 of the petition.

23 THE REPORTER: I'm sorry, Brian, I think
24 Exhibit 8 was the Kulach reference, you said.

25 MR. SEAL: So this will be Exhibit 9.

1 I apologize.

2 (Marked for identification:

3 Deposition Exhibit No. 9.)

4 BY MR. SEAL:

5 Q. So Mr. Andrews, at the bottom of page 48, there's a
6 statement that says, "Additionally, Sakamoto
7 teaches detecting a battery level of terminal 1's
8 battery and powering on/off the GPS receiver based
9 on the battery level," and it cites Sakamoto,
10 paragraph 39. Do you see that?

11 A. Yes.

12 Q. Do you agree with that statement?

13 A. Let me read 39. Yes.

14 Q. What is the mechanism by which Sakamoto powers the
15 GPS receiver on or off in response to the battery
16 level?

17 A. Well, in 39, I can spare you reading the entire
18 thing, but the very last sentence after -- in 39,
19 he's talking about a battery control unit which
20 "notifies positioning control unit remaining
21 battery amount warning when the modern battery
22 remaining amount falls below a certain threshold
23 value." That's the beginning of 39. And at the
24 end, "After the remaining battery amount warning,
25 the power consumption may be reduced by cutting off

1 the power to the GPS receiver 10."

2 Q. Is it your understanding that Sakamoto
3 automatically cuts off the power to GPS receiver 10
4 in that situation or is it done manually by the
5 user?

6 MR. SNADER: Objection. Form.

7 THE WITNESS: Which user? Are you
8 talking about searcher B?

9 MR. SEAL: Yes, position searcher B in
10 paragraph 39 of Sakamoto.

11 THE WITNESS: That is listed as an
12 alternative, that position searcher B might be
13 notified of the battery warning level and would
14 then transmit a position search request specifying
15 the high sensitivity positioning mode or the normal
16 sensitivity positioning mode at the discretion of
17 position searcher B. So it would be automatic
18 because position searcher B is described here as
19 putting the receiver into either the normal or the
20 high mode, not the power off mode.

21 BY MR. SEAL:

22 Q. But position searcher B, that's an individual; is
23 that correct?

24 A. Yeah, it's some third party that wants to know the
25 position of the user A.

1 Q. And position searcher B has the ability to cut off
2 power to GPS receiver 10, correct, by using the
3 man-machine interface?

4 A. He's not at the device, he's remote. So I think he
5 has the ability to direct the device to be in
6 normal or high sensitivity mode, but I don't
7 believe he's described as being able to turn it
8 off.

9 Q. So in other words, in your opinion, position
10 searcher B does not have the ability to direct
11 Sakamoto's device to enter into stop-position mode?

12 A. I don't recall if he can set that threshold or not.
13 I think that that's by user A. But more
14 specifically, in paragraph 39, the statement about
15 position searcher B is unrelated to the statement,
16 "After the remaining battery amount warning, the
17 power consumption may be reduced by cutting off
18 power to the GPS receiver," because -- I'll read it
19 here -- the portion of this paragraph that talks
20 about position searcher B says, "Alternatively, the
21 position searcher B may be notified of the
22 remaining battery amount warning and the terminal
23 address corresponding to this warning" -- so which
24 device it is -- "and the communication control unit
25 21 requested to transmit a position search message

1 specifying the high sensitivity mode or the normal
2 sensitivity mode, positioning mode at the
3 discretion of position searcher B."

4 So the only thing that's described here
5 for position searcher B is that he has the
6 discretion to direct this device to be in high
7 sensitivity or low sensitivity mode based on him
8 receiving the battery level warning, but he's not
9 described as being able to turn off the GPS as
10 position searcher B.

11 Q. So in your opinion, the last sentence of the
12 paragraph that reads, "After the remaining battery
13 amount warning, the power consumption may be
14 reduced by cutting off the power of the GPS
15 receiver 10," does not refer to any ability of
16 position searcher B?

17 A. I think that that is a correct statement because
18 everything that's talked about position searcher B
19 doing is either normal mode or high mode, not off.

20 Q. In paragraph 28 of Sakamoto, which I understand is
21 embodiment 1, there is a sentence -- the last
22 sentence of the paragraph reads, "Upon receiving
23 this warning, the terminal user A operates the
24 man-machine interface control unit 14, as described
25 above, to select from the normal sensitivity

1 position mode, the high sensitivity position mode,
2 or cutting off the power of the position
3 information communication terminal 1." Do you see
4 that?

5 A. I see that.

6 Q. So in that embodiment, would you agree that the
7 user has the ability to cut power to the device in
8 response to a battery level warning?

9 A. Yeah, and it's all in one sentence. So here you're
10 saying that user A, the one that's actually holding
11 the device, can put it -- after he receives this
12 warning, he can essentially decide what he wants to
13 do. He can put it into high sensitivity mode,
14 normal sensitivity mode or he can turn it off.

15 Q. That embodiment described in paragraph 28, the user
16 might choose not to turn off the power in response
17 to the battery warning, correct?

18 A. Might.

19 Q. Or a user might not see the battery level warning
20 for some reason, correct?

21 A. It's possible.

22 MR. SEAL: Okay. That's it for the '256.

23 I notice we've been going for a little
24 over an hour, if anybody needs to take a short
25 break. I don't have a whole lot left.

1 THE WITNESS: Sure.

2 VIDEOGRAPHER: Off the record at
3 9:14 a.m.

4 (Whereupon a break was taken
5 from 9:14 a.m. to 9:28 a.m.)

6 VIDEOGRAPHER: We are back on the record
7 at 9:28 a.m.

8 BY MR. SEAL:

9 Q. Mr. Andrews, during the break, have you
10 reconsidered any of your earlier testimony or had
11 any changes in your opinion?

12 A. No.

13 MR. SEAL: Okay. I'm going to try to cut
14 the remaining questions short a bit. I think I'm
15 almost done, actually, but I just want to ask
16 whether -- with regard to the '618 patent and your
17 declaration there. And we'll go ahead and mark the
18 '618 patent as Exhibit 10 and your declaration
19 regarding the '618 patent as Exhibit 11.

20 (Marked for identification:

21 Deposition Exhibit Nos. 10-11.)

22 BY MR. SEAL:

23 Q. And I've marked those so that you can review them
24 as much as you like in response to the question,
25 but the question is whether your understanding of

1 the mechanisms by which Sakamoto moves from the
2 stop-position mode to either normal mode or high
3 mode for purposes of your opinion regarding the
4 '618 patent are the same as previously discussed
5 for the '113 patent and the '256 patent.

6 A. I would say essentially. The '113 patent is ever
7 so slightly different. I would say that my
8 opinions on '618 are essentially the same for the
9 '256, and the opinions relative to the questions
10 you have asked are not significantly different for
11 '113.

12 There are some very subtle differences in
13 '113 -- between '113 and '256 and '618, '113 being
14 a slight outlier. So I would say, you know,
15 definitively that yes, my opinions on '618 are --
16 on those topics are the same as for '256.

17 MR. SEAL: Okay. Thanks very much. I
18 don't have any other questions.

19 THE REPORTER: Robin, did you --

20 MR. SNADER: Nothing on cross.

21 VIDEOGRAPHER: Okay. This concludes
22 today's deposition. The time is 9:31 a.m. and we
23 are off the record.

24
25 (Deposition concluded at 9:31 a.m.)

1 STATE OF MICHIGAN)

2 COUNTY OF OAKLAND)

3

4 Certificate of Notary Public

5 I do hereby certify the witness, whose attached
6 testimony was taken in the above matter, was first duly
7 sworn to tell the truth; the testimony contained herein
8 was reduced to writing in the presence of the witness, by
9 means of stenography; afterwards transcribed; and is a
10 true and complete transcript of the testimony given. I
11 further certify that I am not connected by blood or
12 marriage with any of the parties, their attorneys or
13 agents, and that I am not interested directly, indirectly
14 or financially in the matter of controversy.

15 In witness whereof, I have hereunto set my hand
16 this day at Clarkston, Michigan, State of Michigan.

17 I hereby set my hand this day, May 15, 2021.

18

19

20

21

Karen Fortna

22

Karen Fortna, CRR/RMR/RPR/CSR-5067

23

Notary Public, Oakland County, Michigan

24

My Commission expires 4/30/2025

25

<hr/> Exhibits <hr/>		
Exhibit 1 8:4 11:9,11	175 17:14,16	774 11:7,8,16,24 12:4,19 13:8
Exhibit 2 8:5 13:13,14,20,22	185 39:8	<hr/> 8 <hr/>
Exhibit 3 8:6 16:5,8	<hr/> 2 <hr/>	8 11:16,17 45:9,11 47:21,24
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