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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LBT IP I LLC

Patent Owner

Inter Partes Review Case No. IPR2020-01190

US Patent No. 8,542,113

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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BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.

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LBT IP I LLC

Patent Owner

Inter Partes Review Case No. IPR2020-01191

US Patent No. 8,102,256

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

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. IPR2020-01192

US Patent No. 8,421,618

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**

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. IPR2020-01193

US Patent No. 8,421,619

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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I N D E X

W I T N E S S

E X H I B I T S

(Exhibit 9 not attached.)

Wednesday, May 12, 2021
Via Zoom videoconference
8:00 a.m. Pacific Time

* * *

(All participants appearing via Zoom videoconference.)

VIDEOGRAPHER: Good morning. We are now on the record at 8:00 a.m. on Wednesday, May 12, 2021. This begins the videotaped deposition of Scott Andrews, taken in the matter of Apple Inc. versus LBT IP I LLC.

My name is Bailey Wellman. I'm your remote videographer today. Our court reporter is Karen Fortna and we are both representing Fortz Legal Support.

As a courtesy, will everyone who is not speaking please mute your audio and remember to unmute your audio when you are ready to speak.

Counsel, will you please state your name and whom you represent, after which our court reporter will swear in the witness.

MR. SEAL: This is Brian Seal from Butzel Long on behalf of Patent Owner LBT IP I.

MR. SNADER: This is Robin Sander of Erise IP on behalf of Apple.

* * * *

SCOTT ANDREWS,

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

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

THE WITNESS: I get up early.

EXAMINATION

BY MR. SEAL:

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

A. That's correct.

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

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

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

Q. Okay. Anything that would have changed the substance of your testimony or these are just minor typographical errors?
A. Minor typographical errors.
MR. SEAL: Okay. Thank you.
Well, we'll dive right in with the first IPR petition, which is related to the '774 patent. So if you have a copy of the '774 patent, we'll go ahead and mark that as Exhibit 1.
(Marked for identification:
Deposition Exhibit No. 1.)
BY MR. SEAL:
Q. Do you have that available to you?
A. I have it in front of me, yes.
Q. Okay. I would like to direct you specifically to claim 8 of the '774 patent, which you can find in column 16. Within claim 8, there is a limitation or a phrase near lines 56 and 57 that reads, "a multitude of threshold values." Do you see that?
A. I see that.
Q. Did you have an opinion about the meaning of a multitude as one of ordinary skill in the art would have understood it at the time of invention of the '774 patent?
A. Well, I think there are a lot of meanings that

people might apply to it, but it really just means more than one.
Q. And is that the understanding that you applied in preparing your declaration regarding the '774 patent?
A. Yes, that's one.
Q. And what is the basis for that opinion?
A. Because multitude is based on multiple, and that means it is clearly more than one, could be any number, but something greater than a single level.
Q. Did you consult any dictionaries to come up with that understanding?
A. I don't recall. It just seemed self-evident that a multitude can be any number greater than one.
Q. Are you aware of any context in which the term multitude might mean a number necessarily greater than two, as one of ordinary skill in the art would have understood it at the time of invention of the '774 patent?
A. Well, I don't know that I'm aware of any applications where it would be required to be more than two. I was certainly aware of uses of the word when it is applied to, you know, wildlife in the Serengeti or something where you have millions of things, but it's clearly more than -- if I had

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

MR. SEAL: Okay. Thank you.

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

THE WITNESS: '113, you said?

MR. SEAL: Yes, sir.

THE REPORTER: Will that be Exhibit 2?

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

THE WITNESS: Last book I looked at.

MR. SEAL: It's always the last.

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

(Marked for identification:
Deposition Exhibit No. 2.)

BY MR. SEAL:

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

A. Yes, I do.

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

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

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

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

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

Q. Yes.

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

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

Sakamoto that would receive GPS signals from a satellite?
A. Let me think about that for a moment. I don't recall if Sakamoto also talks about receiving -- yeah, he has communication control unit 11.
Q. Okay.
A. And communication control unit 11, it doesn't receive directly -- the radio signals directly from the satellite, but it receives GPS information from the network, so it's able to -- if you look at Figure 1, communication control unit 11 is described as receiving application data or GPS satellite information and so that's information that is sent from satellites in the GPS signal, but it's also provided quite often through a cellular communications link.
Q. Okay. And that information, as I understand Sakamoto, that's information related to the positioning of the satellite?
A. Yes, it's known as ephemeris data, and that is basically information that can be used to determine the locations of the satellites in their orbits at any given time.
Q. Okay.
A. And that's necessary to be able to determine the

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

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

THE WITNESS: Okay.

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

BY MR. SEAL:

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

A. Okay.

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

A. I see that.

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

A. Yes, that's correct.

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

off the power to the GPS receiver; is that correct?
A. Sakamoto says that in order to reduce power, he turns off -- he says the positioning is stopped, position searching is stopped, I think. He specifically says that, in part, that is to maintain a lower power consumption.
MR. SEAL: And if you could now look at your declaration for the '113 patent, which we're going to mark as Exhibit 4.
THE WITNESS: Okay.
(Marked for identification:
Deposition Exhibit No. 4.)
BY MR. SEAL:
Q. And I want to direct you to paragraph 175.
A. Okay.
Q. In that first line in paragraph 175 of the declaration you state that, "I also note that a POSITA" -- which stands for person of ordinary skill in the art, I believe -- "would have understood Sakamoto as teaching turning off the power of the GPS receiver 10 in the stop-position searching mode." Do you see that?
A. I see that.
Q. And that's consistent with your statement a few moments ago that when moving into stop-position

mode, Sakamoto teaches cutting off power to GPS receiver 10, correct?

A. Yes, that's correct. He describes that in normal mode, it is essentially the power -- depending on the way it's been configured, the power either switches on and off regularly, so at some predefined interval the system comes on and measures the position, or when a user requests that a position be provided.

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

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

A. That's correct.

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

A. Okay.

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

the received communication signal above the first signal level." Do you see that?
A. I see that.
Q. And to be clear, the primary location tracking circuitry in that claim, as you understand it to be taught by Sakamoto, is GPS receiver 10?
A. That's correct.
Q. Okay. And your opinion with regard to claim 3 is that Sakamoto teaches this reactivating limitation by moving out of the stop-position mode into either what Sakamoto calls normal mode or high mode; is that correct?
A. Let me check something in my declaration here. Yeah, so I respond to this in paragraph 212 of my declaration.

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

Q. In that case, however, when Sakamoto turns on GPS receiver 10, it does not do so in response to a signal level, correct?
A. That's correct. He turns on -- and he may not actually turn on the entire GPS receiver. Remember, the GPS receiver has a radio that receives radio signals and it has a processor which consumes a great deal of power that actually processes those radio signals to determine a position.

All he has to do is detect the radio signal to determine whether the signal is now above that stop-position threshold, and if it is, he would then reactivate the entire receiver so that he would receive the GPS signals or be able to determine position from the GPS signals.
Q. So in that example, what is the trigger that Sakamoto uses to reactivate the GPS receiver when in stop-position mode?
A. The trigger would be that the level of the received GPS radio signals would be above the stop-positioning threshold.
Q. Sakamoto can't know that until it has already turned on the GPS receiver 10, correct?
A. Well, it has to at least turn on a portion of the

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

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

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

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

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

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

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

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

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

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

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

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

MR. SNADER: Objection. Form.

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

MR. SEAL: Sure.

BY MR. SEAL:
Q. We discussed earlier that your opinion, as stated in your declaration, was that when Sakamoto is in stop-position mode, it cuts off power to GPS receiver 10. Do you recall that testimony?
A. Yes.
Q. And is it your opinion now that when Sakamoto cuts off power to GPS receiver 10, it does not cut off power to all components of GPS receiver 10?
A. Well, Sakamoto doesn't describe how he determines that the signal level is above that threshold. It's possible that he periodically turns on the GPS receiver just briefly to check so that it's -- most of the time it's off and every now and then he turns it on and looks, and if it's not above the level, he turns it back off, or maybe even just turns those components that he needs to use to examine the signal, and it's possible that he might leave some of the components on, but probably not given that he's after minimum power consumption.
So presumably he would turn the GPS receiver off and then maybe once a minute, once every five minutes, would turn it back on briefly, check the power level, and if it was above that level, he would then transition to the normal mode

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

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

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

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

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

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

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

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

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

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

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

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

A. Yes.

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

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

MR. SNADER: Objection. Form.

THE WITNESS: Probably the same with Sakamoto.

BY MR. SEAL:

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

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

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

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

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

unit 14." Do you see that?
A. I see that.
Q. And this is describing a user's manual reactivation of the GPS functionality?
A. That's one of the embodiments of Sakamoto.
Q. Okay. And the next sentence reads, "The positioning control unit 13 that has received the position request turns on the power of the GPS receiver 10 via the GPS control unit 12 and the GPS receiver 10 starts the position detection process." Do you see that?
A. I see that. And this is the mode of operation of Sakamoto where the position is determined in response to a user requesting that position.

Sakamoto also talks about other operational modes where the position is automatically and cyclically determined not on request by a user, and that's what would happen in normal mode or in high sensitivity node.
Q. So in the sentence we just read from Sakamoto's paragraph 20, the GPS receiver is powered on in response to a position request, correct, not a signal level?

MR. SNADER: Objection. Form.

THE WITNESS: In paragraph 20, it's

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

BY MR. SEAL:

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

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

A. So what was your question again?

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

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

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

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

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

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

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

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

MR. SNADER: Objection. Form.

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

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

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

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

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

BY MR. SEAL:

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

MR. SNADER: Object to form.

THE WITNESS: Go ahead, Robin.

MR. SNADER: Objection. Form.

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

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

The '113 patent doesn't talk about that

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

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

THE WITNESS: I understand.

BY MR. SEAL:

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

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

Q. And what --

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

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

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

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

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

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

MR. SNADER: Objection. Form.

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

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

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

(Marked for identification:
Deposition Exhibit No. 5.)
BY MR. SEAL:
Q. And specifically, I would like to direct you to claim 10, which is in column 12. Claim 10 includes a limitation that reads, "A battery powered monitor configured to activate and deactivate at least one portion of the electronic tracking device to conserve battery power in response to a signal level of the received communication signal." Do you see that?
A. I see that.
Q. And your opinion, as reflected in your declaration, is that Sakamoto's GPS receiver 10 is the "at least one portion of the electronic tracking device" that is activated and deactivated in response to a signal level; is that correct? If it helps, I'm referring to paragraph 146 of your declaration.
A. I'm reading that right now. Thanks.
MR. SEAL: We'll go ahead and mark your declaration as Exhibit 6.
(Marked for identification:
Deposition Exhibit No. 6.)
THE WITNESS: Okay. So your question was is the portion that is being activated and

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

BY MR. SEAL:

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

A. Yes.

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

A. Okay.

Q. So --

A. What about it? Is there a question?

Q. There is. One second.
A. Okay. Sorry.
Q. That's all right.
You reference the threshold value K2 in that paragraph, and that value K2 represents the threshold to transition into normal mode; is that correct?
A. Yes, that's correct, from high sensitivity mode.
Q. From high sensitivity mode?
A. From high sensitivity mode or from stop-positioning mode. It's just that when you are above K2, you are -- from wherever you were when signal level is above K2, you go to normal mode.
Q. Okay. It is not your opinion, is it, that moving from high mode to normal mode activates the GPS receiver, is it?
A. No, because the GPS receiver is already active and being continuously used in high mode.
Q. Okay. So this limitation, if met by Sakamoto, would have to be met by moving from stop-position mode into normal mode at threshold K2, correct?
A. Yes, you can transition to -- if, in stop-position mode, you had a signal level below the level that you can receive or calculate positions, an example that I've used in thinking about this is you're in

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

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

A. I think so, yes.

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

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

BY MR. SEAL:

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

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

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

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

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

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

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

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

A. Yes.

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

A. Yes.

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

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

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

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

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

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

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

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

and deactivated.

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

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

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

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

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

Okay. 171, you said?

MR. SEAL: Yes.

BY MR. SEAL:

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

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

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

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

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

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

Q. Correct.

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

Q. A GPS signal level.

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

Q. Okay.

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

back off again.
Q. How does Kulach determine that the sensors are not needed as a prelude to deactivating them?
A. He says that, "While not in use, the apparatus can disable most of its sensors to conserve energy and enable a subset of the sensors, such as one or more accelerometers, only frequently enough to maintain context awareness."
So when there is not a lot of activity -- and Kulach is specifically directed to detecting motion of the user. So when the user is essentially stationary, not particularly active, you can power down most of the sensors and might periodically turn them on just to sort of see if there's been any change, and if there has, you would power them up again and understand the user is not moving.
MR. SEAL: Thank you.
I would now like you to take a look at the IPR petition itself for the '256 patent, which I'm going to mark -- I think we're at Exhibit 8. If you could turn to page 48 of the petition.
THE REPORTER: I'm sorry, Brian, I think Exhibit 8 was the Kulach reference, you said.
MR. SEAL: So this will be Exhibit 9.

I apologize.

(Marked for identification:
Deposition Exhibit No. 9.)

BY MR. SEAL:

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

A. Yes.

Q. Do you agree with that statement?

A. Let me read 39. Yes.

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

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

the power to the GPS receiver 10."
Q. Is it your understanding that Sakamoto automatically cuts off the power to GPS receiver 10 in that situation or is it done manually by the user?
MR. SNADER: Objection. Form.
THE WITNESS: Which user? Are you talking about searcher B?
MR. SEAL: Yes, position searcher B in paragraph 39 of Sakamoto.
THE WITNESS: That is listed as an alternative, that position searcher B might be notified of the battery warning level and would then transmit a position search request specifying the high sensitivity positioning mode or the normal sensitivity positioning mode at the discretion of position searcher B. So it would be automatic because position searcher B is described here as putting the receiver into either the normal or the high mode, not the power off mode.
BY MR. SEAL:
Q. But position searcher B, that's an individual; is that correct?
A. Yeah, it's some third party that wants to know the position of the user A.

Q. And position searcher B has the ability to cut off power to GPS receiver 10, correct, by using the man-machine interface?
A. He's not at the device, he's remote. So I think he has the ability to direct the device to be in normal or high sensitivity mode, but I don't believe he's described as being able to turn it off.
Q. So in other words, in your opinion, position searcher B does not have the ability to direct Sakamoto's device to enter into stop-position mode?
A. I don't recall if he can set that threshold or not. I think that that's by user A. But more specifically, in paragraph 39, the statement about position searcher B is unrelated to the statement, "After the remaining battery amount warning, the power consumption may be reduced by cutting off power to the GPS receiver," because -- I'll read it here -- the portion of this paragraph that talks about position searcher B says, "Alternatively, the position searcher B may be notified of the remaining battery amount warning and the terminal address corresponding to this warning" -- so which device it is -- "and the communication control unit 21 requested to transmit a position search message

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

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

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

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

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

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

A. I see that.

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

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

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

A. Might.

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

A. It's possible.

MR. SEAL: Okay. That's it for the '256. I notice we've been going for a little over an hour, if anybody needs to take a short break. I don't have a whole lot left.

THE WITNESS: Sure.
VIDEOGRAPHER: Off the record at 9:14 a.m.
(Whereupon a break was taken from 9:14 a.m. to 9:28 a.m.)
VIDEOGRAPHER: We are back on the record at 9:28 a.m.
BY MR. SEAL:
Q. Mr. Andrews, during the break, have you reconsidered any of your earlier testimony or had any changes in your opinion?
A. No.
MR. SEAL: Okay. I'm going to try to cut the remaining questions short a bit. I think I'm almost done, actually, but I just want to ask whether -- with regard to the '618 patent and your declaration there. And we'll go ahead and mark the '618 patent as Exhibit 10 and your declaration regarding the '618 patent as Exhibit 11.
(Marked for identification:
Deposition Exhibit Nos. 10-11.)
BY MR. SEAL:
Q. And I've marked those so that you can review them as much as you like in response to the question, but the question is whether your understanding of

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

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

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

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

THE REPORTER: Robin, did you --

MR. SNADER: Nothing on cross.

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

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

STATE OF MICHIGAN)

COUNTY OF OAKLAND)

Certificate of Notary Public

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

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

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

Karen Fortna

Karen Fortna, CRR/RMR/RPR/CSR-5067
Notary Public, Oakland County, Michigan
My Commission expires 4/30/2025

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