

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

3 GENERAL MOTORS, LLC,
4 Petitioner

5 v.

6 EDWARD H. NORTRUP
7 Patent owner

8 *****

9 ORAL DEPOSITION OF
10 MICHAEL BRAASCH, Ph.D.
11 FEBRUARY 1, 2024
12 (Reported Remotely)

13 *****

14 ORAL DEPOSITION OF MICHAEL BRAASCH, Ph.D.,
15 produced as a witness at the instance of the Patent Owner
16 and duly sworn, was taken in the above-styled and
17 -numbered cause on the 1st of February, 2024, from
18 9:00 a.m. to 11:55 a.m., before Melisa Duncan, CSR in and
19 for the State of Texas, reported remotely by machine
20 shorthand, in accordance with the Federal Rules of Civil
21 Procedure and agreement hereinafter set forth.

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I N D E X

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MICHAEL BRAASCH, Ph.D.

Examination by Mr. Bumgardner 4

Reporter's Certificate. 59

E X H I B I T S

NO. DESCRIPTION PAGE

Exhibit 1003. 7

Declaration of Michael Braasch, Ph.D.

Exhibit 1004. 20

U.S. Patent 2003/0055542 A1

Exhibit 1005. 24

U.S Patent 2002/0026278 A1

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

2 MICHAEL BRAASCH, Ph.D.,

3 having been first duly sworn, testified as follows:

4 EXAMINATION

5 MR. BUMGARDNER: Rick, before we get going,
6 I don't know -- there's some people online here. I don't
7 know if you want to announce their presence, since I
8 will just for the record note that patent owner Mr. Ed
9 Nortrup is on the call, as well as one of his attorneys
10 Stephen Driscoll.

11 MR. BISENIUS: I can't actually see who all
12 is on due to our video conference setup.

13 MR. BUMGARDNER: That's okay.

14 MR. BISENIUS: I believe Bonnie Shaw from
15 General Motors is going to join, but I don't know if she's
16 on right now.

17 MR. BUMGARDNER: Okay. That's fine.

18 EXAMINATION

19 BY MR. BUMGARDNER:

20 Q. So good morning, Dr. Braasch. My name is Barry
21 Bumgardner. Like I said, I represent Mr. Ed Nortrup, the
22 patent owner in this case. How are you doing this
23 morning?

24 A. Fine. Thank you. Good to meet you.

25 Q. Nice to meet you. So have you had your

1 deposition taken before, Dr. Braasch?

2 A. Yes, I have.

3 Q. How many times?

4 A. A couple dozen. Don't remember exactly.

5 Q. So you're familiar with the rules, but I'll go
6 ahead and state them. One is, if you will, let me finish
7 asking a question before you start to answer; and,
8 likewise, I will let you answer before I ask the next
9 question. That will help Ms. Duncan, our court reporter,
10 as it's hard to take down two conversations at once. So
11 can we have agreement on that?

12 A. Yes.

13 Q. And just for your information, I like to break
14 about once every hour; and if you need to break sooner
15 please let me know. But I would ask if there's a question
16 pending that you go ahead and answer that question before
17 we break. Is that okay with you?

18 A. That will be fine.

19 Q. So, Dr. Braasch, let's start with your CV. And
20 again, I think for the record, Dr. Braasch, you have some
21 papers in front of you. Could you tell us what those
22 papers are that are in front of you at the moment?

23 A. I have the '028 patent. I have a copy of my
24 declaration. I have a copy of Feldman reference and
25 Knockeart reference, the Simske reference, the Whitsell

1 reference, the Boies reference; the Peterson reference;
2 the Craine reference, the Bearing Straight reference,
3 location systems reference, Fan reference, Geiger
4 reference, Chern reference, Wilson reference, Chaskar
5 reference, a copy of the patent owner's preliminary
6 response, a copy of the institution decision, and a copy
7 of the original petition.

8 Q. Are those copies and references that you just
9 mentioned, do they have any notes in them or other
10 annotations; or are they the clean version that would
11 appear as if somebody downloaded those documents from the
12 PTAB website?

13 A. They are clean. There are no notes on them.

14 Q. And can I assume that you don't have any other
15 notes in front of you? Again, not being there live, it's
16 hard to see, but I assume you do not. Can you confirm
17 that?

18 A. That is correct.

19 Q. Before we -- I was about to ask you about your
20 declaration, Dr. Braasch; but before we get into that,
21 let's talk about what you did to prepare for this
22 deposition. Can you describe if you met with counsel?
23 And, again, I don't want to know what you discussed. But
24 can you -- did you meet with counsel in preparation of
25 this deposition?

1 A. Yes, I did.

2 Q. For how long did you meet?

3 A. About six hours.

4 Q. When did this meeting occur?

5 A. Yesterday.

6 Q. Are you being compensated for your work here
7 today, Dr. Braasch?

8 A. Yes, I am.

9 Q. What is your hourly rate?

10 A. 500.

11 Q. And about how many hours have you spent on this
12 matter in total - and when I say "this matter," this
13 petition - as far as reviewing your declaration, drafting
14 your declaration, and preparing for this deposition?

15 A. I don't remember the exact number, but it's
16 certainly several dozen hours.

17 Q. Would you estimate less than a hundred?

18 A. Yes, I'm pretty sure it was less than a hundred.

19 Q. So let's look at your declaration, Dr. Braasch.
20 And that has been previously marked as Exhibit 1003. I'll
21 refer to it as the "Braasch declaration" or "your
22 declaration." And I want to go over your -- your CV if we
23 can, Dr. Braasch.

24 A. That'll be fine.

25 Q. So let's -- again, I have the CV. I can read

1 it. But just for the purposes of this deposition, could
2 you summarize your education, experience starting with
3 your undergraduate degree and then proceeding through your
4 Ph.D. And any other classroom studies you -- you've
5 engaged in?

6 A. Yes. I received my bachelor's degree in
7 electrical engineering from Ohio University in 1988. I
8 received my master's degree in electrical engineering from
9 Ohio University in 1989. And I received my Ph.D. in
10 electrical engineering from Ohio University in 1992.

11 Q. Is that the end of your college studies? Did
12 that end with your Ph.D.?

13 A. That is correct.

14 Q. With respect to your bachelor's degree,
15 Dr. Braasch, I understand a bachelor degree in engineering
16 is fairly broad. I have a degree in electrical
17 engineering as well, an undergraduate degree. Did you
18 specialize in anything, or was it more just general
19 electrical engineering concepts?

20 A. My bachelor's program was not specialized in any
21 particular area.

22 Q. Then, I think -- but when -- typically a
23 master's degree and Ph.D. -- in my experience, people tend
24 to start specializing in those. So was there one field or
25 several fields of study that you concentrated on for your

1 master's and doctorate degrees?

2 A. Yes, there were.

3 Q. What were those fields?

4 A. Both of -- my master's and Ph.D. focus was in
5 navigation systems.

6 Q. For the record, Dr. Braasch, when you say
7 "navigation system," what do you mean by "navigation
8 system"?

9 A. In the context of my studies, the term is used
10 to refer to technology and systems that enable the
11 determination of position and velocity, orientation, time
12 of a vehicle or -- or unit, something of that nature.

13 Q. Were these navigation systems that you were
14 studying, were they car-based navigation systems? I see
15 on your CV that you have spent some time in aeronautical
16 navigation systems. So was there one area that you were
17 looking at navigation systems as opposed to another?

18 A. Yes. The focus of my graduate research was in
19 the application of navigation systems to aircraft
20 applications. However, certainly, the -- some -- some
21 technologies such as GPS, for example, is applicable in
22 many different domains; but my -- my research -- my
23 graduate research was focused on aircraft applications.

24 Q. And these navigation systems that you were
25 studying were -- I think -- let me back up and ask a

1 question.

2 When I think of navigation today, in 2024, I
3 think of global positioning system, GPS. Was -- was that
4 the case with -- with aeronautical navigation systems?
5 Were they all GPS based, or were there other methods by
6 which aircraft could navigate that you studied in these
7 navigation systems?

8 A. There were a variety of technologies and still
9 are even to this day, and GPS was one of them. But there
10 certainly were other technologies and, as I said, there
11 still are.

12 Q. When did GPS come -- come on the stage and
13 become available for civilian use, Dr. Braasch?

14 A. The earliest civilian applications of GPS date
15 back to the early 1980s.

16 Q. So by the time you were studying these -- these
17 navigation systems, at least some of them were making use
18 of GPS technology?

19 A. Yes. There were -- there were a variety of
20 civilian applications ongoing when I was studying my
21 graduate program.

22 Q. Let's turn now to -- moving away from education
23 to what I'll call "work experience." So, again, from your
24 CV I see that you -- it looks like you spent a fair bit of
25 time in academia. So can you just describe what your

1 teaching experience or other industry experience is,
2 again, just during the same time period starting, say,
3 after your undergraduate degree and proceeding forward in
4 time?

5 A. Yes. When I finished my master's degree, I was
6 hired by the university as a part-time research engineer.
7 And I was part time while I was pursuing my Ph.D. After I
8 finished my coursework, that position was converted to a
9 full-time research engineer position. And after a couple
10 of years I was selected as a faculty member. I joined the
11 Ohio University faculty in 1994. And for the last 30
12 years, I have been a professor of electrical
13 engineering -- well, assistant professor and then
14 associate professor and then a full professor in
15 electrical engineering.

16 Q. Let's say for the last five years, how much of
17 your time does -- does [sic] your teaching duties take up,
18 as opposed to your consulting activities?

19 A. Typically teaching represents 40 percent of
20 my -- has represented 40 percent of my workload.

21 Q. Is that true going back in time to the early
22 2000s? If you could, just help me understand where you've
23 been spending your professional time.

24 A. Sure. Yes. For basically the entirety of my
25 time as a professor, teaching was 40 percent of my time;

1 research -- sponsored research at the university
2 constituted approximately another 40 percent of my time;
3 and, then, the remaining 20 percent consisted of various
4 kinds of service duties to the university and to
5 professional organizations.

6 Q. When did you get into what I'll call "litigation
7 consulting," where you began serving as an expert witness
8 in various matters?

9 A. I started expert witness work in early 2007.

10 Q. Going back to your teaching/research activities,
11 Dr. Braasch, what type of research did you do? And if it
12 varied over the years, then, feel free to discuss that.
13 But, you know, what were you researching? What was the
14 subject of your research?

15 A. Well, as we described earlier, a lot of that is
16 summarized in -- in my CV. But the -- in the middle --
17 starting in the mid 1990s, my research was focused pretty
18 heavily on GPS-receiver design and architecture issues.
19 In the later 1990s -- well, both mid and the later 1990s,
20 I had research with Boeing Commercial aircraft group on
21 GPS-implementation issues in their aircraft. And in the
22 early 2000s, I continued work in that area. I also was
23 doing work in characterizing the effects of certain kinds
24 of error sources in GPS, and researching techniques to
25 reduce or minimize the impact of -- of those error

1 sources. That carries us up through the mid 2000s.

2 Q. And if you could give a short answer -- I don't
3 know if it's possible, Dr. Braasch. But in designing
4 receivers -- GPS receivers that are meant to be used on
5 airplanes, what -- what special design considerations may
6 be involved in those types of receivers that might not be
7 found in a GPS receiver designed for, I guess, terrestrial
8 use, say in a car or a cell phone?

9 A. I -- I can answer now that -- I would like to
10 first state that the receiver design work that I was
11 engaged in in the mid '90s and late '90s was not
12 specifically focused on aircraft applications. It was
13 broader in nature.

14 But the answer to your question is that GPS
15 receivers that are designed for aircraft applications are
16 required to meet a number of -- a number of
17 specifications, such as the ability to deal with the
18 environment in the aircraft in terms of hardness against,
19 you know, lightning strikes and things of that nature.
20 The receiver itself, in order to support aircraft
21 applications, has to go through a very rigorous
22 certification exercise in order to demonstrate that the
23 design is safe for its intended function. And there's a
24 lot of -- there's a lot of testing and certification that
25 are required for receivers that are installed in aircraft

1 that wouldn't necessarily be required for applications
2 that are outside of an aircraft.

3 Q. Turning to the courses you have taught over the
4 years - again, I understand it's -- we're talking
5 decades - are the -- do the courses you teach at least --
6 I mean -- let me just ask, what types of courses have you
7 taught, if you can summarize that?

8 A. Sure. The -- the courses that I have taught are
9 all listed in my CV. I have taught basic introductory
10 courses to electrical engineering. I've taught courses in
11 mathematics that are related to electrical engineering.
12 I've taught courses -- undergraduate courses in
13 electromagnetic theory and communication theory and signal
14 processing theory. I also taught senior design courses in
15 the undergraduate program. And, then, at the graduate
16 level, I have taught courses in inertial navigation and
17 satellite navigation, navigation receiver design,
18 integrated navigation courses. I've also taught courses
19 in navigation at the dual level, the senior undergraduate
20 and beginning graduate level in navigation systems.

21 Q. Excluding your -- your expert witness work,
22 Dr. Braasch, what work, be it in studies or teaching or
23 research, have you done in the area of cell phones?

24 A. I have not conducted any research on cell phones
25 outside of the expert witness group -- sorry -- expert

1 witness support work. However, I certainly have kept up
2 with the technology in that area through my attendance at
3 conferences and -- and trade journals and things of that
4 nature.

5 Q. Have you spent any time in your -- again,
6 excluding your expert witness work, Dr. Braasch -- spent
7 any time researching or studying data privacy concerns as
8 it relates to cell phone and user data?

9 A. Outside of my expert witness work, I have not
10 done any research specifically in privacy issues.
11 However, again, I've kept up with this through conference
12 attendance and trade journals and things of that nature.

13 Q. And I suspect that we'll get a similar answer,
14 but let me ask. With respect to navigation applications
15 that might be employed on a cell phone as opposed to a car
16 or an airplane, have you spent any time researching or
17 studying navigation software designed to be implemented on
18 a cell phone?

19 A. I don't remember the time frame exactly. It's
20 probably been -- it was probably the early 2000s. But I
21 was directing a student research group that was working on
22 navigation. At the time it was -- and I can't remember
23 the model exactly. I think it may have been a Palm
24 Pilot 5. I -- I can't remember the details now. But
25 we -- we were looking at implementing certain navigation

1 features on this handheld device for somebody -- a
2 pedestrian using it for navigation purposes. So I -- I
3 was involved in that in the early 2000s. I think outside
4 of my expert witness work, I believe that's the only item
5 I can remember off the top of my head.

6 Q. Staying with your declaration, Dr. Braasch, but
7 turning to page 12 of your declaration. I have some
8 questions about paragraph 19, which is where you opine on
9 a person of ordinary skill in the art. Just let me know
10 when you get there.

11 A. Okay. I'm there.

12 Q. So I'm summarizing, but you say a person of
13 ordinary skill in the art would have about two to five
14 years of work experience and/or research experience in the
15 field of navigation systems. Do you see that,
16 Dr. Braasch?

17 A. I see I state ". . . field of electrical
18 engineering and its subfield of navigation systems."

19 Q. So for these navigation systems, would this
20 person of ordinary skill in the art, would it be
21 navigation systems generally that they would have
22 experience in; would it be automotive navigation systems?
23 Can -- would you care to be more specific, or just any
24 navigation system?

25 A. My intention in writing this was general

1 knowledge in navigation. Not a -- not a specific area of
2 focus, but understanding of the technologies that, you
3 know, provide a position certainly and velocity of a unit.

4 Q. But what you don't mention in here in paragraph
5 19 of your declaration is that a person of ordinary skill
6 would have any experience in cell phones or cell phone
7 data privacy; is that correct?

8 A. Yes. Outside of their -- their work just
9 generally in electrical engineering, I'm not specifically
10 citing any particular expertise in -- in cell phone
11 applications.

12 Q. And you stand by that today, right, Dr. Braasch?
13 I mean, you're not -- you don't feel like you made an
14 error there?

15 A. I'm not changing my -- my statements here.
16 That's correct.

17 Q. You mentioned something, Dr. Braasch, that this
18 is what you wrote. Let me just ask generally about your
19 declaration. My question is, who -- who wrote this
20 declaration? Did you write it or did General Motors'
21 attorneys write this declaration?

22 A. My declaration was prepared in collaboration
23 with counsel. We discussed the matter. They asked me for
24 my opinions. We discussed the matter. I -- I drafted
25 some portions of the declaration; counsel drafted other

1 portions that were offered for my review. And in
2 collaboration, in -- this declaration was prepared at
3 the -- for my review, editing, and completion.

4 Q. What portions did you write and what portions
5 did counsel write?

6 A. Sitting here today I don't remember exactly
7 which portions were -- were drafted on either side. It --
8 I know that I drafted some. They drafted some in the wake
9 of -- of discussions in which my -- my opinions were
10 discussed. And I can't -- can't tell you exactly which
11 ones. I recall that -- for example, the section on Legal
12 Principles, Anticipation, Obviousness, I know for sure
13 that that was -- those sections were provided to me by
14 counsel.

15 Q. In preparing your declaration, Dr. Braasch, did
16 you conduct yourself a prior art study to search for the
17 references like Knockeart and Feldman that are at issue in
18 this petition, or were those references provided to you?

19 A. Some of the references were offered to me for my
20 consideration. Some of the references I -- I found
21 myself; some of the references I was aware of from prior
22 cases. And so it was a combination.

23 Q. Do you recall which references you found or that
24 you were aware of?

25 A. I don't remember precisely. I -- I do -- for

1 example, I know for sure that Knockeart was a reference
2 that I -- I had known for many years.

3 Q. How had you come to know about Knockeart,
4 Dr. Braasch?

5 A. It was from a prior patent case.

6 Q. Do you recall which patent case?

7 A. I don't. It's been too long now.

8 Q. Do you recall any -- the parties, anything like
9 that?

10 A. If I'm remembering correctly, I believe it was a
11 case involving Apple.

12 Q. And would that case have been listed on your CV?

13 A. It should be.

14 Q. Okay. And I'm not trying to make this a memory
15 test, Dr. Braasch. So just if you can do your best,
16 that's all I can ask for. So -- I understand I'm going
17 back in time a little bit.

18 How about Feldman? Did you know about
19 Feldman coming into this matter -- and let me ask that.
20 Did you know Feldman coming into this engagement,
21 Dr. Braasch?

22 A. I don't think I was aware of Feldman prior to
23 this matter.

24 MR. BUMGARDNER: And for the record,
25 "Knockeart" is spelled K-n-o-c-k-e-a-r-t, and that is

1 Exhibit 1004. And "Feldman" is spelled like it sounds and
2 that is Exhibit 10005.

3 THE WITNESS: Correct.

4 Q. (BY MR. BUMGARDNER) Let's turn to the Knockeart
5 reference, Dr. Braasch. And, again, that's Exhibit 1004.

6 A. Okay. I have it.

7 Q. If I could ask you to turn to Figure 1.

8 A. Okay.

9 Q. So we see here a series of cars -- figures of
10 cars labeled 100. And within each of the cars, shown
11 inside of it, is "In-Vehicle System 105." Do you see
12 that, Dr. Braasch?

13 A. I do.

14 Q. And let's see if we can agree on a few things.
15 I suspect we'll disagree on things later today. But this
16 in-vehicle system, is this the navigation system that's
17 the subject of a large portion of Knockeart?

18 A. Knockeart certainly addresses this in-vehicle
19 system.

20 Q. And just for your -- for your information, if
21 you turn to Figure 2, Dr. Braasch. There in Figure 2 of
22 Knockeart is a detailed block diagram of this In-Vehicle
23 System 105. Do you see that, Dr. Braasch?

24 A. Yes, I do.

25 Q. And here we see a GPS receiver. We see a

1 processor, a display. So, again, I just want to kind of
2 level set things. This is the -- the in-vehicle
3 navigation system that Knockeart refers to later in the
4 disclosure, correct? And if you need to look at
5 Knockeart, Dr. Braasch, feel free to do so.

6 A. Figure 2 is -- is illustrating one embodiment of
7 the in-vehicle system that was described in Knockeart.

8 Q. And would you agree with me, Dr. Braasch, that
9 this In-Vehicle System 105 shown in Figure 2, that this
10 system is meant to be permanently installed in the car, as
11 opposed to being some system that a owner of the car could
12 take with him when he leaves the car?

13 A. This particular embodiment has -- has features
14 that would certainly be -- be amenable to in-vehicle
15 installation that certainly would be -- would be one way
16 to -- to implement the embodiment.

17 Q. Are there other embodiments in Knockeart that
18 would indicate something different, Dr. Braasch?

19 A. Without going through my report again, I don't
20 remember off the top of my head the other disclosures in
21 Knockeart. If there's -- there may be another example. I
22 don't remember right off the top of my head.

23 Q. But you don't recall another example as we sit
24 here right now, do you?

25 A. At this moment, I do not recall.

1 Q. So in your study of in-vehicle systems like --
2 like what's shown in Figure 2 - and I say "your study,"
3 your experience with these systems like this - where would
4 the antenna to such a system typically be located,
5 Dr. Braasch? And by that, would the antenna be located
6 inside the car, under the dash; or would it typically be
7 located on top of the car?

8 A. In examples for particular products where the
9 system is -- is mounted in the vehicle itself as part of
10 the vehicle, in those examples it would be conventional to
11 have an antenna on an outside portion of the vehicle,
12 perhaps on or near the roof in -- in those examples. That
13 would be one way that the antenna would be mounted.

14 Q. Are there technical reasons to mount the antenna
15 in that location as opposed to some other location on the
16 car?

17 A. Yes, there are.

18 Q. What are those reasons that come to mind?

19 A. One of the reasons that an antenna mounted on
20 the roof of the car would be to reduce the effects of
21 blockage so that the antenna is able to have a better view
22 of the sky.

23 Q. And that blockage -- the blockage you're
24 referring to would be the blockage if the antenna were
25 located, say, underneath the roof in the interior of the

1 car; is that correct?

2 A. Yes. That is correct.

3 Q. Does the same hold true on an airplane; for
4 example, that the GPS antenna is typically located on the
5 exterior of the aircraft as opposed to inside the
6 airplane?

7 A. Yes. That is correct.

8 Q. Can we agree, Dr. Braasch, that in Knockeart
9 there's no discussion of a cell phone? And when I say
10 "cell phone," in this context I'm talking about a cell
11 phone that can fit in somebody's pocket or that was
12 portable, that could be taken with the driver of the car
13 when they got out of the car, like we would think of an
14 iPhone today.

15 A. The particular embodiments that are shown, for
16 example, in Figure 2 would indicate an in-vehicle
17 mounting. However, as I've opined in my declaration, I
18 don't think the teachings are restricted to that.

19 Q. What -- I'm just asking what Knockeart
20 discloses. So we can talk about the teachings, what a
21 person of ordinary skill would take away from Knockeart.
22 But I'm asking for -- are you aware of any disclosure --
23 any textual disclosure in Knockeart that discusses in any
24 way a portable cell phone, an example being an Apple
25 iPhone? And if there is such a disclosure, please point

1 me to it.

2 A. Sitting here, I don't recall a particular
3 disclosure in Knockeart of a separate handheld mobile
4 phone. Sitting here at this moment, I'm not recalling
5 that in Knockeart.

6 Q. Give me one second, Dr. Braasch.

7 A. Certainly.

8 Q. I'm going to be turning now to the Feldman
9 reference, which is Exhibit 1005. So if you want to get
10 that handy, Dr. Braasch.

11 A. Okay. I have it ready.

12 Q. So I think we can agree that -- at least in my
13 opinion, unlike Knockeart, Feldman does describe cellular
14 phones that people would carry on their persons. Do you
15 agree with that, Dr. Braasch?

16 A. Yes, I do.

17 Q. And that Feldman provides some description about
18 how those cell phones can be used to develop traffic data.
19 Do you agree with that as well, Dr. Braasch?

20 A. Yes, I do.

21 Q. So if you could turn to paragraph 60 in Feldman,
22 please, Dr. Braasch.

23 A. Okay. I'm there.

24 Q. So this paragraph -- and I'm summarizing again.
25 It discusses how data is acquired from cell phones. And

1 skipping down a sentence or two it says, "The operation of
2 cellular phones provokes a large amount of administrative
3 and control messages that flow in the cellular phone
4 network whenever cellular events occur." [As read]?

5 Do you see that, Dr. Braasch?

6 A. Yes, I do.

7 Q. And, then, I think the next sentence provides
8 some examples of this. Do you see that, Dr. Braasch?

9 A. Yes, I do.

10 Q. Then the last sentence of paragraph 60 of
11 Feldman, which is Exhibit 1005, states, "The server of the
12 cellular phone network monitors these messages and
13 intercepts those that indicate movement of cellular phone
14 holders, for example phones whose cell handover rate can
15 point to a vehicle speed."

16 Do you see that, Dr. Braasch?

17 A. Yes, I do.

18 Q. Can you explain how -- how a server would
19 compute vehicle speed by looking at a handover rate as
20 discussed in Feldman?

21 A. So the disclosure in paragraph 60 talks about
22 pointing to vehicle speed, not computing vehicle speed.
23 The point of the disclosure here is that if -- if there is
24 a rapid handoff from cell to cell, then that's an
25 indication that the -- that the vehicle is -- is moving

1 and not sitting still.

2 Q. So in a cellular network, like the one that's
3 being discussed, there's the concept of cells, correct,
4 Dr. Braasch?

5 A. That's correct.

6 Q. And these cells are base stations, the area
7 served by a base station. And it's my understanding - and
8 please let me know if I'm wrong - that a moving phone will
9 alternately connect one antenna or base station and then,
10 as it moves away from that base station but closer to
11 another base station, it will begin communicating with the
12 new, closer base station and disconnect from the old base
13 station. Is that what Feldman's talking about in the
14 sense of handover, handing over a cellular phone?

15 A. Yes, I believe that's correct.

16 Q. And so what I get from paragraph 60 is if
17 handovers -- you can -- the cellular network knows where
18 these base stations are. It knows which base station the
19 phone is connected to. And as the phone moves from one
20 base station to another, there can be some computation
21 done as to the velocity of the -- of phone that's being
22 handed over, the velocity as well as the direction of
23 travel because you know which base station the phone is
24 alternately connecting and disconnecting from. Is that a
25 fair summary, or would you state it differently,

1 Dr. Braasch?

2 A. The movement of the vehicle as determined by the
3 handover from base station to base station can be used to
4 determine that the -- that the phone is -- is moving. But
5 I would note that elsewhere in Feldman, it talks also
6 about the -- the use of GPS for computing things like
7 position and velocity.

8 Q. So we'll talk about that in just a minute.
9 Sticking with paragraph 60 of Feldman, it lists a series
10 of kind of cellular events. I guess I'll call them
11 "initiation of a call," "completion of a call,"
12 "transmission of a SMS message." It says the server
13 monitors these messages and intercepts those that indicate
14 movement. So I guess -- I understand how the network
15 could determine movement by a phone being handed over from
16 one cell to another. But how would the sending of an SMS
17 message, for example, indicate movement as discussed there
18 in paragraph 60 of Feldman?

19 A. It's in the same way as -- as voice
20 communication, whether it's -- whether it's voice or
21 whether it's data. There's still a serving -- I'm
22 sorry -- serving base station. And -- and for the -- as
23 we discussed earlier, as the phone is moving, then it'll
24 be handed off from base station to base station regardless
25 of whether there's a voice call or there's data being

1 transmitted. It's all -- it all has to be going through
2 whatever the current serving base station is.

3 Q. So it's -- the way movement would be determined
4 would be looking at which base station the phone is
5 communicating with at a particular time and how the
6 serving base station may change over time. That would
7 indicate some sort of movement. Is that what you're
8 saying, Dr. Braasch?

9 A. I'm saying that as the -- in this -- in this
10 particular disclosure in paragraph 60, what's being
11 discussed is as the -- as the phone is moving and there's
12 a handover from base station to base station as the -- as
13 the phone is moving through the cells, then that -- that
14 handoff -- the rate of that handoff would give an
15 indication of movement.

16 Q. If a phone is communicating with -- with a --
17 just a particular serving base station - so the phone is
18 not being handed off, but say maybe I'm driving in
19 concentric circles around a particular base station and
20 not changing the base station I'm communicating with - is
21 there any way - and it's discussed in paragraph 60 of
22 knock -- of Feldman - for the network to determine that
23 the phone is moving?

24 A. The particular disclosure in 60 is only
25 referring to detection of movement by base station

1 handovers. And so in the example that you have just
2 described, where a phone is moving but it's staying in --
3 in one particular cell and near one particular base
4 station, then this particular disclosure in Feldman
5 would -- would not indicate any movements if there was no
6 handover.

7 Q. Setting aside GPS in Feldman, which we will talk
8 about, are there other disclosures in Feldman that would
9 allow the network to determine the movement of a phone
10 just by looking at the messages a phone may be sending or
11 the data a phone may be sending to a particular base
12 station?

13 A. Off the top of my head sitting here today, I
14 don't recall if Feldman recites any other techniques.
15 There's certainly -- there certainly were techniques at
16 this time frame of using cell networks in order to
17 determine position using other techniques. So I know
18 those techniques existed. It's -- whether or not they are
19 referred to in -- in this -- in Feldman, I can't remember
20 off the top of my head.

21 MR. BUMGARDNER: We've been going about an
22 hour, Dr. Braasch. Is this a convenient time to take a
23 ten-minute break?

24 THE WITNESS: That would be great. Thank
25 you.

1 (Recess from 10:00 a.m. to 10:13 a.m.)

2 Q. (BY MR. BUMGARDNER) Dr. Braasch, so we're now
3 back on the record. Just -- I'm curious. Where -- where
4 are you physically located today, Dr. Braasch?

5 A. I'm in Washington, D.C.

6 Q. Okay. I thought I recognized Dupont Circle on
7 the video here as being D.C., so . . .

8 Okay. And are you in Rick's office? Is
9 that where you are? So you're in a conference room?

10 A. I am in a conference room at the Fish &
11 Richardson office here in Washington, D.C.

12 Q. Very good.

13 So we were discussing Feldman. The Feldman
14 reference, which is again, for the record, Exhibit 1005.
15 We were discussing this concept of a cell. Do you have
16 any knowledge, Dr. Braasch, about how big an area is
17 covered by a typical cell? And I know it varies based on
18 urban environments or more rural environments, and the
19 size of the cell can vary. But just say in a medium-sized
20 town, something smaller Washington, D.C., what size of
21 area would a typical cell cover?

22 A. As you indicated in your question, of course,
23 the size can vary tremendously. But for -- as you
24 indicated a medium-sized town, cell area could -- could be
25 on the order of -- of a few square miles.

1 Q. And we were talking about this concept of
2 handover. How would the system in Feldman -- again,
3 monitoring these handovers, how -- how would it
4 distinguish, if it could at all, a car slowly moving from
5 one -- one cell to another - say it's stuck in traffic
6 jam - as compared to a person walking down the sidewalk of
7 the same street at about the same pace that traffic was
8 moving?

9 A. This section of -- of Feldman is, you know,
10 giving the example of -- of detecting movement by a
11 handover. And as you have indicated, you can certainly
12 construct a scenario where the vehicle was moving slowly
13 or staying within a particular cell and handover is not
14 occurring. And in that example, then, this particular
15 disclosure of -- of indicating movement by handover, then,
16 wouldn't -- wouldn't indicate movement in those particular
17 examples.

18 Q. And Feldman generally describes that its -- you
19 have to -- it's hard to determine looking at the cell
20 phones that it's using to collect traffic information. I
21 mean, which phones are actually in a car and which ones
22 are not; does it not? I don't have a specific section of
23 Feldman to point to, although I'm sure I could find it.
24 But would you agree with me that Feldman recognizes that,
25 hey, it's a problem, when you look at a phones like this,

1 to figure out which ones are in cars and which ones are
2 not?

3 A. In the particular embodiments that Feldman is
4 talking about, there is teaching about wanting to
5 distinguish between phones that are -- that are actually
6 moving in vehicles versus pedestrian. That certainly
7 is -- is contained within the Feldman disclosure.

8 Q. And with respect to some of these messages
9 described in paragraph 60 -- and I'm looking at -- let's
10 see. Cell handover, I believe there's mention of control
11 messages. Would the -- the operator, whoever possesses
12 the phone, the owner of phone, can they control the phone
13 sending and receiving of control messages to and from the
14 cellular network?

15 A. Only insofar as they could stop it by turning
16 the phone off. But in terms of the actual protocol of the
17 way the phone is interacting with the base stations, I
18 don't believe -- off the top of my head here, I don't
19 believe the user has -- has control over those control
20 messages.

21 Q. I -- somewhat like you, I did not study cell
22 phones in school. And I'm not trying to say you did or
23 did not. You testified to that earlier. But I do have a
24 lot of litigation experience with cell phones. And it
25 seems like there's always some sort of control messages

1 going back and forth, whether it's reporting channel
2 quality, whether it's reporting received signal strength,
3 whether it's looking at timing and synchronization
4 information; that phones and base stations in my
5 experience are almost continuously exchanging messages
6 that are invisible to the user of the phone. Would you
7 agree with that, Dr. Braasch, or characterize what I said
8 in a different way?

9 A. I would -- I would largely agree with you. I
10 think you said "continuous." I wouldn't say it was
11 continuous, but certainly there are messages that are
12 being exchanged in the normal course of operation.

13 Q. And just sort of outside the consciousness of a
14 typical user, right, that these messages are invisible and
15 they're -- largely cannot be controlled by the user except
16 if they turn the phone off, as you said?

17 A. They're visible to the extent, you know, the
18 signal -- the signal strength will be indicated on the
19 phone and -- and you can see the number of bars going up
20 or down. But -- but other than that -- again, as I said,
21 the user isn't controlling the -- those control messages.

22 Q. So turning to a different topic and moving away
23 from paragraph 60 of Feldman, Dr. Braasch. Does Feldman
24 ever describe a cell phone being a recipient of traffic
25 information in implementing a navigation-type program or

1 application on the cell phone itself?

2 A. For example, paragraph 54 of my declaration, I
3 point to Feldman paragraph 99, for example, where it talks
4 about the software engine is capable of "finding optimal
5 routes between given points, estimating travel times and
6 initiating alerts and route alterations when unexpected
7 traffic events change the vehicular traffic situation
8 picture."

9 Q. This is paragraph what of your report,
10 Dr. Braasch?

11 A. Paragraph 54 in my declaration.

12 Q. So I see that this -- that paragraph -- or it
13 may be paragraph 99 of Feldman is referring to Figure 1.
14 And Figure 1 talks about it's a method and system for
15 modeling and processing vehicular traffic data. Where is
16 it disclosed that -- that this traffic data or this
17 modeling or anything like that takes place on the cellular
18 phone itself? I understand there's a server in Feldman
19 that's doing traffic modeling and things like that. But
20 where does that data -- where is the disclosure in Feldman
21 that that data or that information is provided to the
22 phone and that the phone can perform navigation functions?
23 I would note, Dr. Braasch, that paragraph 65 talks about
24 these processing steps, which refers to previous
25 processing steps take place in a server that's connected

1 to the mobile sensor network.

2 A. Sitting here at this moment, I am not finding a
3 specific reference that I can point to. But what I would
4 state is that paragraph 8 of Feldman, it talks about --
5 maybe two-thirds of the way down the paragraph, it talks
6 about "Establishing and maintaining various communications
7 of the mobile sensors or electronic devices, the
8 computerized central traffic data and information handling
9 system, and vehicular end-users, are also performed by
10 mobile wireless networks or systems, such as cellular
11 telephone mobile wireless communications networks or
12 systems, for example, involving the internet."

13 And if we look at paragraph 17 where it
14 states in the first sentence, "The present invention
15 relates to a method and system for modeling and processing
16 vehicular traffic data and information, and using the
17 modeled and processed vehicular traffic data and
18 information for providing a variety of vehicular
19 traffic-related service applications to end users." And
20 that's also indicated in Figure 1 with the applications on
21 the right side designated No. 7.

22 So given this disclosure, then the
23 recipients of the traffic data, as I was indicating
24 earlier would -- could certainly be the cell phones that
25 are described in the -- in the specification.

1 Q. As we sit here today, Dr. Braasch, are you aware
2 of a cell phone that was available in 2004 or below that
3 could receive this traffic information and provide
4 navigation services?

5 A. Sitting here today, I'm not recalling a
6 particular product of that time frame.

7 Q. Do you have any recollection of a application or
8 app that was available for any cell phone in 2004 that
9 could provide such services?

10 A. There may have been a later Palm Pilot that had
11 navigation and cell capability. I'm not recalling off the
12 top of my head.

13 Q. If you go to paragraph 53 of Feldman,
14 Dr. Braasch, I have a question about that.

15 A. Okay. I'm there.

16 Q. So I'm in the right-hand column. So I think
17 paragraph 53 splits both columns. So on the right-hand
18 column, there's a sentence -- I think it's the second full
19 sentence -- and, again, this is on page 6 of Feldman in
20 paragraph 53. It says, "A growing number of mobile
21 wireless communication devices are increasingly being
22 installed or carried in vehicles, and are capable of
23 transmitting vehicular locations to a computerized central
24 data and information receiving and processing system."

25 Do you see that sentence, Dr. Braasch?

1 A. Yes, I do.

2 Q. Then the following sentence says, "Such mobile
3 wireless communication devices are telemetric devices with
4 GPS capabilities, anti-theft devices, and driver-carried
5 devices such as computer laptops and cellular phones." Do
6 you see that, Dr. Braasch?

7 A. Yes, I do.

8 Q. And then the last sentence of that paragraph
9 says, "However, some of these systems, such as cellular
10 telephone wireless communication networks have poor
11 location accuracy, and therefore require elaborate and
12 unique processing in order to extract useful vehicular" --
13 "vehicular traffic data and information."

14 Do you see that, Dr. Braasch?

15 A. Yes, I do.

16 Q. Do you take it that -- that the cellular
17 telephone wireless communication networks that -- that
18 Feldman is contrasting these networks with networks that
19 have GPS capabilities?

20 A. It's certainly -- it's certainly indicating that
21 cell network location accuracy can be relatively poor
22 relative to GPS location accuracy.

23 Q. And earlier you mentioned that you believe that
24 the cell phones being discussed in Feldman did have some
25 GPS capability. Can you point me to the portion of

1 Feldman that describes a cell phone reporting its GPS
2 position to the cellular network?

3 A. At the moment I'm not finding a particular
4 disclosure that specifically recites what you're talking
5 about. But I would certainly point at paragraph 8 that
6 talks about -- that talks about the -- the use of GPS in
7 wireless communication systems and then the communication
8 between the user and the servers. I would also point out
9 that the use of -- of GPS in -- in mobile phones was
10 certainly known in the art at this time.

11 Q. If I could ask you to turn to paragraph 64 of
12 Feldman, please, Dr. Braasch.

13 A. Okay. I am there.

14 Q. About midway through paragraph 64, there's a
15 sentence that says, "Tracking vehicles without the
16 knowledge and consent of their drivers may be considered a
17 violation of privacy."

18 Do you see that, Dr. Braasch?

19 A. Yes, I do.

20 Q. So -- and then the following sentence - one
21 sentence, I believe - speaks of ". . . deleting identities
22 of the associated sample units, and deleting individual
23 sensor tracks once their derived velocities are
24 incorporated into calculations . . ." Do you see that,
25 Dr. Braasch?

1 A. Yes, I do.

2 Q. What I believe is -- this is speaking to, in
3 speaking to method and system ten which is performed on a
4 server, is that once -- once the server -- this is
5 speaking about the server looking at the handover data we
6 spoke about earlier in paragraph 60 and 61. But the
7 server's looking at handover information, computing
8 velocities; and then the server is scrubbing, if you will,
9 any kind of -- it says what it says, deleting individual
10 tracks once the drive velocities are incorporated in the
11 calculation and deleting identities. The server looks at
12 the handover data, it computes velocity, and then it
13 deletes identities. That's my takeaway from this. What
14 is your takeaway from these paragraphs -- or this
15 paragraph 64, Dr. Braasch?

16 A. Paragraph 64 recites, ". . . vehicular traffic
17 data and information, which are acquired, collected, or
18 gathered using techniques based on GPS and/or cellular
19 telephone types of mobile wireless communication networks
20 or systems."

21 So that is describing a variety of potential
22 techniques to be able to determine vehicular traffic data,
23 GPS being one of those examples. And then at the end of
24 the paragraph, it talks about deleting identities or
25 individual sensor tracks for the purposes of ensuring

1 privacy.

2 Q. But would you agree that this is a method in
3 system ten, that what is being deleted is being deleted by
4 the server after it has acquired the -- the information
5 described in that last sentence of Feldman, correct?

6 A. Off the top of my head, I believe it is the
7 server. I'd have to go back and look through this in more
8 detail to know for sure. But sitting here at this moment,
9 I think it is the server.

10 Q. Let's -- I think paragraph 65 -- if you could
11 take a minute to read that paragraph, Dr. Braasch, that
12 may help answer some of the questions you have in your
13 mind.

14 A. So, yes. In this embodiment described in
15 paragraph 65, it does state that these processing steps
16 take place in a server.

17 Q. If I could ask you to turn to page 38 of your
18 declaration, Dr. Braasch. And, again, for the record
19 that's Exhibit 1003.

20 A. Yeah, I am at page 38 of my declaration.

21 Q. Looking at the top -- and why don't you take a
22 minute just to read this paragraph 61. And then I'm going
23 to ask you some questions about it. So just to be fair,
24 why don't you take a look and let me know when you're
25 finished reading paragraph 61 of your declaration.

1 A. Okay. I have reviewed paragraph 61.

2 Q. So starting on the top of page 39, you quote
3 from Feldman a sentence from -- I believe paragraph 102 of
4 Feldman, that's talking about collecting information --
5 again, I'm summarizing -- collecting information such as
6 by using a cellular phone mobile communication network.
7 I'd just -- would like to be clear that the -- that the
8 handoffs or handovers that we were speaking about earlier,
9 that would be data that would be available on a cellular
10 phone mobile communication network. Am I correct there?

11 A. Handoff information is certainly part of -- of
12 cell network operation.

13 Q. And would you agree with me -- and I can direct
14 you; it's referred to repeatedly in Feldman. But Feldman
15 makes reference to GPS types of mobile wireless
16 communication networks and cellular telephone types of
17 mobile -- mobile wireless communication network. I'm
18 looking specifically at paragraph 9, the top of page 2.
19 But the question relates to whether you agree that Feldman
20 discusses different types of mobile wireless communication
21 networks; one is cellular, one is GPS.

22 A. The phrase that is used in Feldman -- I'm
23 looking, for example, at paragraph 15, about two-thirds of
24 the way through the paragraph. I'll jump into the middle
25 of it, where it says ". . . using techniques based on GPS

1 and/or cellular" type -- "telephone types of mobile
2 wireless communication networks or systems." The phrase
3 "wireless communication network" is -- is referring to
4 cell phone types. And so I don't -- the phrase
5 shouldn't -- shouldn't be understood to mean that it's
6 stating "GPS wireless communication network." It's
7 talking about -- talking about "techniques based on GPS
8 and/or techniques based on cellular telephone types of
9 wireless communication networks."

10 So the point I'm trying to make is -- if I
11 understood your question correctly, you seem to be saying
12 that there were GPS wireless communication networks and
13 separately cellular phone types of wireless communication
14 networks. And it's -- I don't believe that that's what is
15 being recited here. "Wireless communication network" is
16 referring to the cell phone. GPS is a separate system
17 from the normal cell phone operation. As I indicated
18 earlier, certainly the -- by this time frame it was well
19 known in the literature that -- in the art that GPS could
20 be -- a GPS receiver could be included in a phone.

21 Q. Let me direct your attention, then, Dr. Braasch,
22 to -- to the last sentence of paragraph 9 on that same
23 page as paragraph 15. And I'll just read it for the
24 record. It says, "For example, currently, there is a
25 significantly larger potential number of vehicles

1 associated with cellular telephone types of mobile
2 wireless communication network or system compared to the
3 potential number of vehicles associated with GPS types of
4 a mobile wireless communication network or system."

5 What do you take that sentence to mean and
6 what is this "GPS types of a mobile wireless communication
7 network or system" as distinguished from the "cellular
8 telephone types," as discussed in that last sentence of
9 paragraph 9?

10 A. Thank you for the clarification. I appreciate
11 that. And my -- my understanding I think -- understanding
12 a person of ordinary skill would understand that -- what
13 is being disclosed here is a -- is a contrasting of the --
14 of the -- of the cell phone network versus the use --
15 versus GPS functionality in the -- in the vehicle.

16 Q. When you say "GPS functionality in the vehicle,"
17 what do you mean by that?

18 A. Having -- having a GPS receiver in the vehicle
19 for being able to compute position velocity, for example.

20 Q. Like what is shown in Knockeart, correct?

21 A. I'm not sure I understand the question.

22 Q. I believe you said -- when I asked about GPS
23 functionality in the vehicle, you said ". . . having a GPS
24 receiver in the vehicle for being able to compute position
25 velocity." I'm looking at the real-time feed here. And

1 my question was, an example of what you just described of
2 a GPS receiver in the vehicle is what is shown in
3 Knockeart, correct?

4 A. Thank you for the clarification. When I said
5 "in the vehicle" -- "GPS receiver in the vehicle," I was
6 referring more generically, meaning that it -- it
7 certainly -- the GPS receiver could either be mounted in
8 the vehicle or could be carried in the vehicle. So I --
9 either way is what I was intending in my earlier
10 statement.

11 Q. I understand. I was just asking if the
12 Knockeart is an example, which I think it is, of a GPS
13 receiver contained in a vehicle.

14 A. Knockeart does -- does disclose an example of a
15 GPS receiver in a vehicle.

16 Q. Continuing with your paragraph 61 in your
17 report -- I say "your report." It's your declaration, as
18 you accurately describe it, 61 -- paragraph 61 in your
19 declaration. I believe it's the first full sentence on
20 page 39. You say, ". . . a POSITA would have recognized
21 that use of already existing cell phones in the possession
22 of many if not most drivers, and the existing cell phone
23 infrastructure, to collect traffic data would have
24 eliminated the need for users of the systems to have both
25 cell phone," open paren, "(for communication and other

1 non-traffic/navigation related purposes)," close paren,
2 "and a dedicated in-vehicle navigation location system."

3 Do you see that Dr. Braasch?

4 A. Yes, I do.

5 Q. What is your basis for saying that many or most
6 drivers had cell phones in 2004, which is the time of the
7 Nortrup patent invention?

8 A. Mostly personal experience from the time,
9 that -- that most people had cell phones at that time.

10 Q. And when I said "Nortrup patent invention"
11 today, I'm simply referring to the priority date of the
12 Nortrup patent.

13 So personal experience -- and you make a
14 statement in that sentence would -- that the -- that the
15 cell phone would eliminate the need for users to have both
16 a cell phone and a dedicated in-vehicle navigation system.
17 So for a cell phone to eliminate the need for a dedicated
18 in-vehicle navigation system, would it not be true that
19 the cell phone itself would have to provide navigation
20 functions?

21 A. Yes. The intention there is that a cell phone
22 having navigation functions would -- would eliminate the
23 need for a separate device.

24 Q. And when I asked you earlier, Dr. Braasch, you
25 couldn't identify one cell phone from 2004 that had

1 navigation features. So I -- I don't understand how a
2 cell phone from 2004 that you state here in this paragraph
3 would have eliminated the need for a dedicated in-vehicle
4 navigation system. Can you explain?

5 A. I believe my intent here was to indicate that --
6 that cell phones having navigation capability would
7 certainly eliminate the need for the extra device. I
8 think it's a fair point that I may not have been aware of
9 the extent in the literature -- sorry -- the extent in
10 the -- in the industry of the -- of the amount of
11 percentage or whatever of phones that had navigation
12 capability. I know that some did. As I said, I indicated
13 in my recollection of the -- of advanced Palm Pilot. My
14 recollection is that certainly GPS receivers in cell
15 phones were -- were -- was a concept known in the -- the
16 art at this time. But I was -- I was -- I was focusing
17 more on the knowledge that a GPS receiver could be put in
18 the phones and that would eliminate the -- a need for a
19 separate device. But it's a fair point that, you know,
20 off the top of my head and at the time that I was writing
21 this, I -- I wasn't citing to a particular market
22 penetration of GPS receivers in cell phones at that time.

23 Q. And that leads into my next question,
24 Dr. Braasch, that -- you know, I'll agree by 2004
25 there's -- you know, some number of people were carrying

1 cell phones. I don't know if it's 10 percent or 80
2 percent of the population. I don't know. But -- but the
3 question would be -- okay, there's cell phones. And,
4 again, we have to take ourselves back. But this was
5 largely before smartphones and apps and things like that.
6 We're talking about flip phones and Nokia, little
7 snicker -- candy-bar sized phones. Do you have any idea
8 what percentage of the phones in the possession of people
9 back in 2004 were equipped with a GPS receiver so they
10 could report the GPS -- the GPS coordinates of the phone?
11 I mean that it -- that the phone was even capable of doing
12 that type of operation.

13 A. As I stated earlier, I don't -- I don't have a
14 knowledge sitting here today of what that market
15 penetration was at that time.

16 Q. But I think we could agree, Dr. Braasch, that if
17 a phone did not have navigation capabilities, it would not
18 serve as a substitute for an in-car navigation system.
19 It -- I'll agree with you maybe it could serve as --
20 function as a probe vehicle, I think, as Knockeart
21 describes it, in some way. And Feldman talks about the
22 use of phones to determine the location of the phone. But
23 the ability to navigate from point A to point B, if the --
24 if the phone didn't have that capability, it would not
25 serve as a replacement for the in-car navigation system

1 that could get you from point A to point B.

2 MR. BISENIUS: Objection, form.

3 A. I didn't hear a question. Were you asking me to
4 agree with you or . . .

5 Q. (BY MR. BUMGARDNER) The question would be, if a
6 phone did not have navigation capability, would it not be
7 able to serve as a substitute for an in-car navigation
8 system?

9 A. It is correct that -- that the -- the phone
10 would have to have some kind of position or position
11 velocity determination capability in order to replace an
12 in-vehicle mounted navigation system.

13 Q. Well, beyond that, though, Dr. Braasch, say the
14 phone did have a GPS receiver and could determine its own
15 GPS coordinates. Would it not be the case the phone would
16 also have to have associated software to be able to
17 receive traffic information from the cellular network and
18 present that information to the user so that the user
19 could navigate?

20 A. If the phone is being used for navigation
21 purposes in lieu of an in-vehicle mounted device, then,
22 yes. The phone would have to have the appropriate
23 application, software to enable that functionality.

24 Q. So turning to a different topic, certainly
25 related, Dr. Braasch, that I believe you and GM have taken

1 the position that in combining the Knockeart and Feldman
2 references as described in your declaration and the
3 petition, that one could -- it would be obvious to take
4 the enablement/disablement feature of reporting
5 information in Knockeart and modify Feldman's phones with
6 a -- with -- with a comparable feature, such that it had
7 been obvious to take Feldman's phones and decide not to
8 report information or to enable/disable information
9 reporting as described in Feldman -- excuse me -- as
10 described in Knockeart. Do you understand my point there,
11 Dr. Braasch?

12 MR. BISENIUS: Objection, form.

13 A. There was a lot in there. I understood you were
14 talking about my -- portion of my declaration discussing
15 the combination of Feldman and Knockeart. But could
16 you -- could you rephrase the question?

17 Q. (BY MR. BUMGARDNER) For sure. It was a poor
18 question.

19 So let me ask you to explain it, that I
20 believe in your declaration in the -- and the petition
21 too, there's statements that would be obvious to implement
22 sort of what I'll call Knockeart's privacy features of
23 enabling/disabling the reporting of certain information,
24 that that -- you -- one would find it obvious to implement
25 that feature on Feldman's phones. Do you -- do you follow

1 me so far?

2 A. I think so. But if there was a part of my
3 declaration you could point me to, it would be a little
4 easier.

5 Q. Okay. Let me see if I can do that, Dr. Braasch.
6 So if you could look at paragraph 84 of your declaration,
7 Dr. Braasch.

8 A. Okay. Thank you. I'm at 84 in my declaration.

9 Q. And do you see the first sentence describing or
10 discussing that Knockeart discloses that the vehicle has
11 the option to enable or disable either mode of data
12 collection?

13 A. Yes, I see that.

14 Q. And then the next sentence says, "A POSITA" -
15 and that's an acronym spelled P-O-S-I-T-A in all caps -
16 "would have recognized that this selective enabling or
17 disabling of access to the in-vehicle system's location
18 data would have been applied to the cellular phone probes
19 described in Feldman and the resulting combination."

20 Do you see that, Dr. Braasch?

21 A. Yes, I do.

22 Q. So my question is focusing on the data that the
23 server acquires from the phones in Feldman. And so I'll
24 call it the "handover data." I believe it was described
25 in paragraph 60 that we discussed. That data as we

1 described is based on handovers and other control-type
2 messages that are sent as a matter of having the cell
3 phone powered on and in operation. So how would one
4 enable or disable those types of messages on the phones in
5 Feldman?

6 A. Certainly the -- one of the primary techniques
7 for position determination in both Feldman and -- and
8 Knockeart is the use of GPS. And so this would involve a
9 [sic] enabling or disabling of the -- of the sending of --
10 of the GPS coordinates. To the extent that -- that this
11 is being applied to the example of position determination
12 being made by the use of handover information the -- the
13 implementation would have to be, as we've described
14 earlier that -- well, not as we described earlier, but
15 that the user would have to give some indication to the --
16 to the server that they -- that they don't want to be
17 tracked for this purpose. But certainly the primary
18 example of -- being considered here is -- is the use of --
19 of GPS at the user.

20 MR. BUMGARDNER: Rick, I propose a short
21 break here. I think I'm close to getting wrapped up. So
22 if we could take ten minutes and then come back, I think I
23 can finish up my examination of Dr. Braasch pretty quick.

24 MR. BISENIUS: That's fine.

25 (Recess from 11:24 a.m. to 11:35 a.m.)

1 Q. (BY MR. BUMGARDNER) Dr. Braasch, a few more
2 questions. If you could turn to page 20, paragraph 324 of
3 Knockeart. Again, Exhibit 1004.

4 A. I am at paragraph 324.

5 Q. So the first sentence of that paragraph, which
6 is the sentence you quote in paragraph 84 of your
7 declaration, states, "The operator of the vehicle has the
8 option of enabling or disabling either mode of data
9 collection through the user interface of the in-vehicle
10 system." Do you see that?

11 A. Yes, I do.

12 Q. What would be the purpose in Knockeart of
13 enabling or disabling the -- either mode of data
14 collection?

15 A. I don't recall sitting here today if Knockeart
16 has a specific disclosure that describes why an operator
17 might want to enable or disable. But given what I've
18 stated in my declaration, with the understanding of the
19 concerns of privacy and things of that nature, I think a
20 person of ordinary skill reading this would understand
21 that certainly one reason that an operator might have
22 would be to -- just to prevent the system from -- from
23 tracking their position.

24 Q. The next sentence in that -- in that same
25 paragraph says the server can enable or request either

1 type of data collection. How do you read that sentence,
2 Dr. Braasch?

3 A. My understanding is that the server -- in this
4 embodiment, the server can request a collection because it
5 needs to have data for more vehicles or it may -- it may
6 disable if it -- if it has more -- more vehicle data for
7 more vehicles than it needs. So on the server side
8 it's -- it's more a matter of the server getting the data
9 it needs for the -- for the processes it's trying to
10 accomplish.

11 Q. But it does say the server can enable, right,
12 and then it does say in parentheses "or request." Do you
13 not read that to say a server can get the data if it wants
14 the data?

15 A. What I read here is that there is at least two
16 embodiments. One would be a situation where the server
17 could enable the data collection, in which case the
18 operator wouldn't necessarily be involved. But the
19 other -- at least of the -- of the two at least
20 embodiments that I see described here is that there would
21 be an embodiment where the server would have to make a
22 request for data collection. And in that case, then,
23 given this paragraph, then the user may have to respond to
24 that request and either allow it or disallow it.

25 Q. If you could turn to paragraph 318 of Knockeart,

1 please, Dr. Braasch.

2 A. I am at 318.

3 Q. So there Knockart introduces the concept of
4 "probes" or "probe vehicles." Do you see that there in
5 the first sentence?

6 A. Yes, I do.

7 Q. And I think I'm summarizing the first sentence
8 that some or all of the autos that are equipped with this
9 in-vehicle navigation system can serve as probes and
10 report traffic information. Do you agree with that
11 summary of that first sentence?

12 A. In this embodiment being described, it's -- it's
13 using the navigation capability in the vehicle to be able
14 to provide traffic information.

15 Q. And when we say "provide traffic information,"
16 we're talking about providing traffic information to some
17 entity server outside the car so it can relay that traffic
18 information to -- to other cars that have this in-vehicle
19 system, correct?

20 A. It's providing the information to a server so
21 that the server can provide information to other vehicles.

22 Q. In Knockart, does it have -- let me rephrase
23 this question.

24 Is there any discussion in Knockart about
25 the deficiencies of using these vehicles with the in-car

1 navigation system as probes? And by that I mean, in
2 Feldman there's some description about deficiencies. But
3 does Knockart recognize any deficiencies of having probe
4 vehicles report this information?

5 MR. BISENIUS: Objection, form.

6 A. Sitting here today, I don't -- I don't recall
7 anything specifically in Knockart that is describing
8 limitations of its own invention.

9 Q. (BY MR. BUMGARDNER) We discussed this feature
10 of Knockart earlier. And I say "feature." We discussed
11 that Knockart doesn't really talk about cell phones at
12 all. I don't think there's -- when I said "cell phones,"
13 a portable cell phone, an example of which is an iPhone.
14 I think we said earlier that those type of cell phones
15 really aren't contemplated in Knockart. Do you still
16 agree with that, Dr. Braasch?

17 A. I believe I testified earlier and I've described
18 in my declaration that the -- that the cellular service in
19 Knockart that's an example of Figure 2 is a in-vehicle
20 mounted system.

21 Q. And as such, would you agree with me that
22 there's no disclosure in Knockart about the in-vehicle
23 navigation system controlling the operation of a cellular
24 phone that's within the vehicle in Knockart?

25 A. When you say "control," what are you referring

1 to?

2 Q. Fairly generally. So there's nothing in
3 Knockart -- I'm asking you to agree with me. There's
4 nothing in Knockart that says the in-vehicle navigation
5 system interacts with a cellular phone that's also within
6 the same car in Knockart to cause the phone to do
7 anything? I mean, there are no cell phones in Knockart,
8 so I think it's easy for you to agree that the Knockart
9 in-car system doesn't interact in any way with a portable
10 cellular phone.

11 MR. BISENIUS: Objection, form.

12 A. So I guess I've heard a couple of different
13 aspects of this question -- that I have stated that the
14 embodiment, for example in Figure 2 of the -- the cellular
15 system, is -- is describing an in-vehicle mounted system.
16 That cellular -- cellular phone system is certainly
17 interacting with the server, as described in Knockart.
18 To the extent that your question is talking about a
19 separate hand-held cell phone, then, no, Knockart's not
20 talking about a separate hand-held cell phone. It's
21 talking about -- in this embodiment talking about a
22 in-vehicle system -- in-vehicle mounted system.

23 Q. And that is exactly what I'm talking about,
24 Dr. Braasch. And I apologize if my questions are not as
25 articulate as they might be.

1 So I think you answered my question.
2 Whether it's the embodiment shown in Figure 2 of Knockeart
3 or any other embodiment, there's no discussion of the
4 in-car navigation system of Knockeart, which we agree
5 there is that -- there's no discussion of that system
6 interacting in any way with a hand-held cellular device.
7 Do you agree with that?

8 A. To the best of my knowledge, that is correct.

9 Q. Same question with Feldman. Of course,
10 Feldman's a little different. Feldman certainly does
11 disclose what I would call "hand-held cellular devices,"
12 but -- but it does not disclose, say, in-car navigation
13 system. But even to the extent it does, there's no
14 discussion in Feldman, would you agree, of an in-car
15 navigation system interacting with a hand-held cellular
16 phone?

17 MR. BISENIUS: Objection, form.

18 A. Certainly Feldman is -- is contemplating
19 hand-held cell phones. I'm -- sitting here today, I'm not
20 sure it's restricting the use of a -- of a system that
21 would be mounted in a vehicle. So I don't think I could
22 make that statement here today. But certainly --
23 certainly Feldman contemplates hand-held phones.
24 Certainly.

25 Q. And I'm not talking about even the existence of

1 an in-car system. So we have hand-held phones -- let's
2 just say for -- merely for the assumption of this question
3 that it does disclose or that there's some hint of an
4 in-car system. My question is, is there any disclosure at
5 all in Feldman; and if there is, I would appreciate you
6 pointing me to it. Any disclosure of an in-car navigation
7 system interacting, communicating with a hand-held
8 cellular phone that's being carried also within the car?

9 A. Not to my knowledge.

10 Q. And final question, Dr. Braasch, I think. You
11 at the beginning of this deposition listed a number of
12 other references that are at issue in this IPR proceeding.
13 Are you aware of any disclosure in any of the other
14 references that are at issue in this IPR of a in-car
15 navigation system interacting, communicating with a
16 hand-held cellular device?

17 A. Not that I can think of off the top of my head.

18 MR. BUMGARDNER: I do not have any further
19 questions for the witness, Rick. And I will pass him to
20 you.

21 MR. BISENIUS: No questions.

22 (Deposition was concluded at 11:55 a.m.)
23
24
25

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

3 GENERAL MOTORS, LLC,
4 Petitioner

5 v.

6 EDWARD H. NORTRUP
7 Patent owner

8 REPORTER'S CERTIFICATION
9 ORAL DEPOSITION OF
10 MICHAEL BRAASCH, Ph.D.
11 FEBRUARY 1, 2024

12 I, Melisa Duncan, a Certified Shorthand Reporter in
13 and for the State of Texas, do hereby certify to the
14 following:

15 That the witness, MICHAEL BRAASCH, Ph.D., was duly
16 sworn by the officer and that the transcript of the oral
17 deposition is a true record of the testimony given by the
18 witness;

19 I further certify that pursuant to FRCP Rule 30(e)(1)
20 that the signature of the deponent:

21 _____ was requested by the deponent or a party
22 before the completion of the deposition and returned
23 within 30 days from date of receipt of the transcript.

24 If returned, the attached Changes and Signature Page
25 contains any changes and the reasons therefor;

_____ was not requested by the deponent or a party
before the completion of the deposition.

1 I further certify that I am neither attorney nor
2 counsel for, related to, nor employed by any of the
3 parties to the action in which this testimony was taken.

4 Further, I am not a relative or employee of any
5 attorney of record in this case, nor do I have a financial
6 interest in the action.

7 Subscribed and sworn to on this the 12th day of
8 February, 2024.

9
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11
12 

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