

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

GEOTAB USA, INC. AND *
GEOTAB, INC. *
VS. * NO. IPR2023-00504
* PATENT NO.
* 8,032,278
OMEGA PATENTS, LLC *

REMOTE ORAL DEPOSITION OF
JOSEPH C. MCALEXANDER, III, P.E.
JANUARY 5, 2024

ORAL DEPOSITION OF JOSEPH C. MCALEXANDER,
III, P.E., produced as a witness at the instance
of the Defendant, and duly sworn, was taken in
the above-styled and numbered cause on the 5th
day of January, 2024, from 9:02 a.m. to 2:19
p.m. CST, before Gail Spurgeon, Certified Court
Reporter in and for the State of Texas, reported
by machine shorthand remotely, with the witness
being located in Anna, Texas.

A P P E A R A N C E S

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APPEARING FOR THE PATENT OWNER

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P R O C E E D I N G S

MR. WICHMAN: This is Adam
Wichman from Wolf Greenfield for the
petitioners, Geotab USA and Geotab.

MR. SANTURRI: Ryan
Santurri on behalf of the patent
owner, Omega Patents. And also with
me are David Carus and Chris Regan.

JOSEPH C. MCALEXANDER, III, P.E.,
having been first duly sworn, testified as
follows:

EXAMINATION

BY MR. WICHMAN:

Q. Mr. McAlexander, good morning.

A. Good morning. How are you?

Q. Well, thank you. Thank you for
making time for us today.

A. My pleasure, I think.

Q. Mr. McAlexander, you understand that
you're appearing for deposition in
IPR2023-00504; is that correct?

A. Yes.

Q. And you're appearing on behalf of the
patent owner, Omega Patents?

A. That is correct.

1 Q. And did they retain you?

2 A. Yes.

3 Q. You said you are located in Anna,
4 Texas?

5 A. Yes, that's correct.

6 Q. Okay. You've been deposed before,
7 correct?

8 A. Yes, I have.

9 Q. How many times have you been deposed?

10 A. Approximately 200.

11 Q. And you have been deposed in a remote
12 deposition before?

13 A. Yes, I have.

14 Q. So we'll refer to exhibits today.
15 We'll use a mix of hard copies and soft copies.
16 Can you confirm that you received hard-copy
17 exhibits from my firm?

18 A. Yes, I did receive a set from your
19 firm.

20 Q. You have those with you now?

21 A. Yes, I do. I have them in front of
22 me now.

23 Q. Okay. So you understand that you'll
24 agree to wait until I finish asking a question
25 before answering, correct?

1 A. Yes.

2 Q. I have a cold today. So if you have
3 difficulty understanding my question, I want you
4 to agree to ask for clarification, okay?

5 A. That's fine. You keep your cold on
6 your side, and I'll keep mine on my side.

7 Q. Well, if your antivirus is up to
8 date, you should be -- you should be okay.

9 Do you have access to Exhibit Share?

10 A. Yes, I do.

11 Q. Are you able to access this
12 deposition in Exhibit Share?

13 A. I had it a moment ago. Just a
14 second. Let me verify.

15 Yes, I have access to it.

16 Q. Can you see two exhibits in the
17 Exhibit Share?

18 A. Yes, the Notice of Deposition and the
19 Second Declaration.

20 Q. Have you -- can you go ahead and open
21 the Notice of Deposition?

22 A. Certainly.

23 I have it open.

24 (Exhibit No. 1 introduced.)

25 Q (BY MR. WICHMAN) Have you seen this

1 before?

2 A. Yes, I have.

3 Q. Do you understand that you're
4 appearing today pursuant to this Notice?

5 A. That's my understanding, yes.

6 Q. Okay. You can go ahead and close
7 that, please.

8 A. Okay.

9 Q. We'll try to take breaks on a hourly
10 basis. Is that acceptable?

11 A. Sure.

12 Q. Okay. I would like you to agree if
13 you need a break, just tell me. Will you do
14 that?

15 A. Yes.

16 Q. I would like to agree if we are in
17 the middle of a question and you feel like you
18 need a break, that you will answer the pending
19 question before we take a break. Okay?

20 A. That's fine, yes.

21 Q. Okay. Do you understand that once
22 the deposition begins until the
23 cross-examination is finished, you are not
24 permitted to discuss questions or answers with
25 your -- the lawyers for Omega?

1 A. I understand that.

2 Q. Did you bring any materials with you
3 to this deposition?

4 A. Just the documents you sent to me.

5 Q. What screens do you have open on your
6 computer now?

7 A. I have the Zoom screen meeting open,
8 and I have the Veritext Exhibit Share open.

9 Q. Okay. Will you agree not to open
10 other files or screens during the deposition?

11 A. I'll agree, except at some point,
12 depending on the speed of the transmission, I
13 may download the Veritext exhibit and use it
14 locally, if that's acceptable.

15 Q. Certainly. So you were a technical
16 expert for Omega in litigation involving CalAmp;
17 is that right?

18 A. That is correct.

19 Q. You testified at deposition on that
20 matter?

21 A. Yes, I did.

22 Q. You provided an expert report?

23 A. Yes.

24 Q. And you testified at trial?

25 A. Yes.

1 Q. How many times have you been an
2 expert for Omega?

3 A. How many times? It was probably four
4 or five IPRs. There's -- I know there have been
5 three or four ex parte re-exams. I certainly
6 participated in cases involving maybe four
7 different defendants. That's as best as I can
8 recall.

9 Q. When did you first start working as
10 an expert for Omega?

11 A. I would think maybe around 2009. It
12 was a long time ago, but that's what I can
13 recall.

14 Q. How much time have you spent --

15 A. If you don't mind, I was just
16 rethinking. I think maybe the first case was
17 even earlier than that. So it may have been as
18 early as 2006.

19 Q. How much have you billed for your
20 work for Omega as an expert?

21 A. I don't have a number to give you. I
22 have not -- I don't know.

23 Q. How much time have you spent recorded
24 as an expert for Omega in this IPR?

25 A. Probably 50 or 60 hours.

1 Q. How much time have you spent
2 preparing for this deposition?

3 A. Six or seven.

4 Q. What did you do to prepare for this
5 deposition?

6 A. I reread the Declarations that I
7 provided in this matter, the '278 patent, and
8 re-looked at the flip of the whole patents, and
9 scanned through I would say the majority of all
10 of the documents that I identified as materials
11 considered. I also met Wednesday for about an
12 hour with counsel, the three counsel of record
13 here today.

14 Q. One of the hard-copy documents you
15 should have in front of you is your Declaration,
16 Exhibit 2010.

17 A. Yes, I have that in front of me now.

18 (Exhibit No. 2010 introduced.)

19 Q. (BY MR. WICHMAN) You prepared that
20 Declaration?

21 A. Yes, I did.

22 Q. And that Page 89, is that your
23 signature?

24 A. Yes, it is.

25 Q. You signed it October 18, 2023?

1 A. Yes, that is correct.

2 Q. Do you have any corrections that need
3 to be made to this?

4 A. No.

5 Q. Turn to paragraph 8, please.

6 A. Okay.

7 Q. So in this paragraph you identify
8 different subject matters where you say that
9 you're a technical expert; is that correct?

10 A. I did so identify, yes.

11 Q. Okay. So tell me, what is your
12 experience with networking?

13 A. My experience with networking?

14 Q. Yes.

15 A. I have a number of patents in the
16 wireless area, and I have worked with specific
17 clients in the infusion of those particular
18 patent and inventions in their systems. I have
19 cooperated with a number of clients, large major
20 OEMs, with regard to its initiation of various
21 types of microcontroller and memory type
22 products within their systems, and I
23 collaborated with them in terms of the access
24 protocol for those particular units.

25 I have worked with the OEMs for their

1 front side buses with regard to the necessary
2 protocol for access of information across those
3 buses, as well as the voltage requirements, hour
4 requirements, access and protocol speed
5 requirements.

6 I have several patents in the airbag
7 deployment area using micro-electronic
8 manufacture type units called MEMS, specifically
9 for accelerometer type applications that can be
10 used in vehicles, specifically with airbag
11 deployment. I've worked with clients on that.
12 I also at one point -- my gosh, a few years
13 ago -- I was a 30(b)(6) witness for Toyota,
14 representing them in somewhere in the order of
15 about 35 different suppliers looking at
16 different products they provided to integrate
17 with the automotive buses. So to name a few,
18 that's my network experience.

19 Q. In your CV, you provide a list of
20 these patents where you are a named inventor,
21 right?

22 A. Yes, that is correct. I did.

23 Q. Tell me which patents in wireless
24 areas involve networking, if you could turn to
25 that part of the CV and identify them for me.

1 A. I'm referring to pages 7 through
2 10 -- 8 through 10, rather. The patents that
3 start with 6,172,640 and continue are specific.
4 The rest of the ones on that page, which are --
5 four, five, six, seven -- it looks like eight or
6 nine patents, those specifically are working
7 with GPS location protocol and networking that
8 information across either wireless or wired
9 networks for the purpose of integration with
10 remote monitoring operations. So those are a
11 few.

12 Let's see. If we turn to page 9, it
13 continues with position determining the top
14 patent, '126. The beam sensor patent is a MEMS
15 that is specifically used for airbag deployment.
16 So that would be integrated within a network.
17 The third patent on this line, the '075, the
18 '044, the '327, all of those again involve
19 wireless networking.

20 The '260 patent and 7,340,260 is an
21 RFID type of system. Excuse me. Getting these
22 mixed up. This one and the 7,340,260 is a
23 mobile transceiver type of operation where
24 there's actually remote -- it's almost like a
25 remote relay between various transceivers. The

1 next patent, the 7,353,706, the weighted
2 released-beam sensor, is also an airbag
3 deployment type of MEMS sensor.

4 The same for the next patent, the
5 7,397,097. Continuing on, the 7,564,405 again
6 is object location, so that is networking
7 information with regard to geostatus and
8 geolocation. The 7,657,265 is also a relay
9 patent across multiple networks. And 7,760,137,
10 the '228 are also patents related to location,
11 and they also are utilizing both GPS as well as
12 wireless networking. And the 7,989,906 is
13 another beam sensor MEMS patent related to
14 airbag deployment vehicles as an application.

15 The '775 is an asset tracking
16 mechanism utilizing video, and that is used in
17 RFID tag and also part of networks. As far as
18 U.S. patents, I believe those are the ones I
19 would identify.

20 Q. So when you say that these involve
21 networking, you're talking about devices that
22 transmit information over a network?

23 A. Well, part of the invention is a
24 device that transmits information over network,
25 yes. That's part of it. It's not all of it,

1 but it's part of it.

2 Q. So the first MEMS sensor that you
3 identified related to airbag deployment, I
4 believe that was patent 7,179,674. Was the
5 invention the actual MEMS sensor that causes the
6 deployment, or is the invention in network?

7 A. The invention was the sensor itself.

8 Q. The sensor itself, okay. So how does
9 that involve networking?

10 A. Well, sensor is sitting in situ all
11 by itself is of absolutely no use. Sensors are
12 always designed for some application. And so
13 the applications would be networking because you
14 have to garner the information from the sensor,
15 then you have to transmit the information to a
16 receiver in order to make use of that
17 information. So networking is going to be
18 involved. It's not a stand-alone object even
19 when the invention is the center itself.

20 Q. So when you developed this MEMS
21 sensor for airbag deployment, what network did
22 you connect it to?

23 A. Well, that's -- the sensor itself is
24 then utilized by a particular client in terms of
25 their airbag deployment. And that would be

1 integrated within the bus system of that
2 vehicle.

3 Q. When you were developing the
4 invention, did you build a prototype?

5 A. Prototypes were developed. And this
6 was -- this patent was assigned to SD
7 Microelectronics. And so within SD
8 Microelectronics, as part of development
9 strategy with their clients, yes. I personally
10 did not build a prototype.

11 Q. Did you personally connect that
12 sensor to a vehicle data bus?

13 A. No, I did not.

14 Q. Did you -- when you developed this
15 sensor, how did you account for different ways
16 to communicate information over different
17 vehicle data buses?

18 A. The counting for that is based upon
19 the sensor mechanism generating an output. That
20 output in this -- in one embodiment was a
21 capacity of difference output. And so that
22 output signal then would be captured and that
23 data then would be transported across the bus.

24 So it could be equally used across
25 any number of buses because what the sensor

1 provided was the data signal input that could
2 then be transported across any of the number of
3 buses.

4 Q. And how did the sensor format that
5 data for transmitting across a bus?

6 A. The microcontroller that receives the
7 information would be the one in charge of the
8 protocol transmission. Not the sensor itself.

9 Q. So where was the connection to the
10 vehicle made for this sensor?

11 A. Where was the connection to the
12 vehicle?

13 Q. The vehicle network.

14 A. Well, the sensor would be -- if it's
15 instantiated, for instance, in a GM or Ford or
16 some other vehicle, it would be a part of a
17 particular module that would generate the signal
18 to the serial bus.

19 Q. So you're saying that there would be
20 a module connected to the sensor and the module
21 would generate a signal to the serial bus?

22 A. Well, it depends on the manufacturer.
23 The module -- the sensor could be included as a
24 part of the module or it could be separate from
25 the module, providing a wired or a wireless

1 connection to that module for then transport to
2 the bus in the vehicle.

3 Q. So the MEMS sensor that you invented
4 would provide data regardless of what bus it was
5 eventually used with; is that correct?

6 A. If it was substantiated within a
7 vehicular system and it is operable, then yes,
8 it would generate a signal, and that signal that
9 is generated then would be converted into the
10 appropriate protocol for the bus in which it was
11 involved.

12 Q. You say you cooperated with different
13 OEMs with regard to microcontroller products and
14 access protocols; is that right?

15 A. Yes, I did.

16 Q. Tell me about that. What do you
17 mean? What were the microcontroller products
18 and access protocols that were involved?

19 A. For instance, in the communication
20 and work that I did with OEMs such as IBM, that
21 would be using their particular major processor.
22 I've also used the lower processor and
23 controller. In fact, in my wireless patents,
24 the prototype I built there, used a particular
25 Motorola cellular mechanism for propagation of

1 the information over CMA. I also used a paging
2 network system. I've used a Motorola-based
3 processor for the GPS coordinate identification.
4 I can't recall the name of the processor that I
5 worked -- the controller I worked with in the
6 navigation system where I was actually licensing
7 the patents to a fleet manager that utilized
8 trucks, specifically trucking fleets in Europe.
9 I do not remember that controller, to be honest
10 with you.

11 In terms of just general
12 networking -- not involving my patents but just
13 general networking -- for a number of years, I
14 cooperated with the number of different clients
15 such as Sandia National Laboratories on their
16 instrumentation for satellite navigation. And I
17 cannot reveal that information. I also
18 evaluated a number of different products and
19 networks for Boeing, specifically looking at
20 radiation tolerance specifically on airplanes
21 that are flying, unfortunately, around
22 35,000 feet, which is about the worst place you
23 can for gathering radiation.

24 So I worked with a number of
25 different facilities and clients, OEMs as well

1 as laboratories. I also worked with Oak Ridge
2 National Laboratories on the development of a
3 scan tool that was implemented in a -- we
4 actually formed a company called Inline to
5 specifically promote that particular tool. And
6 that tool was laser-phase shift type tool that
7 was used to utilize wafer fabrication
8 facilities. So I spent quite a bit of time
9 working with the wafer fabrication facilities
10 for instituting that tool. So hopefully I
11 answered your question. I spent quite a bit of
12 time working with various clients from
13 laboratories to OEMs.

14 Q. On microcontrollers, I'm trying to --
15 if you could tell me where this work with
16 microcontrollers dealt with -- strike that.

17 You said that you worked with OEMs.
18 That's original equipment manufacturers?

19 A. Yes.

20 Q. You worked on front side buses?

21 A. I did.

22 Q. What does that mean?

23 A. The communication to main memory in
24 most computer systems is executed over what's
25 called a front side bus. This is a direct bus

1 connection between the memory and the
2 microprocessor.

3 Q. You said you worked with the OEMs on
4 front side buses concerning protocols for access
5 of information; is that right?

6 A. That's correct.

7 Q. So tell me what you mean by that.
8 What is a protocol for access of information?

9 A. The architecture on the bus,
10 obviously, is one of which you have a hardware
11 aspect parts of the number of buses and what the
12 buses will carry on them in terms of each one of
13 the wires, so to speak. And there is always
14 going to be a protocol in terms of timing and in
15 what data and/or signal goes across those
16 particular wires within a bus.

17 And so that is something that's
18 arbitrated between the system manufacturer and
19 the memory manufacturer. So a lot of the
20 products that I develop specifically were
21 memories. These memory devices had to
22 communicate across a particular bus. And so the
23 bus traffic that was to be provided had to
24 conform to the agreements between the memory
25 manufacturer and the OEM.

1 Much of this involved Jetta, in which
2 the standards were identified and then both
3 parties, both the OEM and the memory
4 manufacturer, then confirmed their products to
5 that particular standard so that the appropriate
6 protocol for this transmission of information
7 could occur across those buses.

8 Q. So data is transmitted across the
9 bus, right?

10 A. Yes.

11 Q. And when you refer to a protocol, the
12 protocol dictates how that data is formatted; is
13 that right?

14 A. It would, yes, that's correct.

15 Q. Let's talk about vehicle data buses.
16 What vehicle data buses have you worked with?

17 A. I worked with the JA250. I also
18 worked with the CAN bus system.

19 Q. Is that it?

20 A. As I recall.

21 Q. When did you work with J1850?

22 A. That was probably somewhere between
23 2005-2008 time frame, as I recall.

24 Q. What were you doing that involved
25 J1850?

1 A. Evaluated a number of different
2 suppliers that provided control management
3 module information across buses within vehicles.

4 Q. You said evaluating a number of
5 different suppliers. Suppliers of what?

6 A. Suppliers of security modules.

7 Q. What's a security module?

8 A. That's when a car is -- during a
9 theft or something of that nature or door
10 opening when it was alarmed is an example.

11 Q. Does the module contain a sensor?

12 A. Yes.

13 Q. What else did the module contain?

14 A. The module also contained a
15 microcontroller that received the sensor
16 information. In some cases the modules were
17 wired, others they were wireless. It provided
18 the transceivers that were necessary for
19 transfer of the information or acknowledgment of
20 the information across the internal bus of the
21 vehicle.

22 Q. Was the microcontroller programmed?

23 A. Was the microcontroller programmed?

24 Q. Yes.

25 A. In terms of firmware, in terms of its

1 operating system, it was.

2 Q. So what did that firmware and
3 operating system do on the microcontroller?

4 A. Well, it's like you're looking
5 through a module on your personal computer or
6 otherwise, desk computer, that desk computer has
7 an operating system. It could be a risk-based,
8 it could be Windows-based, but it's the
9 operating system is the underlying operation of
10 the system that allows it to function. It has
11 nothing to do with its applications. It's just
12 the operating system.

13 Q. In these security modules what
14 converted the sensor information into
15 information that was transmitted through the
16 transceiver onto the data bus, the J1850?

17 A. I hope you understand this was
18 30(b)(6) testimony, so I'm going to be cautious
19 on what I tell you. I cannot reveal all the
20 information you're asking for. The
21 microcontroller transceiver would be receiving
22 the information from the sensor. And that
23 information from the sensor would then would be
24 stored and registered as -- as a set of data,
25 and then that data would be transported

1 according to the bus protocol on the transceiver
2 across the particular bus within the vehicle.

3 Q. So we're talking about J1850, right?

4 A. In that regard, yes.

5 Q. So the microcontroller would send a
6 data code across the bus reporting sensors'
7 data; is that right?

8 A. No. It would send data.

9 Q. In what format would that data be in?

10 A. Well, the format would be in high/low
11 voltage. High/low voltage and over time on the
12 J1850 you're dealing with 64 and 128 kilobit per
13 second cycling. And so the 0s and 1s will be
14 propagated on this two-wire bus in accordance
15 with the frequency that would define the
16 frequency and voltage value that would define
17 the logic 1 and 0. But that would be data, data
18 transport.

19 Q. So you're talking about digital
20 communication, correct?

21 A. True, yes.

22 Q. And that's sorting analog voltage
23 values against the signal, right?

24 A. Not sorted analog voltage values.
25 The analog value may be included into a digital

1 format.

2 Q. You're sending bits, right?

3 A. It's not looked at as bits on a PWM
4 type bus architecture. The information is
5 stored in bits within the module itself, but it
6 may not be transported as bits if it's frequency
7 recognized.

8 Q. And so how is the information encoded
9 in bits for J1850 in this microcontroller?

10 A. That's proprietary.

11 Q. Have you worked with any other
12 systems involving J1850?

13 A. Not directly, not as I recall.

14 Q. And so your experience with J1850 is
15 really as a 30(b)(6) witness, you said, for
16 Toyota; is that right?

17 A. That was the primary experience. And
18 that was, again, evaluating this information
19 across 35 different suppliers.

20 Q. So tell me when you worked with J1850
21 in your capacity as an engineer and not as a
22 retained expert.

23 A. I can't recall working directly with
24 J1850 other than that.

25 Q. So your experience with J1850 is

1 something that was developed for your role in
2 the litigation; is that right?

3 A. There was a role in the litigation,
4 that is correct. And that was experienced over
5 several years.

6 Q. But that's the extent of your
7 experience with J1850; is that right?

8 A. Directly with it, yes.

9 Q. Did you have indirect experience with
10 J1850?

11 A. In terms of the -- providing the
12 geophysical location finding with the fleet
13 trucks that I identified earlier. There was
14 some that I recall that the information would be
15 transported across 1850. There were others in
16 the fleet that would go across -- would be
17 provided in an ISO standard under the European
18 framework.

19 Q. Tell me about this project involving
20 the fleet trucks. When was it?

21 A. That was back in the early 2000s.
22 Probably 2004.

23 Q. How long did that project last?

24 A. Approximately a year.

25 Q. What did you do on that project?

1 A. That was working with the client via
2 the patents that were pending at that time,
3 applications as well as maybe one addition by
4 that time. Specifically grafting the location
5 determination features within the fleets of
6 vehicles.

7 Q. Were you a patent attorney in that
8 matter?

9 A. No.

10 Q. Were you a patent agent in that
11 matter?

12 A. No.

13 Q. Were you -- what were you drafting?

14 A. Grafting. Grafting, G-R-A-F-T-I-N-G,
15 not drafting.

16 Q. Grafting, okay. Were you working as
17 an engineer or as a litigation expert in this
18 project?

19 A. As an engineer.

20 Q. As an engineer? So when you said you
21 were grafting the location determination
22 features within the fleets of vehicles, what
23 does that -- what were you doing? What does
24 that mean?

25 A. Well, that meant taking the -- the

1 wireless essential patents that I had developed
2 utilizing GPS location technology and providing
3 the input to the fleet manufacturer of the way
4 in which my patents had received and collated
5 the information, the geocentric information or
6 location, and providing that information such
7 that the microcontroller could receive that
8 sensitive information and then provide that
9 information to the system as a whole, the fleet
10 system as a whole.

11 In some instances -- again, it's
12 proprietary, but in some instances the
13 information that was garnered by the GPS module
14 would be connected wirelessly directly through
15 paging, as an example. The paging was built
16 directly within the module and others in which
17 it provided information across the bus systems
18 of the vehicles and then the information was
19 transferred through the transceiver mechanisms
20 that were built into the vehicle that would be
21 separate from my particular invention.

22 Q. So let's start with the GPS sensor
23 and trace through the connection through the
24 vehicle data bus. So this was the case where
25 we're not paging, okay?

1 A. Okay.

2 Q. All right. So now from the GPS, how
3 does GPS information make its way onto the
4 vehicle data bus that is using J1850?

5 A. Well, the information would -- the
6 GPS -- the GPS information that was determined
7 would -- part of that determination was done
8 through the local microcontroller. There is a
9 microcontroller has to have the -- not only the
10 specific information that is gained from the
11 satellite, but it has to have the coordinate
12 identification of the satellites, the firmware
13 data, has to have other data that's associated
14 with the time stamp, where the satellite should
15 be located, the different -- because of the
16 difference in location of the satellites, the
17 transmitted signal from the satellite -- to and
18 from the satellite is going to go through
19 various layers of the ionosphere and it's going
20 to have different reflections in the fractions
21 based upon that.

22 That's all put into tables that are
23 updated periodically, so the microcontroller has
24 access to that. So the microcontroller has to
25 take the new information, arbitrate that based

1 upon the data that is provided periodically as
2 an update, and then it will basically derive
3 from that what it determines to be the location.

4 That location information will be
5 stored as a part of the microcontroller, and
6 then the microcontroller would work with the
7 transceiver that is connected to the particular
8 bus to transmit that information to a main
9 module on the bus that would be garnering that
10 particular information and then providing the
11 wireless transmission through its own wireless
12 transit.

13 Q. So let's start at the point where the
14 location information has been determined. We'll
15 set aside the details of how GPSing GLONASS
16 work, okay?

17 A. Okay.

18 Q. How is that location information
19 encoded for transmission over a transceiver?

20 A. How is it encoded? Well, the
21 information that's going to be transmitted
22 across the bus is going to be encoded for that
23 bus protocol at or for the transceiver. Most
24 cases the transceiver module has the protocol
25 necessary for taking that particular information

1 and then placing it on the bus in accordance
2 with the protocol that's required by that bus.

3 Q. You agree that location information
4 is data, right?

5 A. Yes. What we're talking about, yes,
6 it is.

7 Q. How is that data encoded in a format
8 that is consistent with the J1850 protocol?

9 A. The data is encoded. We refer to it
10 as 0s and 1s. But the way in which the J1850
11 protocol works is that your 1 is either -- your
12 1s and 0s are alternately passive or active, and
13 the active versus passive is defined by the
14 frequency and the link of that frequency that
15 then stays high or low during that frequency.
16 And I think I mentioned to you two frequencies
17 that were involved were 64 kilobits per second
18 and 128 kilobits per second in accordance with
19 that protocol.

20 Q. You're telling me the data rate for
21 J1850 was 64 or 128 kilobits per second?

22 A. At that time it was, yes.

23 Q. You said you worked with CAN. Tell
24 me when you work with the CAN -- well, strike
25 that.

1 What is CAN?

2 A. That's a controller area network.

3 Q. And that's a communication protocol
4 that's used in vehicles?

5 A. Yes. It specifically conforms to the
6 ISO 15765 standard.

7 Q. When did you work with CAN?

8 A. I worked with CAN -- I've worked with
9 CAN on a number of litigation cases.

10 Q. That involved --

11 A. I would -- go ahead. Excuse me, I
12 interrupted you.

13 Q. No, sorry. I was going to say you
14 have a list of all of these litigations in your
15 CV. Maybe you can tell me which ones involved
16 CAN.

17 A. I would say starting on page 12, a
18 number of the cases that involved Blitzsafe.
19 CAN was involved in a number of those.

20 Q. I'm sorry. Did you say Blitzsafe?

21 A. Blitz, B-l-i-t-z. For instance, on
22 page 12, the second from the bottom case. These
23 are circa 2015 and so forth. But I have a
24 number of Blitzsafe cases.

25 Q. Any others?

1 A. Well, I think prior to this I worked
2 on a number of cases representing Affinity. I
3 think that was prior dates to what I'm showing
4 here on this CV. I'll continue to look here. I
5 have several current cases. For instance, on
6 page 25 and several others that are listed later
7 representing Pilot.

8 These particular patents are dealing
9 with auto chargers. They are not directly
10 related to CAN bus, but the information that is
11 provided during the auto start actual mechanism
12 within a vehicle is going to generate the
13 appropriate signals for start across the CAN bus
14 system. So I will say that I would be involved
15 in that analysis. Since it's an active case, I
16 can't go into any more detail.

17 Q. Have you worked with CAN as an
18 engineer --

19 A. No.

20 Q. -- as opposed to -- so all of this
21 knowledge is related to serving as an expert in
22 litigation; is that right?

23 A. The knowledge is related to that,
24 yes.

25 Q. I would like to go back to this fleet

1 truck example we were talking about. You said
2 there's GPS. GPS provides location information,
3 a microcontroller stores -- let me strike that.

4 Location information will be stored
5 as part of the microcontroller. You mean that
6 the microcontroller has memory that would store
7 location information, right?

8 A. In some cases it has memory in the
9 form of registers to store temporarily, but it
10 also will cooperate with an off -- off chip
11 memory for more permanent storage of
12 information.

13 Q. And then the microcontroller would
14 work with a transceiver to transmit the
15 information over a vehicle bus, right?

16 A. Yes, that's correct.

17 Q. Okay. So what was your part in that
18 connection between the microcontroller and the
19 transceiver?

20 A. Well, working with the fleet
21 developer, in terms of incorporating the
22 location information within their system, then I
23 worked with them directly on the data collection
24 as well as the transfer of that information and
25 ensuring that the information was properly

1 transferred across the bus and then transferred
2 wirelessly back to the monitoring station.

3 Q. Did you write the software that ran
4 the microcontroller?

5 A. No.

6 Q. Did you write the firmware that ran
7 the microcontroller?

8 A. No.

9 Q. Did you write drivers that would -- a
10 microcontroller might use to form that
11 information?

12 A. No. I did not write the drivers, no.

13 Q. Okay. And was there anything in that
14 system between the microcontroller and the
15 transceiver?

16 A. Could you maybe ask your question a
17 different way? I'm not sure I understand it.

18 Q. The microcontroller provided an
19 output to the transceiver; is that right?

20 A. In the instance I'm thinking about,
21 yes.

22 Q. Okay. So in a functional block
23 diagram, there would be a microcontroller,
24 transceiver, and the data bus; is that right?

25 A. Well, on that basis, yes.

1 Q. Am I missing any components?

2 A. That's proprietary.

3 Q. Have you used any other vehicle
4 communication protocols besides the J1850 on the
5 CAN that you identified?

6 A. Not as I recall.

7 Q. Aside from this project with J1850
8 and the fleet trucks in 2004, all of your
9 experience with communication protocols has been
10 something developed for litigation; is that
11 right?

12 A. Generally, yes.

13 Q. Why generally?

14 A. Because on the working that I did
15 with the manufacturer for the development of the
16 MEMS product, part of that communication, part
17 of that was for the applications. And so I had
18 -- we did include as part of our process
19 development an understanding of what would
20 happen within the usage of vehicles. But,
21 again, that's proprietary and that was within
22 the construct of the development of MEMS
23 technology.

24 Q. The MEMS sensor, though, was not --
25 the project was not specific to any one vehicle

1 communication protocol; is that right?

2 A. Not specific to any particular one,
3 that's correct.

4 Q. Okay. So which vehicle communication
5 protocols did you consider in connection with
6 that project?

7 A. In connection with that project,
8 J1850 was really on its way out, so CAN was the
9 primary one for consideration.

10 Q. Any others?

11 A. No.

12 Q. When you were considering CAN in
13 connection with that project, what did you do to
14 educate yourself about CAN?

15 A. I think the general -- the general
16 aspect, to answer the question, would be looking
17 at the ISO 15765 spec and making sure that the
18 data that we were collecting and storing would
19 be something that could be provided across that
20 type of a system.

21 MR. WICHMAN: We're at
22 about an hour. Let's break for ten
23 minutes.

24 (Recess 9:58 a.m. to 10:10 a.m.)

25 Q (BY MR. WICHMAN) Mr. McAlexander,

1 did you speak to counsel for Omega during the
2 break?

3 A. No.

4 Q. Okay. Mr. McAlexander, what is OBD2?

5 A. It's On-board Diagnostic, Second --
6 Second Version.

7 Q. And what is it?

8 A. It's a diagnostic standard that was
9 developed earlier back in the late '80s. And I
10 think OBD2 went into place probably around 1996.
11 It's a diagnostic standard that is used so that
12 you can use diagnostic tools to plug into a
13 particular standard connector, two types of
14 connectors, A or B, depending upon whether it's
15 a 12-volt or 24-volt system. It basically
16 allows a tool to gather information about --
17 from various modules in the system -- in the
18 vehicular system.

19 Q. OBD2 requires vehicles to provide
20 this diagnostic information on its -- on the
21 vehicle systems, right?

22 A. It does, yes.

23 Q. And that's provided through a vehicle
24 communication network?

25 A. Correct.

1 Q. You have an exhibit -- a hard-copy of
2 Exhibit 1023 in front of you?

3 A. Yes, this is the Hunt patent.

4 (Exhibit No. 1023 introduced.)

5 Q (BY MR. WICHMAN) So when I refer to
6 "Hunt," I'll be referring to Exhibit 1023, okay?

7 A. All right. Thank you.

8 Q. Can you turn to Column 8 at the
9 paragraph starting line 46 below Table 2?

10 A. Column 8?

11 Q. Column 8, yes.

12 A. Okay.

13 Q. Do you see at line 51 there is a
14 sentence that lists several communication
15 protocols?

16 A. Yes, I do.

17 Q. So one is J1850 VPWM, right?

18 A. Yes, that's correct.

19 Q. And "VPWM" means variable pulse-width
20 modulation?

21 A. That is correct.

22 Q. Then there's J1850 PWM, right?

23 A. Correct.

24 Q. And "PWM" means pulse-width
25 modulation?

1 A. Yes, that's correct.

2 Q. And then there's "ISO 9141"?

3 A. Yes.

4 Q. Then there's "CAN, e.g., ISO 15765,"
5 right?

6 A. Correct.

7 Q. And then keyword "2000"?

8 A. Yes.

9 Q. And then "J1708"?

10 A. Yes.

11 Q. So these are each vehicle
12 communication protocols?

13 A. They are, yes.

14 Q. And they define a network that can be
15 implemented in a vehicle?

16 A. They define a particular bus standard
17 that can be implemented in a vehicle.

18 Q. And these are protocols that are used
19 by the OBD2; is that right?

20 A. They do. They can be, yes. And I
21 believe all -- the 1708, I'm not familiar, is a
22 required OBD2 protocol. The others are
23 definitely part of the OBD2 protocol that's
24 required.

25 Q. Go to the Exhibit Share. Tell me if

1 you see Exhibit 1071.

2 (Exhibit No. 1071 introduced.)

3 A. Let me refresh. Yes, I do.

4 Q (BY MR. WICHMAN) This a document
5 titled, "Class B Data Communication Network
6 Interface"?

7 A. This is the Exhibit 1071 that's
8 titled, "Surface Vehicle Standard."

9 Q. "Surface Vehicle Standard."

10 A. And then underneath it says, "Class B
11 Data Communications Network Interface."

12 Q. And this is the J1850 standard
13 revision May 2001; is that right?

14 A. Yes, sir. That's correct.

15 Q. Turn to Section 7, 5.1. Just let me
16 know when you're there.

17 A. I believe it's on page 17.

18 Q. 7. Well, 7 in the document. It
19 should be 7 in the PDF as well.

20 A. But you said -- I thought I heard you
21 say "751." That's why I was asking.

22 Q. No. Section 751 -- strike that.

23 Page 7, Section 5.1.

24 A. Thank you. That makes a difference.

25 I was looking at 751. All right. So Section 5

1 is on page 7. Yes, I've got that.

2 Q. Section 5 is description of the
3 architecture, right?

4 A. That is correct.

5 Q. And Section 5.1, it says, "It is the
6 intent of this network to interconnect different
7 electronic modules on the vehicle using an open
8 architecture approach," right?

9 A. That's what it says.

10 Q. So J1850 is describing network
11 architecture, right?

12 A. It is, yes.

13 Q. Okay. Do you see up starting on
14 page 6 there is a section for abbreviations and
15 acronyms?

16 A. Yes, I do.

17 Q. And then over on top of page 7 there
18 is an acronym "OSI," right?

19 A. Open system interconnect, yes.

20 Q. Yeah. What is the open system
21 interconnect?

22 A. The OSI is -- that is at the
23 application layer, basically establishes
24 relationships with various applications.

25 Q. Tell me what you mean.

1 A. Tell me what I mean?

2 Q. Uh-huh. Tell me what you mean, yes.

3 A. Okay. Well, at some point you got a
4 relationship that has to be established with,
5 for instance, an operator. So basically that
6 puts the expectation on the input-output
7 mechanisms or devices that are associated with
8 that.

9 Q. If we can pause for a moment, on
10 page 7, Section 5.2 describes network topology,
11 right?

12 A. That is correct.

13 Q. And Section 5.2.1 is a data bus
14 topology, right?

15 A. That's what it says.

16 Q. And J1850 uses a single-level data
17 bus topology, right?

18 A. Correct.

19 Q. It refers to nodes on a data bus,
20 right?

21 A. Correct.

22 Q. A node is the electronic module that
23 is going to send or receive a signal, right?

24 A. It can be.

25 Q. What else could it be?

1 A. It could be something it just
2 receives.

3 Q. So a node is a place where
4 information is generated or received on the data
5 bus; is that right?

6 A. Generally speaking, yes, that's
7 correct.

8 Q. And all nodes are interconnected via
9 the same data bus; is that right?

10 A. That's correct, common data bus.

11 Q. And all nodes/devices transmit and
12 receive on a single path, right?

13 A. Generally, yes. There is -- in the
14 J1850 there is both one-wire or two-wire, but it
15 is a particular bus of data traffic. And all --
16 and all nodes on that particular network would
17 use that common bus.

18 Q. So let's go get back to this open
19 system interconnect. Are you -- is it your
20 testimony that the open system interconnect
21 model of the network is limited to the
22 application model?

23 A. Well, there's always going to be or
24 needs to be some interconnection to the lower
25 levels, the physical data layer. But the

1 linkage there specifically when you get to the
2 OSI, that really refers to the application layer
3 to establish that connectivity, if you will,
4 between the lower layers and, for instance, the
5 human operator. And that requires some high
6 level algorithmic type of implementation at the
7 application layer.

8 Q. So what do you mean by "algorithmic
9 type implementation at the application layer"?

10 A. Well, if you look on page 8 under the
11 figure -- you see where it says, "Figure 1," the
12 map of the J1850?

13 Q. Yes.

14 A. Section 531 talks about the
15 application layer and specifically says at the
16 top of the OSI reference model is the
17 application layer. And so this is at the top of
18 it. Now, when you look at the OSI model, there
19 is going to be involvement both at the physical
20 and data link layer as well as the application,
21 but the development of it in terms of the
22 algorithm, to answer your question, is going to
23 be the supporting algorithms that provide the
24 necessary application layer interface, for
25 instance, to a human operator that's shown in

1 paragraph 531.

2 Q. So at the application layer there are
3 algorithms that manage the interface between a
4 source of information and the data link layer;
5 is that right?

6 A. Correct.

7 Q. Okay. So in this Figure 1 at page 8,
8 this is a map of -- strike that.

9 In Figure 1, at page 8 of
10 Exhibit 1071, this maps the J1850 network
11 protocol to the OSI model, right?

12 A. Correct.

13 Q. Okay. What is the physical layer?

14 A. The physical layer is basically the
15 bit -- a bit layer, which is -- that's basically
16 the transfer bit layer that's the lowest level
17 of the protocol.

18 Q. When you say "transfer bit layer,"
19 what happens at the physical layer?

20 A. For instance, if you have a sensor
21 that is wirelessly connected to a particular
22 controller control module, then that physical
23 layer would involve the protocol necessary for
24 the transport of that information between the
25 sensor and the module.

1 Q. In Figure 1 here in the physical
2 layer, it includes the bit rate, right?

3 A. For that particular transmission,
4 yes, that's correct.

5 Q. We're talking about J1850, right?

6 A. We are. We're talking about the
7 encoding using -- it's going to tell us the
8 pulse with modulation.

9 Q. So variable pulse-width has a bit
10 rate of 10.4 kilobits per second, right?

11 A. In this particular one, yes.

12 Q. And pulse with modulation has a bit
13 rate of 41.6 kilobits per second?

14 A. That's correct.

15 Q. And for variable pulse-width, the
16 drive type is single-ended voltage, right?

17 A. That is correct. It uses a one wire,
18 single-ended. A pulse-width modulator is a
19 differential voltage across two wires.

20 Q. Pulse-width modulation is a
21 differential voltage that uses two wires,
22 correct?

23 A. Correct.

24 Q. So the physical layer modulates the
25 signal that's received from higher layers; is

1 that right?

2 A. Say that again. Modulates the signal
3 received from -- I didn't hear the last word.

4 Q. Higher -- higher layers in the OSI
5 stack?

6 A. Associated with that, yes.

7 Q. So variable pulse-width modulation is
8 a type of modulation, data modulation, right?

9 A. Yeah, that's correct.

10 Q. And pulse-width modulation is a type
11 of data modulation, right?

12 A. Correct.

13 Q. Just like FM is a type of data
14 modulation for a radio, right?

15 A. True.

16 Q. And AM is a different type of data
17 modulation for a radio, right?

18 A. True.

19 Q. Okay. The physical layer that
20 modulates the information received from a data
21 modulator is not determining the content of that
22 information, is it?

23 A. If I understand the question
24 correctly, it's not making a determination.
25 It's providing the protocol necessary for the

1 transmission of it.

2 Q. So when you say, "the protocol
3 necessary for transmission," you're talking the
4 modulation scheme; is that right?

5 A. Yes, correct.

6 Q. Data and the current scheme?

7 A. That is correct.

8 Q. Okay. What does the data link layer
9 do?

10 A. This particular layer really revolves
11 around the information content that's going to
12 be either transmitted through the physical layer
13 or has been received through the physical layer.
14 And so basically that has additional information
15 that is going to check and verify the signal,
16 detect whether or not there are particular any
17 errors and provide the appropriate responses.
18 It's basically going to be more defining the
19 nature of the data itself.

20 Q. So the data -- this is the binary
21 data that contains the information, right?

22 A. Yeah, because it basically converts
23 the singles information that's received and does
24 the necessary error handling to validate the
25 error.

1 Q. When you say it converts,
2 specifically what in the data link layer is
3 converting information to its...

4 A. Well, the information is coming
5 across the physical layer through the VPN. The
6 VPW or PW is going to be in terms of symbols, so
7 it's got to translate that information so that
8 it has bits of information to be able to
9 communicate bit-wise across the application
10 layer. So it's got to do a converter.

11 Q. So let's back up for a second. So
12 the three layers of the OSI model shown here are
13 physical layer, data link layer, and application
14 layer, right?

15 A. Correct.

16 Q. So if we start with information that
17 goes through the application layer, that
18 information goes from the application layer to
19 the data link layer, right?

20 A. That is correct.

21 Q. And so the data link layers can
22 receive information that has been encoded and
23 placed into a message that has headers, right?

24 A. At the application layer, yes.

25 Q. So the message is created at the

1 application?

2 A. Well, the message for -- the message
3 information is formatted correctly for
4 communication with the J1850 bus by the
5 application layer.

6 Q. And then that message is sometimes
7 called a data frame?

8 A. It can be referred to as such.

9 Q. And the data frame is a series of
10 bits, right?

11 A. At a high level, yes.

12 Q. Okay. And those bits are -- some of
13 those are allocated to headers, right?

14 A. That is correct.

15 Q. Some of them are allocated to
16 information?

17 A. Correct.

18 Q. Some of them are allocated to error
19 correction?

20 A. Also correct.

21 Q. And the way that the data is
22 allocated, that's all something that's defined
23 by the protocol, right?

24 A. Well, there is other parts of that in
25 terms of what the type of message is, but yes,

1 it's defined by the protocol.

2 Q. Okay. So that message is created in
3 the application layer, right?

4 A. In terms of communication with the
5 1850, yes, that's correct.

6 Q. Okay. We're just talking about
7 J1850, right?

8 A. Right.

9 Q. And that message in this figure is
10 going to get passed to the data link layer which
11 is below -- conceptually below the application
12 layer, right?

13 A. Yes, that's correct.

14 Q. And then the data link layer is going
15 to do certain things up to that message, right?

16 A. Yes.

17 Q. So what's it going to do?

18 A. It does further error checking. It
19 also does the conversions necessary because if
20 it's going to go from the bus through the
21 application data link layer it's going to
22 eventually be propagated through the physical
23 layer. So it's going to have to make a
24 transition, if you will, or a conversion between
25 bits and symbols necessary to establish the

1 frame for retransmission by the physical layer.
2 And of course the reverse is true. If you've
3 got information coming in through the physical
4 layer, it has to appropriately make the
5 conversion to get it provide -- provided for the
6 application layer to go in the other direction.

7 Q. So to go back, the message is created
8 in the application layer, right?

9 A. Well, I hope a message is created
10 even before it hits the 1850 bus, but yes, the
11 application layer is going to receive that
12 information from the bus and is going to do the
13 necessary checks to ensure that it has the
14 appropriate information and then do the
15 translation of that information as an encroached
16 message.

17 Q. So the message to be transmitted over
18 the J1850 network is created before the
19 application layer gets involved, right?

20 A. Clearly there is a message coming
21 across the bus, yes.

22 Q. Let's talk about sending a message to
23 the bus.

24 A. Okay.

25 Q. That message is created before the

1 application layer?

2 A. Yes.

3 Q. The message is created -- there's a
4 software application that's going to create it,
5 right?

6 A. Well, when you say "the message," the
7 information is going to be a part of that
8 message, whether it be transferred through the
9 physical layer, evaluated in the reverse factor
10 in terms of frames, and then put in the
11 appropriate order necessary at the data link
12 layer for then providing that information to the
13 application layer, to then formatted in
14 accordance with the J1850 standard to be
15 propagated across 1850.

16 Q. So conceptually there is information
17 at the top here that goes -- it's put into a
18 message, runs through the application layer,
19 runs through the data link layer, is passed to
20 the physical layer, and from the physical layer
21 it goes out on the bus, right? Do you agree
22 that that's one way the information can flow?

23 A. It can go from the application to
24 data link to physical layer, yes, that's
25 correct.

1 Q. Okay. So let's start above the
2 application layer. And you said a message is
3 going to be created before the application
4 layer, right?

5 A. The information will be a part of the
6 message, yes, that's correct.

7 Q. The information that's part of the
8 message. And then a message is created, right?

9 A. Right.

10 Q. And the message has to conform to the
11 formatting requirements of J1850, correct?

12 A. It does, yes.

13 Q. All right. And where does that
14 happen?

15 A. Well, it happens first by whatever
16 unit is sending information traffic across the
17 1850 bus. It's going to be formatted in
18 accordance with the 1850 standard at that point.
19 And that, for instance, would be -- if such a
20 system is the originating device, then that
21 message would be formatted and provided at the
22 application layer.

23 Q. And then that message -- and that's
24 formatted and provided in algorithms at the
25 application layer?

1 A. That would be correct, yes.

2 Q. So algorithms being instead of the
3 software, right?

4 A. There is software loaded into a
5 system's firmware.

6 Q. Like a driver?

7 A. Say again.

8 Q. Like a software driver?

9 A. Like a driver, yes. That would be
10 part of the entirety of the algorithm.

11 Q. Okay. And the message is passed to
12 the data link layer, right, going down the OSI
13 stack?

14 A. Yeah. The way you're going, that's
15 correct.

16 Q. All right. And then the data link
17 layer is going to convert bits or symbols to
18 validated error free frames and data, right?

19 A. That is correct.

20 Q. All right. And that's done in
21 software?

22 A. Not necessarily. It can be done in
23 hardware as well.

24 Q. So it can be done in either software
25 or hardware; is that right?

1 A. Or a combination of the two.

2 Q. And then from the data link layer the
3 message is passed to the physical layer, right?

4 A. That is correct.

5 Q. And the physical layer does the
6 modulation over the particular scheme like
7 variable pulse-width or pulse-width modulation?

8 A. Correct.

9 Q. And then that information having been
10 modulated is passed over the data bus, right?

11 A. It would be passed over whatever bus
12 it's connected to, yes.

13 Q. And then all devices are going to see
14 that message, right, in J1850?

15 A. That would be correct.

16 Q. And then to process the message, that
17 message gets run back up the OSI stack, right?

18 A. That's correct. The reverse would
19 happen if there is a match so that that
20 particular node would be realized, yes.

21 Q. So if I say "transceiver," that's a
22 transmitter and a receiver, right?

23 A. Correct.

24 Q. So the physical layer of transceiver
25 is the component that modulates the message

1 using variable pulse-width modulation or
2 pulse-width modulation, right?

3 A. That would be correct.

4 Q. So when it transmits the message out
5 on the bus it's transmitting, right?

6 A. I would hope so.

7 Q. Okay. When the message is being
8 received at a node, the transmitter is
9 receiving, right?

10 A. The transceiver is receiving.

11 Q. The transceiver is receiving. Okay,
12 thank you. And in receiving, the transceiver is
13 going to demodulate the signal, right?

14 A. That would be a correct way to say
15 it, yes.

16 Q. And then the demodulated signal is
17 the message is passed back up to the data link
18 layer, right?

19 A. That is correct.

20 Q. And then from the data link layer to
21 the application layer?

22 A. Correct.

23 Q. And then from the application layer
24 to whatever application is going to use the
25 information, right?

1 A. That would be correct.

2 Q. Okay. So I'm going to publish a
3 document. Let me know when you --

4 A. In order to see it, I have to back
5 out of J1850. I see an Exhibit 20.

6 Q. No. You should see Exhibit 1065.

7 A. 1065, I see that, yes.

8 (Exhibit No. 1065 introduced.)

9 Q (BY MR. WICHMAN) Can you go ahead
10 and open that up?

11 A. Sure.

12 I have it open.

13 Q. Do you recognize that document?

14 A. Yes.

15 Q. Tell me what it is, please.

16 A. This is an expert report that I
17 submitted on infringement of four Omega patents.

18 Q. So you provided this expert report in
19 litigation between Omega and CalAmp; is that
20 right?

21 A. Yes, sir, that's correct.

22 Q. And page 48 of the PDF, that's your
23 signature?

24 A. That is correct. It's PDF page 48.

25 Q. Thank you. And you signed it on

1 April 15th of 2015; is that right?

2 A. Yes, sir, that's correct.

3 Q. Could you turn to page 100? Just let
4 me know when you're there.

5 A. I'm on page 100.

6 Q. So you are providing a mapping for
7 Claim 1 of the U.S. Patent 8,032,278 to two
8 CalAmp devices; is that right?

9 A. I'm just backing up. Page 94 does
10 specify this as Claim 1. So, yes, it's Claim 1.

11 Q. Okay. And U.S. Patent 8,032,278 I'll
12 refer to as the '278 patent, okay?

13 A. That's fine.

14 Q. And that's the same patent that's at
15 issue in this IPR, right?

16 A. It is.

17 Q. And you've looked at Claim 1 of the
18 '278 patent in connection with this IPR,
19 correct?

20 A. That is correct.

21 Q. And on page 100 of Exhibit 1065, you
22 referred to CalAmp's devices having a
23 multi-vehicle compatible controller, right?

24 A. That is correct.

25 Q. And you say that the multi-vehicle

1 compatible controller generates a sequence of
2 device codes, right?

3 A. That's correct.

4 Q. And you say that that includes a
5 series of messages for different protocols,
6 right?

7 A. I show that generating codes to the
8 term compatibility including -- including
9 identified various message formats related --

10 Q. And what is -- I'm sorry, go ahead.

11 A. Yeah. It's a message format related
12 to the protocol for a particular type of bus
13 system.

14 Q. So one of the messages that you
15 identify is J1850 VPW 68 6 alpha, fox-trot 1
16 message, right?

17 A. Yes, it is basic -- again, this
18 particular identification site on page 100 is
19 regarding the controller multi-vehicle
20 compatible controller generating codes to
21 determine compatibility with these various types
22 of message formats. In other words, a device
23 code and message format are not the same. The
24 codes are being developed compatible with
25 different vehicle type messaging format codes --

1 messaging formats, excuse me.

2 Q. So in your report, you say that the
3 multi-vehicle compatible controller generates a
4 sequence of device codes to determine
5 compatibility with different vehicles, including
6 the J1850 VPW 68 6 alpha, fox-trot 1 message; is
7 that right?

8 A. That's right. So it generates the
9 device codes and then separately from that there
10 is a determination of whether or not this is
11 compatible with different vehicle formats and
12 protocol transmission, and that's what that
13 statement says.

14 Q. So J1850 VPW, that's variable
15 pulse-width, right?

16 A. Yes, that's correct.

17 Q. So that's one of the types of
18 implementations of J1850 that we just saw in
19 Exhibit 1071, right?

20 A. Yes, that's correct.

21 Q. And it's one of the types of J1850
22 that's identified in Hunt's at Column 8 that we
23 looked at, right?

24 A. Yes, it is one of the transmission
25 type bus protocols.

1 Q. What is a 68 6 alpha, fox-trot 1
2 message?

3 A. That is just a particular format. I
4 don't recall sitting here what that was. It's
5 been a long time.

6 Q. All right. So 68 6A and fox-trot 1,
7 those are hexadecimal representation of bytes,
8 aren't they?

9 A. That is correct. It's hexadecimal
10 representation of bytes. I just don't remember
11 exactly what it is sitting here.

12 Q. Okay. So these are the first three
13 bytes in a message header for J1850,
14 specifically the VPW protocol, right?

15 A. That represents part of the message
16 format.

17 Q. And, in fact, a query sent over J1850
18 VPW is going to have five bytes, right?

19 A. As I sit here, it's possibly five
20 bytes. I just don't have a recall of that. I
21 apologize. It's been eight years.

22 Q. The first three bytes are a header,
23 right?

24 A. I would have to look at the J1850
25 spec, but yes, there is a start and there is a

1 header. There is a header information, yes,
2 that -- that then indicates how many bytes of
3 information will follow. That's also part of
4 it, but then, yes, it's going to be followed by
5 the actual message content itself.

6 Q. And so for J1850 VPW, the three byte
7 header can be 68 6A F1, right?

8 A. Well, as part of this format you're
9 going to have headers and then you're going to
10 have data that follows that, so yes, it could
11 be.

12 Q. And, in fact, it is, right?

13 A. That is the type of message that
14 would be the format of that type of message, and
15 that would be a header associated with that type
16 of message, yes.

17 Q. All right. If you can go back to
18 Exhibit 1071 at page 9.

19 A. Page again?

20 Q. Well, actually, before we leave this,
21 the J1850 VPW 68 6A F1 message is a device code,
22 isn't it?

23 A. Back to the document again. That
24 would be -- as I recall, that would be a code
25 associated with that particular message, yes.

1 Q. So what's the difference between a
2 device code and a communication protocol?

3 A. Significant difference.
4 Communication protocol establishes the format
5 for the information that is to be transmitted in
6 terms of identifying what the information is,
7 the source of the information, usually has
8 some -- and also has the information content.

9 And so all of this would be part of
10 the protocol. It's basically the format that
11 one is to conform to for the transmission of
12 information across a bus. It's the bus
13 protocol. That's different than the code that's
14 associated with a particular type of sensor or
15 controller or other type of device that would be
16 a node on a particular bus system. And so code
17 is established with the -- directly with the
18 node itself. The protocol is how you
19 communicate across a bus. They're two totally
20 different matters.

21 Q. So device codes are transmitted over
22 the vehicular network, right?

23 A. There are device codes that are used
24 to -- over the network so it can define exactly
25 the destination of the message. And clearly if

1 the processor or controller does not have the
2 appropriate codes to communicate with that
3 particular node, then basically that node will
4 never communicate to the processor.

5 Q. So J1850 provides a format for
6 transmitting device codes, right?

7 A. J1850 provides a format for
8 transmitting information in the form of message
9 traffic, and it's up to the application to
10 define what goes into that particular
11 information. 1850 establishes protocol.

12 Q. And a device code is different from a
13 protocol, as you just explained, right?

14 A. Right.

15 Q. So suppose in -- strike that.

16 Do you have a -- the Exhibit 1071 in
17 front of you?

18 A. No, I have to exit this one and get
19 the other one back up.

20 Q. All right.

21 A. Unless someone knows how I can look
22 at multiple shares at the same time. I'm not
23 aware.

24 Q. Well, perhaps if you download the PDF
25 for Exhibit 1071, you'll be able to keep it

1 open.

2 A. You want me to bring up 1062?

3 Q. No, 1071.

4 A. All right. 1071 I have.

5 Q. Okay. I want you to imagine this
6 scenario. Suppose we have a system where the
7 vehicle is using a J1850 network. Okay?

8 A. Okay.

9 Q. And we want to use J1850 to query
10 engine RPM, correct?

11 A. Okay.

12 Q. So you would agree that J1850 can be
13 used to query engine RPM, yes?

14 A. The system could be arranged to do
15 that, yes.

16 Q. So, for example, you could use
17 something called an OBD2 scan tool to query the
18 engine RPM, right?

19 A. You could, yes.

20 Q. So have you used a scan tool before?

21 A. Years ago, yes.

22 Q. Okay. So an OBD2 scan tool can
23 connect to an OBD2 bus through a diagnostic
24 connector, right?

25 A. That is correct.

1 Q. Including a bus that is implemented
2 using J1850, right?

3 A. Could, yes.

4 Q. And so that scan tool so connected
5 can query engine RPM over the OBD2 bus, right?

6 A. It could, yes.

7 Q. Okay. And the query is a message
8 transmitted over the bus, right?

9 A. It's in the form of a message, yes.

10 Q. Okay. And the message is what the
11 '278 patent calls the vehicle device code,
12 right?

13 A. The device code could be included as
14 a part of the message but it is not the message.

15 Q. Okay. So the device code like we
16 just saw for J1850 VPW would have the three byte
17 header 68 6A F1 followed by additional bytes of
18 the query, right?

19 A. It could, yes.

20 Q. That would be a device code?

21 A. Well, the device code -- again, when
22 you say, "this could be the device code," I
23 mean, device code is something that would be a
24 part of the message because it identifies the
25 particular target, if you will.

1 Q. So in Exhibit 1071, if you could turn
2 to page 9, please.

3 A. I'm at page 9.

4 Q. At the bottom, do you see where it
5 says, "Figure 3, "Three Byte Form of
6 Consolidated Header"?

7 A. I do.

8 Q. And Byte 2 is referring to "Target
9 Address," right?

10 A. That is correct.

11 Q. So in this context, the target is the
12 device that's being queried?

13 A. That would be correct.

14 Q. Okay. But the header itself doesn't
15 have information on what is being queried, does
16 it?

17 A. If you're talking about like speed
18 you're querying, for instance, what is the
19 speed, no, that would not be part of the header.
20 The header basically identifies the source and
21 destination.

22 Q. So there would be other bytes that
23 would specify what information you're seeking,
24 right?

25 A. There's a three byte format, if you

1 remember, and so there is a part of it you're
2 not only defining the source and destination
3 address, but you also have information with
4 regard to the type of message that you're --
5 it's a query message, but it's a query of
6 something. So it's a type of message, and that
7 would also be identified as part of the header.

8 Q. You're saying that the J1850 message
9 is limited to three bytes that form the header;
10 is that your testimony?

11 A. No, but I'm saying that there are
12 specific bits within the header that
13 specifically show the message type. In fact, if
14 you look on page 10 at Figure 4, this specific
15 gives you the format of the header. And if
16 you'll notice, it shows you various bits, which
17 I think are four bits that are specifically
18 addressed to the -- two bits specifically for
19 the message type. It's a part of the three byte
20 header.

21 Q. So I'm not talking about the header
22 anymore. I'm talking about the query itself,
23 the data. Would you agree that's not part of
24 the header, right?

25 A. Well, the header is part of the

1 entirety of the message traffic itself, because
2 otherwise your data would not have any use. It
3 would not know what to do with the data. So the
4 data -- the data follows the header, but the
5 header is what sets the stage for the
6 communication.

7 Q. You would agree that the header is
8 followed by data bytes, correct?

9 A. It would have data bytes following,
10 yeah.

11 Q. And those data bytes -- in a query
12 those data bytes will identify what device is
13 being queried and what information is being
14 queried, right?

15 A. Well, hopefully the query, as far as
16 the device being queried, would be part of your
17 header information because that sets up your
18 target address, right?

19 Q. Do you agree that there are -- an
20 engine has several bits of data that can be
21 queried?

22 A. Yes.

23 Q. Do you agree that RPM might be one?

24 A. RPM may be one, yes.

25 Q. Temperature might be one?

1 A. Can be.

2 Q. Okay. Do you agree that when a query
3 is sent for RPM that RPM has to be identified in
4 a data byte, right?

5 A. The RPM would be part of the data
6 byte, yes.

7 Q. Okay. So there is a header and then
8 there's data links, right?

9 A. Header and data that's all part of
10 the frame that you would use in a query
11 operation.

12 Q. And that data frame is a device code
13 as claimed in the patent?

14 A. No.

15 Q. No? Why not?

16 A. The data frame is a part of the --
17 you have a query that's part of your target and
18 your source addressing as well as the type of
19 message that's going to be requested in the
20 query, and then the data would not only be --
21 would obviously have to contain the information
22 that's related to the RPM, the actual data
23 itself. That's the data.

24 Q. Okay. So when the scan tool sends a
25 request for RPM to an engine, it has to send a

1 message over the OBD2 bus, right?

2 A. If it's in a diagnostic mode, yes,
3 that's correct.

4 Q. Okay. And that message is going to
5 contain a header that identifies a target
6 address and a source address, right?

7 A. Correct.

8 Q. And then -- but that message is also
9 going to include a byte that says send me RPM,
10 right?

11 A. It's going to have that because that
12 defines the query, yes. That would be part of
13 it as well.

14 Q. And when the engine or the engine
15 control unit responds, it sends a message back
16 to the scan tool, right?

17 A. Yes, because that was the origination
18 address, the source.

19 Q. And when the engine sends that
20 message, that message will have headers, right?

21 A. It has to perform -- has to go
22 according to the bus protocol, yes.

23 Q. And in addition to headers, the
24 message will contain the data that's been
25 requested, the engine RPM?

1 A. One hopes so, yes.

2 Q. Okay. So the message that's sent to
3 query engine RPM, that's a device code, right?

4 A. It would be a device code that's
5 associated with that query such that it is
6 understood by the destination to be a query for
7 a particular parameter such as temperature or
8 RPM and then it would return the message
9 according to that, yes.

10 Q. And the message that's sent back from
11 the engine, that's also a device code, correct?

12 A. Well, the information sent back is
13 the RPM.

14 Q. Was there a claim construction on the
15 term "device code" in this case?

16 A. Are you talking about in the IPR or
17 in this case?

18 Q. Well, strike that.

19 So tell me what the term "device
20 code" means in Claim 1.

21 A. Well, the claim code is construed by
22 the court. The court has construed that term,
23 and so I'll refer to that.

24 Q. Okay. So what claim construction did
25 you use when you evaluated whether the prior art

1 provides a device code?

2 Can I interrupt?

3 A. You may.

4 Q. You don't actually mention it.

5 A. I don't believe so. That's the
6 reason I was looking back as to how I would
7 respond to that. The thing is device code is
8 part of the prior art, so I'm not exactly sure
9 how to respond to your question. It's already
10 known.

11 Q. So if we go to Exhibit 1071, to this
12 Figure 1 on page 8, the map of J1850 to the OSI
13 model.

14 A. I'm there.

15 Q. I want to consider this hypothetical
16 again. We've got an OBD2 scan tool that's going
17 to query engine RPM, okay?

18 A. All right.

19 Q. And so I want to consider this OSI
20 model starting from the top and going down to
21 the data bus through the physical layer, okay?

22 A. All right. Got it.

23 Q. All right. So where is that query
24 generated for engine RPM?

25 A. That would be generated by some

1 source across the J1850 bus.

2 Q. Well, we've got the OBD2 scan tool.
3 Is it the scan tool that's going to generate the
4 query?

5 A. If that's part of this now
6 hypothetical, then yes, the scan tool would
7 generate the request for the query.

8 Q. Okay. And then it passes that
9 message query to the application layer?

10 A. It passes that query to the bus.

11 Q. To the bus. So now above the
12 application layer, has the message been
13 generated, the query been generated?

14 A. The query has been generated by the
15 source and propagated and delivered to the bus,
16 the 1850 bus.

17 Q. So I want to -- I want to determine
18 where in the OSI model, which layer is involved
19 when the message is generated. So tell me,
20 where is the header generated?

21 A. That -- that would be generated
22 within the transceiver hardware-wise. It would
23 be connected to the J1850 bus. And it depends
24 upon the way in which the application has been
25 implemented. That particular node could have

1 the transceiver as a separate piece of hardware
2 or it could be embedded as part of the overall
3 chip. But that would be -- it would be that
4 particular hardware that packaged the
5 information for transmission across the 1850
6 bus.

7 Q. So we agreed that the physical layer
8 is where you find a transceiver, correct?

9 A. The physical layer would have a
10 transceiver, that's correct.

11 Q. The transceiver is going to modulate
12 a message according to whichever protocol was in
13 use, right?

14 A. That is also correct.

15 Q. But the transceiver doesn't determine
16 what goes into the message, does it?

17 A. No, it doesn't. It -- from a
18 determination standpoint, it determines how it
19 formats and puts different pieces of the message
20 into that transmitting protocol, but it doesn't
21 determine the content itself, no.

22 Q. So let's go back to -- do you recall
23 we discussed your expert report from CalAmp
24 dated April 15th, 2015?

25 A. I recall that, yes.

1 Q. Okay. And in that there was
2 reference to device codes including a J1850 VPW
3 68 6A F1 message, right?

4 A. Yes, that's correct.

5 Q. And then 68 6A F1 has decimals for
6 the three bytes that form the header of the
7 J1850 message, right?

8 A. That is how I recall it, correct.

9 Q. And then that header, in the message
10 that header is followed by additional bytes that
11 specify what is being queried, correct?

12 A. Correct.

13 Q. And particularly now we're talking
14 about querying engine RPM, right?

15 A. In your hypothetical, that's correct.

16 Q. Okay. So a message has to be formed
17 with the correct message header and also
18 identifying engine RPM as the thing being
19 queried, correct?

20 A. The entire message content needs to
21 have that, yes.

22 Q. Okay. So starting above the
23 application layer, you've got the scan tool,
24 right?

25 A. Right.

1 Q. The scan tool itself is going to
2 generate that message, right?

3 A. The scan tool itself will generate
4 the message, correct.

5 Q. Okay. And then that message is going
6 to be passed to the application layer, right?

7 A. It would, yes.

8 Q. Because the application layer
9 provides the protocols that handle input-output,
10 right, and specify the interface with the user,
11 right?

12 A. That -- that part is correct.

13 Q. All right. And then from the
14 application layer, the message is passed to the
15 data link layer, correct?

16 A. If it's going that direction, that's
17 correct.

18 Q. Because the data link layer is going
19 to convert bits and symbols to validated error
20 free frames and data, right?

21 A. Correct.

22 Q. And then from the data link layer the
23 message is passed to the physical layer, right?

24 A. That is also correct.

25 Q. And the physical layer has the

1 transceiver?

2 A. The physical layer does have a
3 transceiver associated with it, yes.

4 Q. And that transceiver is going to
5 broadcast -- is going to modulate the message
6 and broadcast it on the bus, right?

7 A. On the buses connected to it, that's
8 correct.

9 Q. Okay. So the data code that
10 identifies engine RPM for the query and
11 identifies the engine as the target, that part
12 of the message doesn't -- is pulled together in
13 the application in the scan tool, correct?

14 A. With transmission of it, yes, that's
15 correct. It's origination.

16 Q. That's -- that's not -- that's not
17 introduced in the message in the application?

18 A. Your scan tool is going to have the
19 same operation. I mean, the communication with
20 the J1850 bus, you got to have both in the
21 source and the destination this type of
22 information content. So I'm not sure I
23 understand your question.

24 Q. So this happens in software in the
25 scan tool?

1 A. Well, there's software and hardware
2 that's going to be associated with the
3 diagnostic tool and it's going to take the
4 specific information in the query form and
5 transmit it in accordance with the J1850
6 protocol across the J1850 bus. The information
7 that's a part of the header is going to identify
8 what the destination is, is going to be the one
9 and only one unit, hopefully, that picks up and
10 retrieves that information, brings it in, and
11 then goes through its process to decode and then
12 provide an answer and then a response back to
13 the J1850 bus to then be picked up by the scan
14 tool. So they both have the kind of
15 configuration necessary to communicate over the
16 1850 bus, both the scan tool as well as the
17 destination module.

18 MR. SANTURRI: And when
19 you get to a good stopping point,
20 we've been going a little over an
21 hour.

22 MR. WICHMAN: Yeah. Well,
23 we've been going for -- one more
24 question and then we'll take a
25 break.

1 Q (BY MR. WICHMAN) On page 9 of this
2 Exhibit 1071, there is a Section 5.4 on network
3 implementation, right?

4 A. That is correct. That's where we're
5 talking about the three byte form in the header.

6 Q. And it says that, "The Network
7 Implementations based on this document have been
8 reduced to commonize hardware, software,
9 messages, and tools," right?

10 A. Correct.

11 Q. So like you said, the physical layer
12 is implemented in hardware, right?

13 A. Well, the physical layer in terms of
14 the actual transmission is going to be part of
15 the physical layer, but there can also be some
16 components that are a part of that in terms of
17 filtration and stuff that could also be
18 software. So I'm not going to say it's just
19 hardware.

20 Q. Okay. You say the data link layer
21 could be done in hardware, software, or a
22 combination, right?

23 A. Yes, that is correct.

24 Q. And you said that the application
25 layer is done with algorithms, meaning software,

1 right?

2 A. It could be done with algorithms, but
3 the algorithms that you're going to do in terms
4 of specific implementations, let's say, on
5 specific nodes within a particular vehicle, then
6 that could also be embedded as part of an ASIC.
7 It does not have to be just software.

8 Q. So the -- to go back to page 8 at the
9 top, the application layer has standard
10 messages, right?

11 A. Application layer has -- say that
12 again.

13 Q. The application layer involves
14 protocols to make sure that the messages conform
15 to a standard format, right?

16 A. It does. See, even on page 8 here in
17 the map, it even shows in the application layer
18 it's a combination of hardware or software.

19 Q. Could be hardware, correct?

20 A. Could be. Like I said, it could be
21 an ASIC or microcontroller working with an ASIC.

22 Q. But that's simply for message
23 streaming with filtering functions, right?

24 A. That's what it shows, yes.

25 Q. Yeah. But which can also be done

1 with software, right?

2 A. That's why it says hardware or
3 software.

4 Q. Yeah, okay. And like we said, the
5 message is formulated in software and developed
6 and delivered by the scan tool to the
7 application layer, right?

8 A. Now, it can be formulated in the
9 software. Once again, even the scan tools --
10 there's scan tools in the industry that are very
11 specific. They only -- and they could scan
12 across, but the -- but the nodes on which they
13 can communicate with were specific to certain
14 types of vehicles. And so they did not have all
15 of the necessity built in to do it. And many of
16 those were ASIC implemented, where the actual
17 types of devices that it could communicate with
18 was hard-wired, if you will, as far as in an
19 ASIC. It was not necessarily under software
20 control.

21 The firmware that generates the
22 operating system is certainly firmware or
23 software controlled, but the actual
24 communication could be relegated to a specific
25 set that were not alterable, which would be

1 built into a device such as an ASIC. So it
2 could be hardware only in terms of the protocol
3 for communication.

4 Q. So your testimony is that the
5 application layer could be implemented in either
6 hardware or software or both; is that right?

7 A. It can be.

8 MR. WICHMAN: Let's --
9 we've been going 70 minutes. Let's
10 take a 10-minute break, and that
11 would bring us up to 11:30 your
12 time. Okay?

13 THE WITNESS: Fine.

14 MR. WICHMAN: Off the
15 record.

16 (Recess 11:21 a.m. to 11:34 a.m.)

17 Q (BY MR. WICHMAN) Mr. McAlexander,
18 during the break did you speak with counsel for
19 Omega?

20 A. No.

21 Q. Before we broke, you mentioned an
22 ASIC, correct?

23 A. I did.

24 Q. That refers to an
25 application-specific integrated circuit?

1 A. That is correct.

2 Q. And you've designed those, right?

3 A. I've designed ASIC functionality
4 within the systems I've done, yes.

5 Q. Do you have your Declaration in front
6 of you, Exhibit 2010?

7 A. I will pull it up.

8 Q. You should have a hard-copy.

9 A. I will do that as well. I have it up
10 on the screen as well as hard-copy.

11 Q. Turn to paragraph 72, please.

12 A. I have paragraph 72 up.

13 Q. In paragraph 72 you distinguish an
14 ASIC from a programmable logic device; is that
15 right?

16 A. Yes, that is correct.

17 Q. What is a programmable logic device?

18 A. It can come in multiple forms. A
19 programmable field gate array, FPGA, would be
20 one way to do it. It's a device that has the
21 ability to be altered, whereas an ASIC is
22 inoperable. It's hard wired, it's fixed. It
23 basically represents the best way in which a
24 designer chooses to implement a particular
25 structure.

1 Typically, the ASICs are faster
2 because they're hardwired. There is no decision
3 processing that has to take place. And a
4 nonvolatile type device will be the type of
5 device in which you could program it and
6 reprogram it and alter what it does or the
7 configuration or the functionality.

8 Q. Are you done?

9 A. With that question, yes.

10 Q. So why are you referring to a
11 nonvolatile device in connection with an ASIC?

12 A. Well, the nonvolatile -- a volatile
13 device would be one that when power is turned
14 off, the essence of everything that's in that
15 volatile memory is gone. It's -- you cannot
16 restore it, cannot recover it. A nonvolatile
17 memory is one in which you can program to
18 specifically communicate using different
19 functionality or specific parameters. And even
20 when power is turned off that information
21 remains.

22 And so that's why I referred to
23 nonvolatile. A nonvolatile aspect is one in
24 which you can either have it programmable or
25 nonprogrammable. And the ASIC is

1 nonprogrammable, whereas a nonvolatile memory,
2 such as a EEPROM or something in a
3 microcontroller that has either an on-board
4 programmable memory or can communicate with an
5 off-board programmable memory that allows you to
6 make manipulations of the information and still
7 have it be stored.

8 Q. So you mentioned FPGAs, right?

9 A. Yes, I did.

10 Q. Field programmable gate array is an
11 FPGA?

12 A. That is correct.

13 Q. And that's an example of a
14 programmable logic device?

15 A. That is correct.

16 Q. And the configuration of an FPGA is
17 set by software, right?

18 A. It would be a software within the
19 tool that sets that, yes. The actual storage
20 information is hardware, but one would use some
21 type of software in order to engage it and to
22 change the data that's associated with the FPGA.

23 Q. So when you mention a volatile
24 device, are you saying an FPGA is an example of
25 a volatile device?

1 A. No. A volatile device would be
2 dynamic random-access memory or static
3 random-access memory as an example. FPGA would
4 be a nonvolatile type of device.

5 Q. When -- so I'm trying to understand
6 why volatile/nonvolatile matters to the finding
7 in ASIC. Can you explain that again?

8 A. Well, I was merely giving you
9 examples of different ways in which circuits
10 could be implemented. Volatile DRAM means that
11 it's not -- the corollary to ASIC is the ASIC is
12 hardwired so it retains its information, its
13 logic, whereas a volatile memory is not going to
14 retain the information data functionality of
15 anything once the power is turned off. So that
16 was my comparison there.

17 An FPGA is a nonvolatile type of
18 memory where you can actually program it, but an
19 ASIC is not something you can program because
20 it's hardwired based on the mass fit used during
21 wafer fabrication is built to specifically
22 function and to precisely execute certain
23 functionality and is not programmable.

24 Q. So does an ASIC include a
25 microprocessor?

1 A. No.

2 Q. Does an ASIC include --

3 A. An ASIC can be included in a
4 microprocessor as a system on a chip, but an
5 ASIC itself is not a microprocessor.

6 Q. So if Hunt described an ASIC as
7 including a microprocessor, does that mean that
8 Hunt is using the term "ASIC" differently from
9 you?

10 A. He is using the fact that the ASIC
11 can have -- as a system, you can certainly
12 design systems in which they have both. And so
13 I think it's just a matter of what he called it.

14 Q. But that wasn't my question. You
15 said definitively an ASIC does not include a
16 microprocessor, right?

17 A. By definition it does not, that's
18 correct.

19 Q. Okay. So if Hunt says that an ASIC
20 does include a microcontroller, Hunt is using
21 the term "ASIC" differently, right?

22 A. He is using it in terms of an ASIC
23 that he has shown in the specification can
24 include a processor. He has shown it as such.
25 Let me bring up the spec. '278. Can you refer

1 specifically to where he calls that out so we
2 can make sure the record is clear?

3 Q. I will in just a moment, but first
4 let's -- I want to be clear here. An ASIC, by
5 definition, does not include a microprocessor;
6 that's your testimony? You said it twice.

7 A. And, actually, a fundamental
8 rudimentary ASIC does not include a processor.
9 One can have a processor that's incorporated as
10 a part of a total chip, but the ASIC part itself
11 is application-specific integrated circuit and
12 it's specifically wired to be specific to a
13 particular application.

14 Q. And then the question is: If Hunt
15 says that his ASIC includes a microprocessor, he
16 is using the term "ASIC" differently than you;
17 is that right?

18 A. Again, I'll ask you for clarification
19 since it's what you want to do. Let's go
20 specifically to what he calls it out so I can be
21 very specific in my answer to how he phrases it.
22 If we can look at the '278 patent and identify
23 what cite you're looking for, for that question.

24 Q. No, let's -- not the '278. Let's
25 talk about Hunt. 1023.

1 A. Okay.

2 Q. Do you see -- do you see Claim 63?

3 A. In Hunt?

4 Q. In Hunt, yes.

5 A. This is --

6 Q. Column 16.

7 A. -- Exhibit 1023?

8 Q. Yes.

9 A. Claim 16?

10 Q. No. Let's back up. Talking about
11 Hunt, correct?

12 A. That is correct.

13 Q. Hunt is Exhibit 1023, right?

14 A. That is correct.

15 Q. At Column 16 of Hunt you'll find
16 Claim 63, right?

17 A. Excuse me. That's what you said. I
18 just misheard it. That's correct.

19 Q. And Claim 63 says a single ASIC
20 comprising a microprocessor, right?

21 A. Yes.

22 Q. So is -- Hunt is describing an ASIC
23 as including a microprocessor, right?

24 A. In that particular claim he is
25 basically saying the chip of a single unit that

1 he is calling an ASIC includes that. Now, he's
2 just saying that in his particular embodiment he
3 is going to include a processor in the overall
4 ASIC device itself. Rather than having the
5 microprocessor and the ASIC separate devices, he
6 is actually putting these together as a single.
7 That would be like putting a system on the chip.
8 That's not disconnected from what I was saying.
9 They are different structures, but it doesn't --
10 it doesn't mean you can't combine them.

11 Q. And the microprocessor has to be
12 programmed to do anything, right?

13 A. Microprocessor has to be programmed
14 what?

15 Q. To -- to do anything?

16 A. The microprocessor has to be
17 programmed. It may have -- if it's a true
18 microprocessor that has microcode embedded in
19 it, then yes, it would be programmed to do so.
20 If it is a general microprocessor on which the
21 -- basically the only thing it has is
22 instructions to go get information from an
23 off-chip nonvolatile device, then it may or may
24 not be on the processor itself. But in general,
25 if you look at the processor and the program

1 storage device that it's in communication with,
2 that set would be, in quotes, programmable.

3 Q. Can you turn to paragraph 74 of your
4 Declaration?

5 A. Okay, I'm at paragraph 74.

6 Q. Paragraph 74 you were referring to
7 Hunt, right?

8 A. I am.

9 Q. And you say that, "Any data
10 hypothetically downloaded cannot be operated on
11 by the ASIC since the programming of the ASIC is
12 fixed," right?

13 A. Yes, that's correct.

14 Q. Okay. So this is the ASIC in Hunt,
15 right?

16 A. That is correct.

17 Q. So what do you mean by, "the
18 programming of the ASIC is fixed"?

19 A. The definition -- the generation of
20 an ASIC occurs based upon a design. And whether
21 then relying on software or firmware to execute
22 the necessary logic to perform functions, it's
23 built in hardware. It's exercised in
24 transistors and resistors and capacitors and
25 sometimes inductors, but in combination

1 developing hardwired circuitry so that when a
2 particular set of signals was desired to be
3 processed, the ASIC receives those signals and
4 through its hardwired built-in logic creates the
5 answer to a very fast way to do it rather than
6 having to go back to a processing function and
7 interpret the signal and then make a decision on
8 the signal as to what its function is and then
9 call that particular executable set of modular
10 code out of firmware and then to begin the
11 process of executing that firmware takes a long
12 time to do that.

13 So an ASIC is built in to immediately
14 just respond to the inputs and give you an
15 output. It's hardwired. And that's done in
16 wafer fabrication when the ASIC is fabricated
17 during its chemical mechanical processing, using
18 photolithographic wafer or masks, that circuitry
19 is developed and hardwired, implemented, and
20 substantiated on that substrate chip.

21 And when you end up with that chip
22 that you then package, that chip functions
23 directly in accordance with the way it's been
24 hardwired. There is no modification of that at
25 all.

1 Q. So when you refer to the programming
2 of the ASIC as fixed, you're referring to the
3 logic gates that have been defined by
4 photolithography and fabricating the component;
5 is that right?

6 A. That is correct.

7 Q. Okay. But we just saw that Hunt's
8 ASIC includes a microprocessor, correct?

9 A. Well, Hunt's ASIC in his claim says
10 that his system, his chip or his device is
11 incorporating an ASIC and a processor together.
12 That's what he does. So when you look at the
13 processor of Hunt, the processor of Hunt
14 executes the firmware, but it's at the operating
15 system level, and the ASIC is what forms the
16 actual -- what describes the ASIC device that
17 has all of the communication circuitry and
18 coding necessary for the communication of the
19 various vehicles.

20 He also identifies a microprocessor
21 that can be external or internal that handles
22 the processing, the communication itself, but it
23 has nothing to do with the circuitry that
24 provides the necessary communication based upon
25 the particular protocol standard. So yeah, he's

1 -- he's including a processor on that, such as
2 the processor he shows in Figure 1B as external
3 to the ASIC, and then when he says there is
4 another implementation that is within that same
5 device. This is framing the microprocessor that
6 performs those arm functions onto the same
7 device that has the ASIC. But that doesn't mean
8 that the microprocessor then is doing the ASIC
9 functions.

10 Q. Would you turn to Hunt's Column 10?

11 A. Column 10?

12 Q. 10, yes.

13 A. Okay.

14 Q. The paragraph beginning at line 46.

15 Do you see that?

16 A. Yes, I see that.

17 Q. So in this line 46 Hunt describes
18 different embodiments of the present invention,
19 right?

20 A. He says -- in this section of the
21 paragraph that you're -- it's kind of
22 aspirational. He says, "Further, some
23 embodiments of the present invention may be
24 implemented," then he gives different ways to do
25 it.

1 Q. So one way is as a -- in whole or in
2 part or as a -- strike that.

3 One way to implement the invention is
4 in part or in whole is a hardwired circuit,
5 right?

6 A. Yes, that's his statement. But no
7 corroborating evidence, but that's his
8 statement.

9 Q. "Another way to implement present
10 invention in part or in whole is as a circuit
11 configuration fabricated into an
12 application-specific integrated circuit,"
13 correct?

14 A. That's his statement here. Again, no
15 corroborating evidence to support how, but yes,
16 that's the statement he makes.

17 Q. That's the ASIC, right?

18 A. It says, "fabricated into an
19 application-specific integrated circuit," right.
20 So it's a circuit hardware.

21 Q. An ASIC that we've been discussing,
22 right?

23 A. Well, we've been discussing an ASIC.
24 And he is showing here that you can put all of
25 this in an ASIC.

1 Q. And he's also saying that,
2 "Embodiments to the present invention can be
3 implemented in part or in whole as a firmware
4 program loaded into nonvolatile storage," right?

5 A. He says that.

6 Q. He says that, "Embodiments of the
7 present invention can be implemented in part or
8 in whole as a software program loaded from a
9 data storage medium," right?

10 A. Well, it's interesting -- it's
11 intriguing that he says that, "the application
12 in part or as a whole." So if you even look at
13 it as a whole, I would dare say he would have a
14 lot of trouble trying to find a way to put all
15 of what he has defined as an invention in a
16 firmware program alone and not have any
17 hardware. It personally doesn't make sense, but
18 that's what he says.

19 Q. It says, "Embodiments of the present
20 invention can be implemented in part or in whole
21 as instructions executed by a microprocessor,"
22 right?

23 A. That's what he says.

24 Q. And he says, as we saw in Claim 63,
25 that his ASIC comprises a microprocessor, right?

1 A. Doing certain functionality. So he
2 is saying that you can take the invention as a
3 whole, which you go back and look at his figure,
4 he has a number of different things that are
5 being done. The firmware that's associated with
6 the multiplexing, with the access, the protocol,
7 for communication, as well as the communication
8 circuit. So just because he has a
9 microprocessor on a chip does not define exactly
10 what that microprocessor does.

11 Q. And before the break we were
12 discussing J1850, right?

13 A. We were, yes, a number of times.

14 Q. And you -- and you said that the
15 application layer and the data link layer could
16 be implemented as software, hardware, or a
17 combination of both, right?

18 A. You had made mention of that, and I
19 had said yes, it can be. But if you look at it,
20 there is a specific one of three areas that
21 J1850 says can be implemented as hardware or
22 software. It never said the entirety of it
23 could be.

24 Q. Do you disagree that the application
25 layer and data link layer can be implemented

1 entirely in software?

2 A. Yeah, because you have to have
3 hardware that actually connects to the node.
4 The application and firmware cannot connect to a
5 node. You have to have -- you have to have some
6 physical structure.

7 Q. So I'm not talking about the physical
8 layer. I'm talking about the data link layer
9 and the application, right?

10 A. Yeah, you are. And I'm trying to
11 envision why anyone would want to implement it
12 totally in firmware because it exorbitantly adds
13 to the length of time necessary to put
14 everything together, but it does make -- it does
15 make a statement that one of the particular
16 areas in the application layer can be
17 implemented in software or hardware. That's
18 what we read and talked about earlier.

19 Q. Do you disagree that the application
20 layer and the data link layer for J1850 can be
21 implemented entirely in software?

22 A. The application layer is -- would
23 involve executable code. One -- I'm not going
24 to deny the fact that someone may want to put it
25 all in a software firmware type thing, but that

1 firmware software has to be executed, and the
2 execution is done by a hardware device such as a
3 processor. So I find it to be not the best way
4 to do things if one is not going to involve some
5 part of hardware in order to execute the layer.
6 Otherwise, the firmware is just sitting there
7 and can do nothing apart from some processor or
8 some device operating on that firmware.

9 Q. Do you disagree that the application
10 layer and the data link layer for J1850 can be
11 entirely implemented in software running on a
12 processor?

13 MR. SANTURRI: Object to
14 the form.

15 A. I don't think J1850 defines. J1850
16 basically says you've got these various
17 protocols that are on an interface for the
18 purpose of transmitting across a J1850 bus.
19 That's what their -- that's what its protocol
20 for, is how to communicate. There are various
21 stages of the three layers described.

22 I don't think that the J1850 is
23 necessarily telling a particular application
24 implementation such as an OEM how they are to
25 construct it. They're just saying that this has

1 to be a part of it. I don't think they're
2 telling them precisely how to implement that.

3 I'm not going to deny that there may
4 be some mechanism by which one would implement
5 all of that just in software, but it would be --
6 I think it would be problematic from a
7 communication standpoint and timing standpoint.
8 I would anticipate there would have to be some
9 hardware that's associated with it. I am not
10 going to negate the fact that they're made; it's
11 just not the right way to do it.

12 Q (BY MR. WICHMAN) If the
13 communication protocol in Hunt were implemented
14 above -- well, strike that.

15 In Hunt, for a communication protocol
16 layer above this physical layer, if those layers
17 were implemented in software, would that
18 programming be fixed?

19 A. You prefaced your statement with
20 "if." Hunt does not teach that, does not show
21 it, does not describe it. The only thing he
22 describes in terms of a communication circuit is
23 ASIC and hardware, which is nonprogrammable. It
24 is fixed. So your "if" goes into the
25 hypothetical, but that hypothetical is not what

1 Hunt teaches.

2 And if one were to do that, looking
3 at Hunt and come up with that particular way of
4 implementation, it would be teaching away from
5 Hunt, from what Hunt teaches or what he shows.
6 And, to me, the only way one could arrive at
7 that is 20/20 hindsight, to just answer your
8 hypothetical.

9 Q. So Hunt says that combining of the
10 present invention can be implemented in part or
11 in whole in software executable by a
12 microprocessor, right?

13 A. Once again, it's an aspirational,
14 into the clouds throw in the tank of everything
15 you could possibly do, but there is no support
16 in the specification for it. And there is
17 certainly no showing or exhibition of how one
18 would do something such as that. Again, these
19 are just statements at the end of the document,
20 and I think they are statements that are
21 unsupportable by the specification.

22 Q. So in Column 10, there's a paragraph
23 that starts at line 55.

24 Are you there?

25 A. Yes, sir, I am.

1 Q. Okay. At line 59 it says, "The
2 actual software code or specialized control
3 hardware used to implement some of the present
4 embodiments is not limiting of the present
5 invention. Thus, the operation behavior of
6 embodiments are described without specific
7 reference to the actual software code or
8 specialized hardware components. The absence of
9 such specific references is feasible because it
10 is clearly understood that artisans of ordinary
11 skill in the art would be able to design
12 software and control hardware to implement the
13 embodiments of the present invention," right?

14 A. That again is a wonderful what I call
15 escape clause at the end of a specification.
16 That specification says what it says, but he has
17 no supporting evidence as to how one would do
18 that in the specification of the '133 patent.

19 Q. Did I read it correctly?

20 A. Yes, you read it correctly.
21 Congratulations.

22 Q. Paragraph 75 of your Declaration.

23 A. All right, sir. I'm on paragraph 75
24 on page 39 of my Declaration.

25 Q. You say, "There is no need for

1 vehicle device codes to be downloaded in Hunt
2 via a downloading interface since an ASIC cannot
3 do anything with these codes," is that right?

4 A. Yes, sir, that's correct.

5 Q. So when we were discussing
6 Exhibit 1071, we were discussing an OBD2 scan
7 tool transmitting a message through the OSI
8 stack onto a vehicle bus, right?

9 A. We were discussing that, yes.

10 Q. Okay. Isn't the whole point of the
11 OSI stack to transmit messages on a network?

12 A. If I understand your question
13 correctly, part of an OBD2 transaction you have
14 a node for both transmitting and receiving. So
15 I don't think your statement is completely
16 correct.

17 Q. The network is there to transmit
18 information between nodes, correct?

19 A. That part is correct, yes.

20 Q. And the device codes -- the vehicle
21 device codes you refer to in paragraph 75 are
22 part of the message transmitted on the network,
23 correct?

24 A. That is correct.

25 Q. Isn't the whole point of Hunt's ASIC

1 to provide a mechanism to transmit those
2 messages?

3 A. In part I agree with you that in
4 Hunt, Hunt's teaching an ASIC that has the
5 embedded fixed information that would be
6 associated with the various nodes. And so Hunt
7 does transmit and package for transmission
8 across buses. And that, again, is the internal
9 communication between -- that's built into the
10 vehicle system itself.

11 And so you've got the processor when
12 it executes firmware will call on certain
13 aspects, and the aspects are embedded within an
14 ASIC device. That's where it is located. And
15 so it's hardwired. So yes, that is a part of
16 the communication scheme across that internal
17 bus. But it has nothing to do with download.

18 Downloading is where you have
19 someplace where it will come in and enable or
20 alter or change and that's associated with the
21 code. But that has nothing to do with the fact
22 that -- apart from downloading. A processor in
23 cooperation with an ASIC can implement and talk
24 to certain nodes. It's just it's hardwired,
25 it's fixed to which ones it can talk to --

1 Q. In Hunt --

2 A. -- which is the -- excuse me -- which
3 is the essence of Hunt.

4 Q. In Hunt's Column 8, starting on
5 line 14 --

6 A. Hold on. By the way, thank you for
7 sending the documents in hard-copy.

8 Q. Makes it a little easier.

9 A. In Column 8?

10 Q. Column 8.

11 A. Okay.

12 Q. So on line 14, Hunt says that, "The
13 vehicle communication Circuit 25 in Figure 1B is
14 a custom ASIC that features individual modules
15 for managing communication protocols," right?

16 A. Once again, the line number I was
17 reading, I missed it.

18 Q. Starting on line 14.

19 A. All right. Yes, that is correct,
20 what you just said.

21 Q. Okay. What -- how does managing
22 communication protocols require that device
23 codes are fixed in an ASIC?

24 A. Well, Figure 1B specifically refers
25 to a custom ASIC that features an individual

1 module. So the individual module is shown in
2 Figure 1B as 25 is your ASIC and the
3 implementation is in 25A, B, C, and D. So they
4 have different communication circuits that he is
5 discussing here to basically communicate over
6 various buses. So that establishes in those
7 particular circuits the protocol.

8 Q. If you go to Figure 6 --

9 A. And that's how it manages the
10 communication protocol for the different
11 vehicles. It has different modules and
12 circuits, hardwired circuits, that are
13 specifically there to be called on depending on
14 the configuration of the bus.

15 Q. So if you look at Figure 6. Go to
16 Hunt's.

17 Do you see that?

18 A. Yes.

19 Q. So the circuit is referred to as 200;
20 is that right?

21 A. Yes, that is correct.

22 Q. And if you could -- since you have a
23 hard-copy, if you could look at Column 9,
24 line 28.

25 A. All right. It begins the description

1 of Figure 6, which refers to Column 2, is the
2 logic diagram for J1850 VPWM and J1850 PWM
3 circuit in the ASIC.

4 Q. Correct.

5 A. Okay.

6 Q. And it says at Column 9, lines 32,
7 "These logic diagrams represent circuits that
8 function as individual modules and are
9 integrated directly into the ASIC," right?

10 A. I thought you were originally
11 reporting -- looking at Column 9, line 28,
12 Figure 6 and 7.

13 Q. No, no, no. Then below that,
14 starting on line 32, it's referring to these
15 logic diagrams 200 and 210, right?

16 A. Yeah, the logic diagrams, which would
17 be the actual circuitry that would be used
18 within the module for the J1850.

19 Q. And if we go back to Figure 6, these
20 are -- it identifies commercial off-the-shelf
21 components that are transceivers used with
22 J1850, right?

23 A. That's right. They basically handle
24 the bus arbitration.

25 Q. So this circuit is showing the -- I'm

1 sorry.

2 Figure 6 is showing circuits that
3 implement the physical layer of J1850, right?

4 A. It does, yes.

5 Q. Okay. So show me in Figure 6 where
6 the device codes are identified.

7 A. There is not any device code that is
8 here. This is -- this is the circuitry as
9 stated in Column 9. These are the logic
10 diagrams for the vehicle communication module
11 supporting the J1850 and the ISO 9141 protocols
12 described. And so that -- these diagrams,
13 according to line 33, represent the circuits
14 that function as individual modules within the
15 data communication circuit and are integrated
16 directly into the ASIC. So there is other parts
17 of the ASIC that's not described here. This is
18 basically the physical portion of it that
19 handles the communication.

20 Q. If you would look at Figure 1B.

21 A. Figure 1 --

22 Q. 1 Bravo.

23 A. All right. I have that.

24 Q. All right. So there is a
25 microprocessor, right?

1 A. That's correct. That's the arm
2 processor.

3 Q. And then there is this component 25
4 with a dotted line that within it contains what
5 are called communication circuits, right?

6 A. That's correct.

7 Q. And Hunt refers to those
8 communication circuits as modules, right?

9 A. He does, yes.

10 Q. And when Hunt describes this ASIC,
11 he's saying that these modules are part of an
12 ASIC, right?

13 A. That's correct, it's part of the
14 ASIC.

15 Q. And then this Component 25 connects
16 to an interface to an OBD2 Diagnostic Board 23,
17 right?

18 A. That shows that the ASIC as a whole
19 has some communication to that, yes, that's
20 correct.

21 Q. Okay. So in Figure 1B, tell me what
22 it is that requires a communication circuit to
23 contain a device code.

24 A. Well, he is describing an ASIC, which
25 is 25. I think we're in agreement on that,

1 correct?

2 Q. Well, that's one embodiment of an
3 ASIC in Hunt, correct?

4 A. Right. And for this Figure 1B, the
5 ASIC includes these communication circuits, and
6 he -- Hunt describes these communication
7 circuits. Let me look here. He describes these
8 communication circuits. For instance, at
9 Column 5, line 65, where he says that each
10 module, 25A through 25E, is a separate
11 integrated circuit within the Vehicle
12 Communication Circuit 25. And so he has shown
13 that these are transistor level logic level
14 circuits, fixed.

15 And then let me see. And then he
16 specifically says Figures 5 -- 5 through 7 -- I
17 think it's really 6 and 7 -- showed detailed
18 schematic drawings and embodiments of both the
19 vehicle communication circuit and some of the
20 modules included therein. So he's describing
21 parts of what's in that ASIC, and it's not the
22 entirety of what's in the ASIC.

23 Q. We looked at Figure 6, and we agreed
24 that that is a circuit for a transceiver that
25 implements a physical layer, right?

1 A. That's correct. So that implements
2 the communication protocol necessary to transmit
3 or receive from that particular bus.

4 Q. At the physical layer, right?

5 A. Yes.

6 Q. Okay. So I'll ask again. What is it
7 in Hunt that requires any of these modules in 25
8 as shown in Figure 1B to include a device code?

9 A. Where does he discuss device code?

10 Q. Let's go back to your testimony,
11 paragraph 75. You say that, "An ASIC cannot do
12 anything with these codes," referring to vehicle
13 device codes, right?

14 A. And that's with -- you could not do
15 anything with the codes that are downloaded.
16 That's a download interface nonexistent in Hunt.

17 Q. I want you to tell me every point in
18 Hunt on which you rely upon to form the
19 conclusion that device codes are fixed in these
20 vehicle communication circuit ASICS.

21 MR. SANTURRI: Object to
22 the form.

23 A. If that's what you want me to do, I
24 can certainly go through this document page by
25 page. It's going to take a while.

1 Q (BY MR. WICHMAN) Well, let me --
2 let's do it this way. If you can turn to
3 paragraph 77.

4 A. Paragraph 77.

5 Q. 77. Just let me know when you're
6 there.

7 A. I'm there.

8 Q. You say that the vehicle codes in
9 Hunt are fixed during manufacture, right?

10 A. Yes.

11 Q. I want to know what disclosure in
12 Hunt you relied upon to form that opinion.

13 A. All right. I've looked through the
14 specifications. And when it comes to Hunt as a
15 whole, Hunt as a whole is directed to a
16 particular type of ASIC implemented circuitry
17 shown in Figure 1B, Figures 1A and 1B,
18 particularly in Figure 5, which shows
19 collaboration of the structure that can include
20 a controller and a multiplexer on the chip with
21 a -- on the device with the communication
22 circuits.

23 What he is describing is the
24 communication circuit as a whole that is
25 embedded in an ASIC or communication over the

1 OBD2 bus. Now, the only thing that he supports
2 with the microprocessor is, for instance, if I
3 look at Column 5, beginning on line 61, the
4 entire communication -- "Vehicle Communication
5 Circuit 25 is integrated into a single ASIC and
6 manages communication through the
7 Electrical/Mechanical Interface 23 and separate
8 Modules 25A through 25E for different vehicle
9 buses, each of those featured in Ford, GM, and
10 Toyota. Each Module 25A through 25E is a
11 separate integrated circuit within the Vehicle
12 Communication Circuit 25. And Figures 5 through
13 7 described in detail below show detailed
14 schematic drawings of embodiments that goes into
15 the other communication aspect."

16 All right. I see no information in
17 here other than Hunt's showing that he has an
18 ASIC implementation for communication with
19 various bus structures. And a decision process
20 has been made as to which bus structure
21 internal, like the OBD2 bus, are using OBD2
22 communication across one or more buses to
23 determine what the bus architecture is for that
24 communication. And then it shows that within
25 each one of the Communication Circuit Modules 25

1 there is a specific hardware transceiver that is
2 used for the actual communication.

3 So to answer your question, Hunt
4 shows nothing with regard to any data
5 connectivity or communication other than to show
6 what he has described in the ASIC. He makes no
7 mention of anything else that could arbitrate or
8 be a part of that at all. So you're not going
9 to find device code listed here. If we go back
10 to my paragraph 75 -- because that's what we
11 were speaking about.

12 Q. 77.

13 A. 77. And all I'm saying is anything
14 that could have to do with the communication is
15 built into the ASIC. There is nothing that
16 shows any communication other than that. So
17 there is no need -- there is no need to download
18 any kind of communication or device codes
19 because anything that's a part of the
20 communication would be stored in the ASIC.
21 There is no teaching of anything other than
22 that.

23 So that's the basis of my statement.
24 There is no need for instructions to select the
25 vehicle device codes from those already stored

1 because everything that has to do with
2 communication according to the specification is
3 built into the ASIC. I see nothing that
4 deviates from that throughout the specification.

5 Q. Is that your answer?

6 A. Yes. I've looked through the
7 entirety of the Hunt spec. And I see no --
8 nothing that would instruct anything other than
9 through the ASIC because that's the only thing
10 that's defined for communication. And the
11 communication is according to different
12 protocols. But, again, Hunt is basically
13 talking about the protocol and selecting a
14 protocol for transmission, not anything at all
15 to do with the features or the nodes that would
16 be associated with that. Let me look at one
17 other thing here.

18 Now, in Column 9, the only thing that
19 I see -- there is a Column 9, line 18, this is
20 after it talks about the specific modules that
21 are develop the -- that are chosen for the
22 protocol. Once that is selected, it says, "The
23 Hunt's vehicles" -- this is Column 9, line 18.
24 "Vehicle communication protocol is determined.
25 After that happens the microprocessor then

1 communicates the protocol to the microcontroller
2 over the data link."

3 Now, if you're going to communicate
4 the protocol over, that means you're
5 transmitting the protocol. And the only thing
6 that's involved in the protocol is the
7 information such as the header, the data packet,
8 and all of that. And that's -- and the only
9 thing that the microprocessor can do is
10 communicate it. Everything that has to do with
11 that protocol and the communication is involved
12 in the ASIC according to the spec.

13 Q. Sorry, are you done?

14 A. I believe so, for that question.

15 Q. In Column 9, the microcontroller --
16 or, sorry, the microprocessor determines which
17 communication protocol is being used by the host
18 vehicle, correct?

19 A. Yes, that's found in Column 8,
20 beginning at line 66.

21 Q. And then Column 9, starting at line
22 18, which you just read, was that determination
23 is made the microprocessor turns the
24 microcontroller, which among these protocols is
25 the one to use, correct?

1 A. That's correct. It makes -- once it
2 makes the determination -- and, again, this is
3 the determination across the internal bus. And
4 once it makes that determination, then it
5 basically utilizes that communication protocol.
6 But anything that has to do with that protocol
7 you're not going to communicate for that purpose
8 at all.

9 You're going to communicate because
10 you have something within the protocol packet to
11 communicate with, and that basically is what it
12 gathers from the one or more of the 25 units
13 that define modules to communicate. So the --

14 Q. So the --

15 A. -- processor through the multiplexor
16 selects one of those modules to communicate.

17 Q. The multiplexor selects the module to
18 communicate?

19 A. That's Column 9, line 21. The
20 multiplexor selects one of the five modules to
21 communicate.

22 Q. And it does that by having the
23 microcontroller use two pins and the third set
24 of pins 182 to select one of the modules, right?

25 A. Right. That basically -- the

1 processor's function is only to make the
2 determination selection of which protocol to
3 use, but it has no information with regard to
4 the content that goes in that protocol.

5 Q. So your testimony is that because
6 this portion of the specification in Hunt
7 describes the microprocessor performing --
8 identifying the communication protocol in use,
9 that that's all the microprocessor does? That's
10 your testimony?

11 A. I mean, a microprocessor does a lot
12 of other things. It's part of the vehicle's
13 module. But this is where it -- but in terms of
14 communication across the bus, yes, its purpose
15 is selecting, making that decision based upon
16 the testing of the bus, as an example, to
17 determine what bus it is and then calling on the
18 particular communication module that will
19 provide the information and protocol content for
20 communicating with that bus. But that's all
21 built -- all of that is built into the ASIC.

22 Q. So tell me a column and line number
23 where Hunt says that the communication protocol
24 modules within the Vehicle Communication Circuit
25 contain within them vehicle diagnostic codes.

1 A. Hunt is not directed to that. Hunt
2 is directed to making a choice of what type of
3 bus architecture exists so that communication
4 can be established. Then anything that has to
5 do with the communication is what the processor
6 drives from the communication circuitry within
7 Block 25 in ASIC.

8 There is no teaching whatsoever of
9 the microprocessor having some embedded code or
10 -- or access to anything else that has anything
11 to do with the content or with context at all.
12 It's not there. It's nonexistent. So if one
13 was to even give a potential possibility to
14 Hunt, it would only be from the ASIC.

15 There is no other way in which it can
16 be envisioned at all because there is no
17 teaching -- no teaching whatsoever that the
18 microprocessor has any knowledge of what content
19 or construct would go into the protocol. The
20 only protocol that's established is what's in
21 the ASIC.

22 Q. Nothing --

23 A. And -- and -- excuse me. And any
24 attempt to try to force something into a
25 microprocessor firmware is just 20/20 hindsight

1 based on current knowledge. There is nothing in
2 Hunt that teaches that at all.

3 Q. Nothing in Hunt except Column 10,
4 lines 46 through 54, that say that the invention
5 can be implemented in software running on a
6 processor?

7 A. Once again, this is all aspirational
8 stuff that you find at the end of almost every
9 patent. And there is absolutely nothing within
10 the rest of the construct of the '133 Hunt
11 patent that supports it or gives any definition
12 as to how one would do something like that.

13 Q. So the answer to the question of
14 where does Hunt say that vehicle codes are fixed
15 during manufacture is that Hunt does not
16 describe the microprocessor as providing vehicle
17 codes; is that right? Am I understanding you
18 correctly?

19 MR. SANTURRI: Object to
20 the form.

21 A. Well, it's not correct. Your
22 statement that he does not describe it is
23 correct. He does not because he does not
24 address device code, per se. The only context
25 within which one can look at what -- what

1 content or context would be provided across the
2 communication bus would have to be that which is
3 a part of the packet of information that is
4 provided through the protocol, has to be
5 configured per the protocol.

6 The only thing that even addresses
7 that are the Circuit Elements 25 which are part
8 of the ASIC. So if there's to -- any measure of
9 a description of a content such as codes, that
10 would have to be in ASIC. There is no teaching
11 of it being anywhere else. And there is
12 certainly not any use of the word "code"
13 anywhere in the specification of Hunt.

14 Q (BY MR. WICHMAN) So we looked at
15 Figure 6 and Figure 7 with Hunt, right?

16 A. Well, we've looked at a lot more than
17 Figure 6 and Figure 7, but yes, we have looked
18 at Figure 6 and Figure 7.

19 Q. Would you agree that Figure 6 and
20 7 -- well, let's do it this way.

21 Do you agree that Figure 6 shows
22 what's called a Logic Diagram 200, correct?

23 A. It is a logic diagram labeled as 200,
24 that is correct.

25 Q. And Figure 6 shows a transceiver

1 circuitry provided by commercial off-the-shelf
2 components, right?

3 A. That is correct.

4 Q. And Figure 7 is labeled Logic Diagram
5 210, correct?

6 A. Figure 7 is labeled as a Logic
7 Diagram 210.

8 Q. And Figure 7 shows transceivers that
9 are provided by commercial off-the-shelf
10 components, correct?

11 A. That's correct, it does. And it says
12 -- and the specification refers to that as being
13 integrated within the ASIC as part of the
14 communication circuit.

15 Q. And in Column 9, at lines 40, Hunt
16 says that these protocols can be implemented
17 using integrated circuit-based, e.g., a custom
18 ASIC, or using transistors or conventional
19 circuit elements, correct?

20 A. Yeah. It basically says you can take
21 the off-the-shelf components such as what is
22 shown in Figures 6 or 7, which are just the
23 transistors or conventional circuit elements
24 that's sometimes referred to as discrete logic,
25 and you can implement it that way in hardware,

1 or you can put it together as a part of the
2 custom ASIC. Again, it's hardware.

3 Q. And these are the only descriptions
4 that Hunt provides of what is actually inside
5 that ASIC?

6 A. If you're asking is he very depleted
7 and what -- and replete in what he has
8 described, yes.

9 Q. So there is no -- there is no column
10 and line in Hunt that describes its ASIC as
11 containing vehicle device codes or diagnostic
12 codes, is there?

13 A. I think you've asked that several
14 times, and the answers would always be the same.
15 He does not even use the word "device code."
16 This is not the intent. The intent of Hunt is
17 directed to communication protocol and having an
18 ASIC device that makes it easy and quick to make
19 a determination and provide the node of the
20 associated interface that's required.

21 But when it comes to the protocol,
22 the protocol establishes the signal and timing
23 as well as the content. And the content is
24 where you're going to have the header and the
25 data information and the CRC codes necessary for

1 error detection. That's all going to be part of
2 protocol. The only teaching of protocol is in
3 the ASIC.

4 So by definition, if there is to be
5 any issuing as to the codes, that would be part
6 of the data and that would be a part of the
7 destination aspect. That would all be embedded
8 as a part of the ASIC because it's the only
9 teaching of where protocol exists in Hunt.

10 MR. WICHMAN: At this
11 point, let's take a break for lunch.
12 I think your time is 12:47, so what
13 if we resume at 1:30 your time?
14 That will be 2:30 East Coast.

15 THE WITNESS: All right.

16 THE REPORTER: Off the
17 record.

18 (Recess 12:47 p.m. to 1:33 p.m.)

19 Q (BY MR. WICHMAN) Mr. McAlexander,
20 did you speak with counsel for Omega during the
21 break?

22 A. No.

23 Q. Before the break we were talking
24 about your Declaration, paragraph 77.

25 A. That is correct.

1 Q. Do you have that in front of you?

2 A. I can go back to it. I have it.

3 Q. You testified that the vehicle codes
4 in Hunt are fixed during manufacture, correct?

5 A. That's correct. That's when the ASIC
6 is built.

7 Q. And you say that the vehicle device
8 codes are already stored, correct?

9 A. Yes.

10 Q. And so it's your testimony that
11 vehicle devices are stored in an ASIC; is that
12 right?

13 A. Correct.

14 Q. If you can look at Hunt's Figure 1
15 Bravo.

16 A. All right.

17 Q. Module 29.

18 A. I see that.

19 Q. It's associated with the
20 Microprocessor 27?

21 A. That would be correct, yes.

22 Q. That's the only memory that's
23 identified in Hunt, correct?

24 A. It's the only memory that's depicted
25 in Hunt. Of course, the ASIC is hardwired in.

1 So it would not necessarily be labeled as a
2 memory.

3 Q. So tell me how a vehicle code is
4 hardwired into an ASIC.

5 A. It's all built-in logic. So you've
6 got -- when you get a specific signal, that
7 signal is translated and the code is generated.
8 I mean, it's a part -- it's built into the
9 logic.

10 Q. Do you recall we looked at
11 Exhibit 1071 this morning?

12 A. Yes.

13 Q. The J1850 spec at page 8 describes a
14 three byte header for messages sent over 1850,
15 right?

16 A. As we discussed before, yes.

17 Q. And the second byte is the target,
18 the device being queried, right?

19 A. Yes, sir, that's correct.

20 Q. And the third value is the source,
21 the device originating the request or the data,
22 right?

23 A. That is correct.

24 Q. So is it your testimony that every
25 device in a vehicle is going to have the same

1 target address?

2 A. Every what in a vehicle?

3 Q. Device.

4 A. Well, each -- each device would be
5 either a physical or a virtual address. Both
6 are identified and possible. But the target
7 address is going to address a specific device or
8 can be -- it can target a device or it can
9 target a function which may be across multiple
10 devices.

11 Q. So an engine control unit is a device
12 in a vehicle, right?

13 A. That is a device in a vehicle, yes.

14 Q. So what's the address for an engine
15 control unit?

16 A. I don't have it on the tip of my
17 tongue. It depends on the --

18 Q. Is it -- go ahead.

19 A. It depends on the vehicle.

20 Q. It depends on the vehicle? So the
21 address could be different between different
22 vehicles, right?

23 A. It could be, sure.

24 Q. So how is that address hardwired into
25 an ASIC in Hunt and manufactured?

1 A. The best way to describe it would be
2 in form of the table that can be hardwired as
3 far as a table lookup. It can be established as
4 a content-addressable. They call it CAM, or
5 content-addressable memory. That's one way it
6 can be done.

7 Q. Explain a content-addressable memory,
8 please.

9 A. The -- the -- in a standard memory
10 configuration you have an address, physical
11 address, that's brought into the memory device,
12 translated into a -- let's say on the -- on the
13 alpha bus it's basically a virtual address. You
14 don't know if it's physically there or not but
15 it's an address. And internal to the chip it's
16 translated into a physical address which points
17 to a specific place in memory from which the
18 data is accessed and abstracted. Are you with
19 me so far?

20 Q. No. But go on.

21 A. All right. In any standard memory
22 you can read and write from the contents that
23 are in the memory. You can read from it, in
24 other words, what's already stored, or you can
25 write to it. And in a memory store, when you're

1 basically reading the information, you submit an
2 address. The address identifies a physical
3 space. It's associated with a physical space
4 memory. The data content that's stored in that
5 memory is then drawn out or read from that
6 memory and provided to the processor control.
7 That's standard memory.

8 On a content-addressable memory, the
9 address addresses a space in memory, but the
10 output of that generates another address, a
11 pointer of which you are going for. And so
12 content-addressable, basically the data that's
13 stored there is not the actual data. It's a --
14 it's an address rule layer that points you to
15 where you need to go to get the information.

16 Q. The target byte is a number, correct?

17 A. The target byte is a set of numbers,
18 1s and 0s, data numbers. But yes, it represents
19 a number.

20 Q. So tell me how Hunt's device when
21 plugged into a vehicle knows what number to use
22 to send a message to an ECU?

23 A. Well, at first it can read the bus to
24 see -- it can generate numbers on a bus to
25 determine whether or not there is a response.

1 The one responds. Then they take that response
2 and look at that in terms of what's hardwired in
3 the ASIC to make a determination as to whether
4 or not that number resides or not, and thereby
5 it either can operate on that bus with that
6 particular node or it cannot, depending upon
7 whether it's a match.

8 Q. So you're telling me that if Hunt's
9 device was to query the ECU, it's a question of
10 trial and error until it gets a response? Is
11 that how it finds the correct address?

12 A. Well, Hunt envisions doing something
13 like that because it reads the bus and then
14 attempts to match the read result, the data that
15 comes back, with a particular place in the ASIC.
16 That's the way --

17 Q. And that's -- go ahead.

18 A. I mean, the controller or the
19 microprocessor reads the information from the
20 bus and it doesn't know anything -- it's done.
21 It doesn't know what to do with that if there's
22 not something in the ASIC that tells it what to
23 do because all it can do is read, get a number,
24 then it compares it to the ASIC to determine
25 whether or not that matches anything that's

1 loaded in the ASIC or not. That way it can
2 determine whether it can work or not with that
3 particular unit that's on that bus.

4 Q. You're talking about the
5 microprocessor identifying the vehicle
6 communication protocol that is in use on the
7 vehicle; is that right?

8 A. Yes. That's -- that's the way in
9 which it locks in or determines whether or not
10 that is a supportable bus structure is based
11 upon the nuances that are associated with a
12 particular type of bus in terms of the signals
13 that it uses or the signal pins that it uses.
14 It provides that information out to see if it
15 gets a response. Based upon that, then it can
16 lock in the particular protocol bus.

17 Q. So let's look at Figure 1B in Hunt.
18 Do you have that in front of you?

19 A. I do. Let me pull it up on the
20 screen again.

21 All right. I have 1B in front of me.

22 Q. So now Hunt's device is being used.
23 The protocol has been identified as J1850 PWM
24 and Module 25 Alpha has been selected.

25 Are you with me?

1 A. I'm with you.

2 Q. That's the only module that's going
3 to be used from now on, right?

4 A. As long as it continues to operate in
5 that system, that's correct.

6 Q. Okay. Now, tell me now how does
7 Circuit 25 know the address of the ECU on the
8 vehicle where it's plugged in?

9 A. Because it specifically says "Ford,"
10 and so -- or "GM," depending upon the virtual,
11 or "PWN." "PWN" would be Ford. And so if it
12 matches that code, it knows that it's a code for
13 communication with Ford type product; and
14 therefore, it would -- that's the way it makes
15 that determination.

16 Q. So is it your testimony that Fords
17 always have a unique address for an ECU? Is
18 that your testimony?

19 A. No, I never said that. What I said
20 is it's Ford. You can have different models,
21 different years, different make, different
22 models or years, and different trim factors that
23 are associated with each of the modules -- or
24 models. And that's the information content that
25 would be derived. And so that information is

1 what you can embed in and have as available to
2 the processor when it makes the bus
3 determination and then has access into the ASIC
4 or the actual parameters that one would use
5 depending upon the particular configuration of
6 the nodes of the bus.

7 Q. So the J1850 message contains the
8 three byte header, correct?

9 A. I believe we've discussed that, yes.

10 Q. And the second byte is the --

11 A. Target.

12 Q. It's the target address, right?

13 A. Correct.

14 Q. Okay. So what number does the ASIC
15 put in the target address when it queries the
16 ECU using Module 25A?

17 A. It would put whatever is available or
18 whatever is defined within the ASIC for that
19 particular Ford model for the ECU.

20 Q. So now you're saying that the ASICs
21 not only implement a protocol but they implement
22 -- they are hardwired with codes for every model
23 and trim of, in this case, a Ford; is that your
24 testimony?

25 A. No. It's not my testimony. My

1 testimony is that there would be models and
2 trims that would be counted as a part of the
3 ASIC so that the microprocessor can draw from
4 that. I did not say "every." The fortunate
5 thing about an ASIC implementation as Hunt has
6 done is it's fast. The unfortunate part about
7 it is that it's not -- it's not flexible in
8 terms of what you load in. It's what you have
9 and you can get nothing more than that.

10 That's the beauty of the '278 patent,
11 because the '278 patent allows you to flexibly
12 and dynamically configure because you can
13 download and keep access to the codes that are
14 even more relevant today than they were when the
15 ASIC was originally developed. So there is a
16 benefit to the ASIC in terms of speed. There is
17 a liability in the fact that's hardwired to only
18 operate with the ones which were embedded codes.
19 It cannot do more than that.

20 Q. And you testified before the break
21 that Hunt does not describe the ASIC as
22 containing embedded codes but that's something
23 you concluded from reviewing the patent as a
24 whole; is that right?

25 A. Yeah. And thank you for that

1 clarification. Because it has revealed the
2 patent as a whole. It's the only place that it
3 shows anything that has to do with a particular
4 type of vehicle such as Ford or GM.

5 Q. But Hunt does not -- Hunt describes
6 the microprocessor identifying the communication
7 protocol used by the host vehicle, right?

8 A. Yes, it basically polls the bus or
9 sends codes out on the bus to determine what's
10 there. And that's basically to determine what
11 the protocol is for the bus so that once that's
12 established, then you have a communication
13 scheme that is appropriately assigned to that
14 particular type of bus and, therefore, now you
15 can begin the communication of it to the nodes
16 on that bus.

17 Q. Hunt does not describe identifying
18 particular trims of host vehicles, does it?

19 A. No, it's very replete in that. It
20 doesn't -- it doesn't go into any detail at all.

21 Q. And it does not -- Hunt does not
22 describe identifying a particular model of a
23 connected host vehicle, does it?

24 A. No. Once again, it identifies on a
25 broader brush stroke the communication bus type

1 and, therefore, setting it and configuring it to
2 where you can communicate across that bus type.
3 And it does not go into any detail at all with
4 regard to the communication to specific nodes or
5 the identification of them or the information
6 content associated with them. It goes into
7 nothing on that front.

8 Q. If you can look at Hunt Figure 3.

9 A. Okay.

10 Q. Actually, let's make this easier. At
11 Column 1, line 61, it describes Figure 3 as the
12 screen capture page that displays vehicle
13 diagnostic data monitored by the wireless
14 appliance of Figure 1B according to an
15 embodiment of the present invention, right?

16 A. And, again, that's -- yes, that is
17 correct.

18 Q. Okay. So back at Figure 3, let's
19 look at some of this data. You see RPM is one
20 of the data points, right?

21 A. Yes, I agree.

22 Q. And vehicle speed is one of the data
23 that's occurring, correct?

24 A. Yes, both are shown there.

25 Q. Go to Figure 1B. I would like you to

1 explain to me how Hunt's appliance will get the
2 engine RPM from a host vehicle in terms of this
3 diagram Figure 1B.

4 MR. SANTURRI: Object to
5 the form.

6 A. There are several ways in which you
7 could get it. For instance, if you look at
8 Column 7 of Figure -- Column 7, the explanation
9 for Figure 3, it talks about the sample web page
10 130. And it basically describes that the web
11 page 130 includes a set of diagnostic data and
12 features. And then at line 56, there are
13 typical operation wireless appliance
14 automatically transmit sets of diagnostic data
15 like the ones shown in Figure 3 at periodic
16 intervals. In other words, every 20 or 30
17 minutes. So basically the appliance itself is
18 set up to transmit the information. And so that
19 information would be across a bus. And it says
20 it could also be queried from time to time such
21 as with a ping from the host computer.

22 But basically that information is
23 going to arrive across the bus, the diagnostic
24 port in this particular instance. And you'll
25 see in Figure 1B that its connection is to the

1 ASIC 25 because 23 is connected to 25. The ASIC
2 25 sits in between the interface to the OBD2
3 port and the processor.

4 And so the processor is going to run
5 through some instructions to query and then
6 communicate that query or that receiving of
7 information via the ASIC 25 to the port. And so
8 that's the way it would accomplish its function.

9 Q (BY MR. WICHMAN) So how does the
10 processor tell ASIC 25 to query engine RPM?

11 MR. SANTURRI: Object to
12 the form.

13 A. Well, welcome to the world of the
14 fact that Hunt's not very good at describing
15 much of what he does. He just puts diagrams up
16 there. The processor -- if you look at Figure
17 1B in terms of the text, the text covers the
18 fact that the marked processor can retrieve the
19 GPS type information and other information.

20 Let's see. Then if you look at the
21 description of Figure 1B, it talks about in line
22 43 on Column 5 is the data-generating portion
23 15. It features a chipset based GPS Module 20
24 that receives wireless signals from GPS
25 satellites and so forth. But the data

1 generation 15 is what is shown as the ASIC in
2 combination with the chipset based GPS module
3 and it does not include the processor.

4 So the data itself is going to go
5 through diagnostic port connection, but the
6 information that's going to be leveraged for
7 that is from the ASIC, according to what I see
8 in Figure 1B and as described in the text.

9 Q (BY MR. WICHMAN) So in Hunt's --
10 sorry, go ahead. Do you have more?

11 A. No. Go ahead, please.

12 Q. All right. So in Column 5, line 61,
13 Hunt says the entire Vehicle Communication
14 Circuit 25 is integrating into a single ASIC and
15 manages communication, correct?

16 A. That's correct.

17 Q. All right. So the ASIC manages
18 communication, right? Is it your testimony that
19 managing communication means that ASIC also
20 creates the message that's sent to query an ECU?

21 A. There is no teaching anywhere else in
22 Hunt of anything that has to do with data other
23 than this particular section because the
24 beginning of the paragraph is the
25 data-generating portion 15. So it's not only

1 communicating but it's data generation. So that
2 to me is the only real information that I see in
3 Hunt that describes any of where the data can
4 reside or come from and it's in the ASIC,
5 specifically in the data-generation portion 15.

6 And I see nothing at all that
7 indicates that it could ever come from a
8 processor. There is no teaching of that at all.

9 Q. So is it your testimony that when
10 Hunt says that the vehicle communication circuit
11 manages communications, that that means the
12 Communication Circuit 25 and its modules, like
13 25A, are generating the messages that query
14 components of the vehicle?

15 A. Well, the -- you know, in terms of
16 the detail, he shows it's a data-generation
17 portion that communicates to that interface, to
18 the OBD2 connector. And yes, that whole system,
19 that whole communication circuit does, in fact,
20 manage the communication.

21 Now, in addition to the fact that
22 it's part of the data-generation portion, it
23 also includes the circuitry that's shown, for
24 instance, in Figures 5, 6, and 7, 5 and 7
25 specifically -- 6 and 7 specifically that show

1 the transceiver portion of it that hardwire
2 develops that communication, that bidirectional
3 communication to the bus. So yes, the only
4 showing that I see in Hunt that really governs
5 that is that which is governed by the ASIC.

6 MR. WICHMAN: Let's take
7 five minutes off the record.

8 THE WITNESS: All right.

9 THE REPORTER: Off the
10 record.

11 (Recess 1:59 p.m. to 2:08 p.m.)

12 Q (BY MR. WICHMAN) Mr. McAlexander, I
13 would like to ask you about your Declaration,
14 paragraph 78.

15 A. Okay.

16 Q. Is it your testimony that Hunt's
17 vehicle control communication -- let me strike
18 that.

19 Is it your testimony that Hunt's
20 vehicle communication circuit modules are
21 programmed to generate vehicle device codes in
22 an ASIC?

23 A. If there is any, that's the only
24 place I can see there would be because that's
25 the only circuitry which has been defined for

1 the communication.

2 Q. And the only circuitry that Hunt
3 actually discloses are the transceivers in
4 Figures 6 and 7 that provide a physical layer,
5 right?

6 A. That's not correct. It says that
7 Figure 6 and 7 are part of, they're included in.
8 It doesn't say that's the entirety of.

9 Q. Are there any other circuits
10 specifically identified in -- well, strike that.

11 You agree that there is nowhere in
12 Hunt that specifically says the ASIC generates
13 vehicle device codes?

14 A. There is not even identified device
15 codes, so no, does not.

16 Q. All right. And in Hunt, Column 1,
17 lines 21 through 33 -- just let me know when
18 you're there.

19 A. Let me pull it up on the computer
20 here too. Just a second. Okay. Column 1.

21 Q. Starting at line 21 --

22 A. Yes, sir.

23 Q. -- Hunt is describing the on-board
24 diagnostic OBD2 systems, right?

25 A. For a particular type of automobile

1 and truck light duty, yes.

2 Q. And at line 24, Hunt refers to OBD2
3 systems monitoring a vehicle's electrical system
4 and generating data that are processed by the
5 vehicle's engine control unit, right?

6 A. Yes, that's correct.

7 Q. And the data includes things like
8 vehicle speed, yes?

9 A. That is correct.

10 Q. Includes engine speed?

11 A. Yes.

12 Q. Hunt says that the ECU can also
13 generate diagnostic trouble codes, which are
14 five digit codes, right?

15 A. That's correct. That's something
16 that the ECU is able to do.

17 Q. And if you go to Column 7, line 20 to
18 23 -- just let me know when you're there.

19 A. I'm there.

20 Q. -- Hunt says that the Wireless
21 Appliance 13 connects to the vehicle's OBD2
22 Diagnostic Connector 51 and collects diagnostic
23 data by querying the vehicle's ECU 55 through
24 Cable 56, right?

25 A. Yes.

1 Q. So you agree that Hunt never says
2 that the queries to the vehicle's ECU are
3 generated in an ASIC, does it?

4 A. It does not say that the queries are
5 generated in the ASIC. And I would offer that
6 the query would not be generated in the ASIC.
7 The query would come from the processor, but it
8 would be through picking up the data and the
9 protocol from the ASIC for communication to the
10 OBD bus.

11 Q. So explain that to me, please.

12 A. It depends upon the processor system.
13 But if you would ask me to explain this, I'll
14 give you an example. Let's say that your
15 processor system, which would be 13, your entire
16 processor system operates on an interrupt
17 process. If it's an interrupt process, then
18 you're going to receive an input to the
19 processor that wakes the processor up and the
20 processor says who is that that woke me up. It
21 will send off information to make sure that it
22 understands what it is, and then it basically
23 will then say, all right, since I now know who
24 you are, I'll set up the communication using the
25 ASIC for communicating data and protocol back to

1 you. And so it sets up that communication
2 scheme.

3 The microprocessor runs under
4 executable code in order to basically run the
5 system. But as it runs the system, it pulls
6 from various modules within the system itself
7 for the information that has to do with the
8 protocol and the data. It itself is not going
9 to generate it. So that would come from the
10 ASIC and that's would be why it's shown
11 diagrammatically 1B to be communicating via the
12 ASIC not only hardware-wise but data-wise back
13 to the OBD2 bus.

14 Q. So you're talking about the query.
15 So the microprocessor wants to query the ECU to
16 obtain RPM, right? You just said the
17 microprocessor is going to formulate the query
18 and hand it to the vehicle communication
19 circuit; is that right?

20 A. It's going to initiate the query, but
21 the format of the query and the information that
22 goes in the query would be part of what is in
23 the ASIC.

24 Q. So how does that work? I mean, what
25 is the message from the microprocessor to the

1 vehicle communication circuit?

2 A. Well, it depends on the way the
3 processor has been configured, which Hunt does
4 not describe either. But if the executable is
5 that every so often you do a poll out to a
6 particular node, that node is only as defined by
7 the ASIC because that's the one that has the
8 protocol for a specific vehicle that then has
9 all the features and information that's
10 associated with it.

11 So if it wants to poll, it would do
12 it through the ASIC. The ASIC would then put
13 together the appropriate -- as an example, you
14 used ECU. It wants to poll to ECU, so it goes
15 to the ASIC to define what is the information
16 associated with that ECU for targeting the query
17 as well as the formatting of the protocol that's
18 necessary to actually communicate across that
19 bus. That's the way it would work.

20 Q. So you said there is nothing in Hunt
21 that describes the microprocessor doing this,
22 right?

23 A. Well, the microprocessor is basically
24 a microprocessor. It executes instructions
25 to -- but it knows -- but it's a general purpose

1 processor. It's an ARM processor, according to
2 what is defined at least in one embodiment. And
3 that has standard protocol for asking or
4 querying certain things, but it doesn't know the
5 actual address unless it is configured according
6 to a particular protocol. And that's
7 established by the ASIC itself.

8 Q. And, again, for your testimony in
9 figure -- in paragraph 78, you are relying on
10 your interpretation of Hunt's disclosure as a
11 whole; is that right?

12 A. I hope so.

13 Q. But there is nothing specific in Hunt
14 that says that an ASIC generates vehicle device
15 codes; is that right?

16 A. Well, again, it goes back to
17 questions you've had several times before, the
18 same question. Hunt does not directly code. It
19 does not -- his whole thrust is developing and
20 making a decision process and determining what
21 bus architecture is present so that it can
22 appropriate the appropriate module within the
23 ASIC so that it basically -- when it executes
24 instructions to the queries it's going to call
25 on the information that would be provided from

1 the ASIC and then provide that information from
2 the ASIC to the bus. And it would do that
3 through the hardware that's defined, for
4 instance, in Figure 6 and 7. So yes, that's
5 looking at the specification as a whole. That's
6 what I deemed would be the way it operated.

7 MR. WICHMAN: Okay. Ryan,
8 I can pass the witness, if you're
9 ready.

10 MR. SANTURRI: Yes. Joe,
11 are you good with reading your
12 testimony? In other words, you're
13 going to re-read instead of waive?

14 THE WITNESS: I may need
15 to go back for a couple of years to
16 school to learn how to read again,
17 but I think I can read my testimony.

18 MR. SANTURRI: Okay.
19 Madame Court Reporter, either we can
20 get you Joe's contact information
21 directly or you can send it to me
22 and I can forward it on to him for
23 him to read and sign.

24 THE REPORTER: Off the
25 record.

(Deposition concluded at 2:19 p.m.)

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

GEOTAB USA, INC. AND *
GEOTAB, INC. *
VS. * NO. IPR2023-00504
* PATENT NO.
* 8,032,278
OMEGA PATENTS, LLC *

REPORTER'S CERTIFICATION
DEPOSITION OF JOSEPH C. MCALEXANDER, III, P.E.
JANUARY 5, 2024

I, GAIL SPURGEON, Certified
Shorthand Reporter in and for the State of
Texas, hereby certify to the following:

That the foregoing deposition of
JOSEPH C. MCALEXANDER, III, P.E. was reported by
me stenographically at the time and place
indicated, said witness having been placed under
oath by me, and that the transcript is a true
record of the testimony given by the witness;

I further certify that the signature
of the deponent:

X was requested by the deponent or
a party before the completion of the deposition
and is to be returned within 30 days from date
of receipt of the transcript. If returned, the
attached Changes and Signature Page contains any
changes and the reasons therefor;

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

I further certify that the amount of time
used on the record:

ADAM WICHMAN - 4:00

1 I further certify that I am neither
2 counsel for, related to, nor employed by any of
3 the parties or attorneys in the action in which
4 this proceeding was taken, and further that I am
5 not financially or otherwise interested in the
6 outcome of the action.

7
8 Given under my hand this the
9 8th day of January, 2024.

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GAIL SPURGEON

Texas CSR 1718

Expires: 11/30/24

Firm No. 571

1 Ryan Santurri, Esq.

2 rsanturri@addmg.com

3 January 8, 2024

4 RE: Geotab USA, Inc. And Geotab, Inc. v. Omega Patents, LLC

5 1/5/2024, Joseph C. McAlexander , III (#6384935)

6 The above-referenced transcript is available for
7 review.

8 Within the applicable timeframe, the witness should
9 read the testimony to verify its accuracy. If there are
10 any changes, the witness should note those with the
11 reason, on the attached Errata Sheet.

12 The witness should sign the Acknowledgment of
13 Deponent and Errata and return to the deposing attorney.
14 Copies should be sent to all counsel, and to Veritext at
15 cs-ny@veritext.com.

16
17 Return completed errata within 30 days from
18 receipt of testimony.

19 If the witness fails to do so within the time
20 allotted, the transcript may be used as if signed.

21
22 Yours,

23 Veritext Legal Solutions
24
25

Geotab USA, Inc. And Geotab, Inc. v. Omega Patents, LLC
Joseph C. McAlexander , III (#6384935)

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Joseph C. McAlexander , III

Date

Geotab USA, Inc. And Geotab, Inc. v. Omega Patents, LLC
Joseph C. McAlexander , III (#6384935)

ACKNOWLEDGEMENT OF DEPONENT

I, Joseph C. McAlexander , III, do hereby declare that I
have read the foregoing transcript, I have made any
corrections, additions, or changes I deemed necessary as
noted above to be appended hereto, and that the same is
a true, correct and complete transcript of the testimony
given by me.

Joseph C. McAlexander , III

Date

*If notary is required

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_____ DAY OF _____, 20____.

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