

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

SIEMENS MOBILITY, INC.,) Case Nos.
GROUND TRANSPORTATION) IPR2023-00468
SYSTEMS USA, INC.,) and
HUMATICS CORP. and PIPER) IPR2023-00470
NETWORKS INC.,)
Petitioners,) Patent Nos.
vs.) 9,043,131
METROM RAIL, LLC,) and
Patent Owner.) 8,812,227

The videotaped deposition of CARL EDWARD CONTI, called as a witness for examination, taken pursuant to the Federal Rules of Civil Procedure of the United States District Courts pertaining to the taking of depositions, taken before VICTORIA C. CHRISTIANSEN, a Certified Shorthand Reporter of the State of Illinois, CSR No. 84-3192, at Suite 3500, 500 West Madison Street, Chicago, Illinois, on the 21st day of November, A.D. 2023, at 9:08 a.m.

1 PRESENT:

2 CROWELL & MORING LLP,
3 (1001 Pennsylvania Avenue NW,
4 Washington, DC 20004,
5 202-624-2781), by:
6 MR. VINCENT GALLUZZO,
7 vgalluzzo@crowell.com,

8 -and-

9 CROWELL & MORING LLP,
10 (455 North Cityfront Plaza Drive, Suite 3600,
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12 312-840-3270), by:
13 MR. JOSH JAMES,
14 jjames@crowell.com,

15 appeared on behalf of Petitioner Siemens
16 Mobility, Inc.;

17 FAEGRE DRINKER BIDDLE & REATH LLP,
18 (222 Delaware Avenue, Suite 1410,
19 Wilmington, Delaware 19801,
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21 MR. THATCHER A. RAHMEIER,
22 thatcher.rahmeier@faegredrinker.com,

23 appeared via videoteleconference on
24 behalf of Petitioner Ground
Transportation Systems USA, Inc.;

WOLF GREENFIELD & SACKS,
(605 Third Avenue,
New York, New York 10158,
212-849-3338), by:
MR. GREGORY S. NIEBERG,
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behalf of Petitioner Humatics Corp.;

1 PRESENT (Continued):

2 WISNIA, P.C.,
3 (12636 High Bluff Drive, Suite 400,
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8 appeared via videoteleconference on
9 behalf of Petitioner Piper Networks;

10 McANDREWS HELD & MALLOY,
11 (500 West Madison Street, 34th Floor,
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13 312-775-8203), by:
14 MR. RAJENDRA A. CHIPLUNKAR,
15 rchiplunkar@mcandrews-ip.com, and
16 MR. GREGORY SCHODDE,
17 gschodde@mcandrews-ip.com,

18 appeared on behalf of Patent Owner.

19
20
21 VIDEOTAPED BY: JOSEPH SALINAS, Legal Videographer,
22 Esquire Deposition Solutions;

23
24 REPORTED BY: VICTORIA C. CHRISTIANSEN, RPR, CRR,
Illinois CSR No. 84-3192.

1 THE VIDEOGRAPHER: This is Tape No. 1 to the
2 videotaped deposition of Carl Conti in the matter
3 of Siemens Mobility, Incorporated, et al., vs.
4 Metrom Rail LLC being heard before the United
5 States Patent and Trademark Office Before the
6 Patent Trial and Appeal Board, Case No.
7 IPR2023-00468 and IPR2023-00470.

8 This deposition is being held at 500
9 West Madison, Chicago, Illinois 60661 on November
10 21, 2023. The time is now 9:08 a.m.

11 My name is Joseph Salinas. I'm the
12 videographer. The court reporter is Vicki
13 Christiansen.

14 Counsel, will you please introduce
15 yourselves and affiliations and the witness will be
16 sworn in.

17 MR. GALLUZZO: This is Vince Galluzzo from
18 Crowell & Moring on behalf of petitioners. With me
19 is my colleague, Josh James, also from Crowell &
20 Moring.

21 MR. CHIPLUNKAR: This is Raj Chiplunkar from
22 McAndrews Held & Malloy on behalf of the witness.
23 With me I have Greg Shodde also from McAndrews
24 Held & Malloy.

1 THE VIDEOGRAPHER: And should we have the
2 people on Zoom announce themselves, as well?

3 MR. GALLUZZO: Please.

4 MR. NIEBERG: Hi. This is Greg Nieberg from
5 Wolf Greenfield representing the Humatics
6 petitioner.

7 MR. RAHMEIER: And Thatcher Rahmeier from
8 Faegre Drinker representing Ground Transportation
9 Systems USA, Inc.

10 (WHEREUPON, the witness was duly
11 sworn.)

12 CARL EDWARD CONTI,
13 called as a witness herein, having been first duly
14 sworn, was examined and testified as follows:

15 EXAMINATION

16 BY MR. GALLUZZO:

17 Q. Good morning, Mr. Conti.

18 A. Good morning.

19 Q. Could you please state your full name
20 for the record.

21 A. Carl Edward Conti.

22 Q. And, Mr. Conti, where do you currently
23 reside?

24 A. Pittsburgh, Pennsylvania.

1 Q. And who is your current employer?

2 A. SIL4 Systems, Inc.

3 Q. Is that a sole proprietorship?

4 A. It is a C corp, corporation.

5 Q. Are you the founder and owner of
6 that company.

7 A. Founder and CEO, yes, yeah.

8 Q. Have you ever been deposed before?

9 A. One other time.

10 Q. Okay. What was the circumstances of
11 that deposition?

12 A. It was an Amtrak incident where they hit
13 a pedestrian walking on the track, and I was -- I
14 had written a report for the -- what was
15 essentially the mother of the son who was hit on
16 the track. I wrote a -- a report on what I thought
17 happened and where I thought there may be some
18 liability by Amtrak, and I looked at the event
19 recorder information and interpreted it.
20 Essentially it was around that scope.

21 Q. Were your services in that case as an
22 expert witness?

23 A. Actually, I don't -- I wouldn't
24 necessarily say. I was an expert in the sense that

1 I was asked to interpret the event recorder
2 readout, which I have designed event recorders, so
3 I was intimately familiar with what signals were
4 and what they meant, so -- so in that sense I was
5 an expert, but I was hired by the -- actually the
6 mother of the child. The attorney was -- seemed
7 disengaged and it didn't -- it ended up not going
8 to trial.

9 Q. You were not an eyewitness to this
10 accident?

11 A. Oh, no.

12 Q. Okay. Do you recall -- just let me
13 confirm -- here's my question: Were you adverse to
14 Amtrak in that matter?

15 A. Adverse?

16 Q. Were you opining on something that
17 Amtrak would object to or -- withdrawn.

18 Were you -- were you hired on behalf of
19 Amtrak or on behalf of the injured parties?

20 A. The injured party.

21 Q. How long ago was that deposition?

22 A. I want to say five years ago, five or
23 six years ago.

24 Q. Would you like me to go over the ground

1 rules with you of a deposition?

2 A. I think I know them pretty well, but I
3 suppose you could.

4 Q. I will go over a few, not to belabor the
5 point --

6 A. Uh-huh.

7 Q. -- just get to --

8 A. Yeah, because I don't remember from five
9 years ago, and so yeah, sure.

10 Q. Most important is that I'll be asking
11 you questions and you'll be providing audible
12 answers.

13 A. Uh-huh.

14 Q. I would ask for the benefit of a clean
15 record, for the ease of the court reporter and her
16 job that we try not to speak over each other.

17 Is that okay with you?

18 A. Absolutely, sure.

19 Q. If at any time you are reading something
20 out loud, I'll ask you to take your time and go
21 very slowly. Our brains tend to speed up when we
22 read, and that makes it very difficult.

23 A. Okay.

24 Q. I'm going to ask you questions that I

1 hope are clear or at least are clear as possible
2 that I can -- can ask. If at any point I ask a
3 question that you don't understand or you need
4 clarification, can I ask that you will ask me for
5 clarification?

6 A. Sure, absolutely.

7 Q. If you do not ask for clarification, can
8 I correctly assume that you understood the question
9 and answered the question as asked?

10 A. Yes.

11 Q. We will take breaks every hour or so.
12 If you would like a break more soon -- or like a
13 break sooner, you are more than welcome to one as
14 long as a question's not pending. Please ask.

15 A. Okay.

16 Q. The last is Mr. Chiplunkar may object to
17 my questions now and again. Unless he instructs
18 you not to answer, you do still have to answer the
19 question, assuming you understand it.

20 Is that fair?

21 A. Understood, sure.

22 Q. Are there any concerns that you have
23 that you won't be able to provide full, accurate
24 and truthful testimony here today as if we were in

1 a court of law?

2 A. No.

3 Q. Now, Mr. Conti, in front of you -- or
4 beside you are a number of exhibits that you've
5 reviewed in this case. I'd like to focus on
6 Exhibit 2012, which are your expert declarations in
7 the two cases. You might actually have one in
8 front of you.

9 A. I have the '131 in front of me, yes.

10 Q. And that is from the 468 IPR?

11 A. 468, yes.

12 Q. All right. You can refer to either or
13 both. 468 is fine, but my question is: Across
14 both of those declarations, Exhibit 2012 in both
15 proceedings --

16 A. Uh-huh.

17 Q. -- since issuing those, have you
18 identified any errors or corrections that you would
19 like to make?

20 A. No.

21 Q. What is collision avoidance?

22 A. Well, "collision avoidance" is kind of a
23 broad term because it could mean keeping trains
24 from colliding with each other, it could mean

1 keeping trains from colliding with pedestrians,
2 highway crossings, worker areas.

3 So "collision" could be any or other of
4 all of those things and "avoidance" obviously is to
5 devise a system to avoid that or, you know,
6 avoid -- avoid that from happening.

7 Q. Does collision avoidance have any
8 application beyond the railway industry?

9 A. I would assume so, yes.

10 Q. Why would you assume so?

11 A. Well, there's a -- there's other
12 vehicles that could collide or other -- yes, other
13 vehicles could collide.

14 Q. Such as automobiles?

15 A. Sure.

16 Q. Aircraft?

17 A. Sure. In the odd case, sure.

18 Q. Boats?

19 A. Yeah, absolutely.

20 Q. Do you have any experience with
21 automobile control systems?

22 A. I do.

23 Q. What experience is that?

24 A. I did a safety assessment of Uber --

1 Uber had an advanced technology group that did a --
2 was building an autonomous vehicle, and I did a
3 safety assessment of their failover system, and
4 that would be a system by which -- it's not -- it's
5 not the driverless system, but it's a system by
6 which if the -- if the computer's driving and the
7 passen- -- or the -- the safety driver wants to
8 take over, he can override the computer in four
9 ways, pressing the gas, brakes, steering or hitting
10 the mushroom, and so that had to be fail-safed to
11 the highest level, ASIL 3, and so I did a study and
12 a report that their -- their design met ASIL 3.

13 Q. Okay. Could you -- is that an acronym?

14 A. "ASIL" is automotive SIL. My company is
15 SIL4 Systems, safety integrity level, SIL.

16 ASIL is what the -- the ISO -- the
17 standard for -- for automotive is ISO26262, and
18 they use ASIL versus SIL, and I believe they use 0
19 through 3 versus 1 through 4.

20 Q. "ASIL" being A-S-I-L?

21 A. Yes. Automotive safety integrity level,
22 I believe.

23 Q. I'll come back to the Uber safety
24 assessment --

1 A. Sure.

2 Q. -- but beyond that, do you have any
3 other experience with automobile control systems?

4 A. Not that I can remember, no.

5 Q. Do you have any other experience with
6 automobile systems?

7 A. Not in an engineering aspect, no.

8 Q. I assume you drive a car?

9 A. Absolutely, yeah. I've done some GPS
10 testing in my truck, testing a GPS system that I
11 was -- that we were implementing for -- or looking
12 to implement, so I've done some of that.

13 Q. What kind of GPS system?

14 A. It was just a -- a GPS box with an
15 antenna, and I can't remember the supplier's name
16 right now, but yeah.

17 Q. You said "we were looking to implement."
18 What did you mean?

19 A. I was looking to implement on a system
20 we were -- we were having -- having in our pocket
21 in case we needed to implement it for our system --
22 a custom system that we were designing.

23 Q. Is this a confidential system?

24 A. It's proprietary. I don't know if --

1 not -- not necessarily confidential, no. I
2 wouldn't...

3 Q. Without revealing proprietary
4 information, can you describe what that system is?

5 A. Well, we do onboard control systems,
6 right, and -- and we -- we do safety integrity
7 control systems, so the thought would be it could
8 be applicable to ATP, automotive -- or automatic
9 train protection, ATO, automatic train operation,
10 ATS, automatic train supervision, or ET- -- ETMS,
11 which is a -- a European standard, and -- or it
12 could be a PTC application.

13 Q. For rail vehicles?

14 A. Yes. And I've helped companies design
15 systems to meet those specs.

16 Q. Approximately when were you doing this
17 GPS testing in your truck?

18 A. Oh, I don't know. A few years ago. I
19 don't recall exactly. Four years ago perhaps.

20 Q. Prior to 2011 did you have any
21 experience with GPS systems for rail vehicles?

22 A. Prior to 2011? I believe so, sure.

23 Q. In what capacity?

24 A. When I was working with Union Switch &

1 Signal, we were doing a PTC dem- -- demonstration
2 system for Alaska, and I was involved in some of
3 that from systems perspective, not -- not super
4 intimately, not super technically in that
5 particular, but I was involved with that, yeah, and
6 we were looking at GPS and looking at the accuracy
7 of GPS and how to correct for that if -- and so on,
8 but -- you know, how well it could be used for PTC.

9 Q. "PTC" stands for --

10 A. This was the early days of PTC, so
11 this was -- I'm -- I'm going to put it -- put this
12 at mid '90s, the early days of GPS, too,
13 commercialized use, so...

14 Q. "PTC" stands for positive train control?

15 A. Positive train control, yes.

16 Q. That's an overlay system?

17 A. Pardon?

18 Q. Is that an overlay system?

19 A. It can be, or it can be a greenfield
20 system or it can be -- I think it can be work- --
21 it can work in conjunction with what's there. So
22 I -- yes.

23 Q. For the PTC system you were working on
24 at Unified Signal & Systems -- I'm sorry, United

1 Signal & Systems, was that an overlay system?

2 A. Union Switch & Signal? Is that what
3 you --

4 Q. I'm sorry.

5 A. -- mean by "United"? Yeah.

6 Q. Apologies.

7 A. Yeah, that's a -- that's all right.

8 That's -- sure, yeah.

9 Q. I wrote down "US&S" and then had to --

10 A. US&S, yeah.

11 Q. For -- so let me ask the question again.

12 On the PTC system that you were working
13 on for US&S --

14 A. Uh-huh.

15 Q. -- in the approximately mid '90s, was
16 that PTC system an overlay system, greenfield
17 system? What was it?

18 A. I don't -- I don't recall because I
19 wasn't involved in the installation. I'm guessing
20 it was a greenfield system, I think if I recall.
21 This was 25 years ago.

22 Q. Did that system have a communication
23 means with other components of the railway system?

24 A. I don't recall the system -- I don't

1 recall the details of the system exactly.

2 Q. Beyond the fact that it had GPS or that
3 you were investigating GPS, what other details
4 about the system do you recall?

5 A. Not a lot really. I'm trying -- I
6 don't -- I don't recall what -- what signalling
7 system was part of it and whether it was sort of a
8 wayside fixed signalling system, whether it was
9 communication based or whether it was a
10 combination. I don't -- I don't recall.

11 Q. All right. Let's go back to your Uber
12 safety assessment work.

13 A. Uh-huh.

14 Q. As part of that work, did you learn a
15 lot about automotive control systems?

16 MR. CHIPLUNKAR: Objection, form.

17 BY THE WITNESS:

18 A. I -- yes.

19 BY MR. GALLUZZO:

20 Q. Did the Uber safety assessment -- well,
21 withdrawn.

22 What was the name of the product that
23 you were doing a safety assessment on? What would
24 you call it?

1 A. Well, it was their driverless autonomous
2 vehicle system, so -- and when I wrote the report,
3 they released the fleet the next day, so it was one
4 of the last things they had to do to release the
5 fleet with a safety driver. And again, I'm not --
6 I was not assessing the driverless aspect or the
7 autonomous aspect.

8 Q. Did you have any insight into some of
9 the functions of the driverless control system?

10 A. Sure, yes.

11 Q. Did it have a collision avoidance
12 system?

13 A. Actually, it probably did. I -- I was
14 not -- again, I was not involved with that aspect.
15 I was concerned, laser focused on when the driver
16 wanted to take over, the computer would never lock
17 him out and vice versa, when the driver was
18 driving, the computer could never take over.

19 That was my sole focus, and the sensors
20 and so forth having to do with the gas, the brakes
21 and the steering and the mushroom were my focus.
22 The -- the autonomy of it and the collision
23 avoidance of it was not in my scope.

24 Q. Why did you say that it probably did

1 have a collision avoidance system?

2 A. Well, that's -- I mean, I assume
3 that's -- the autonomous vehicle, it's doing
4 autonomous driving. One would assume they would be
5 concerned with collisions.

6 Q. Do you know if it also had GPS?

7 A. I don't know.

8 Q. Would you agree with me that cars have a
9 greater degree of freedom of movement than trains
10 do?

11 MR. CHIPLUNKAR: Objection, form.

12 BY THE WITNESS:

13 A. Yes.

14 BY MR. GALLUZZO:

15 Q. Would you agree with me that there are
16 more cars than rail -- rail vehicles in operation
17 at any given time in the United States?

18 A. Yes.

19 Q. Would you agree with me that cars on
20 roads are generally closer to each other than rail
21 vehicles are in normal operation?

22 A. Yes.

23 Q. Would you agree with me that cars are
24 more likely to collide with other vehicles in

1 normal operation than rail vehicles are?

2 A. Yes. Out of sheer numbers, sure.

3 Q. Would you agree with me that cars are
4 more likely to collide with pedestrians than rail
5 vehicles?

6 A. Yes, I suppose.

7 Q. And just because the question can be
8 interpreted two different ways, let me make clear:
9 Would you agree with me that cars are more likely
10 to collide with pedestrians than rail vehicles are
11 likely to collide with pedestrians?

12 A. Sure.

13 Q. Would you agree with me that cars have
14 to navigate more obstacles than rail vehicles in
15 normal operation?

16 A. I don't understand the question.

17 More -- did you say more optical?

18 Q. Ob- -- obstacles.

19 A. Oh, obstacles. So repeat that question?
20 Sorry.

21 Q. Of course. I'll try to enunciate
22 better.

23 A. Yeah, I --

24 Q. Would you agree with me that cars have

1 to navigate more obstacles during normal operations
2 than rail vehicles do?

3 A. Yes.

4 Q. Would you agree with me that cars have
5 to deal with more unexpected obstacles and dangers
6 than rail vehicles do during normal operation?

7 A. Yeah, from sheer numbers, sure.

8 Q. Do you agree that the decisions of
9 drivers of automobiles are less regulated than the
10 decisions of operators of rail vehicles such as
11 conductors and engineers?

12 MR. CHIPLUNKAR: Objection, form.

13 BY THE WITNESS:

14 A. What do you mean more -- what do you --
15 what do you mean "regulated"?

16 BY MR. GALLUZZO:

17 Q. In your work for SIL4 Systems or for any
18 of the other prior employers that you've worked
19 for -- and I promise we'll talk about that in a
20 bit -- have you come to know the various
21 regulations on rail vehicles and operators of rail
22 vehicles?

23 A. Yes, pretty well.

24 Q. Are you also whether through your work

1 for Uber or your general use of automobiles in your
2 life familiar with the regulations on drivers of
3 automobiles?

4 A. Sure.

5 Q. In your opinion, which of the two is
6 more highly regulated in terms of decision-making?
7 Is it drivers of automobiles or operators of rail
8 vehicles?

9 A. That's hard to say. When -- are you
10 talking about formal government regulations versus
11 regulation in terms of behavior?

12 Q. So to be clear, I'm talking for the
13 rail -- the rail side of the equation, the formal
14 government regulations, whether imposed by the FRA
15 or other organizations, the operational rules
16 applied by the railroads themselves and any other
17 regulations that might apply to the operators.

18 With that clarification, is it easier to
19 answer my question?

20 A. Yes, both -- both operators are
21 constrained by different means -- similar means and
22 by different means, sure.

23 Q. But would you say that one set of
24 operators, whether the automobile or the rail

1 vehicle operators, are more or less regulated than
2 the others?

3 A. I can't say that.

4 Q. Do drivers of automobiles have to comply
5 with mandatory directives?

6 MR. CHIPLUNKAR: Objection, form.

7 BY THE WITNESS:

8 A. Sure, they -- well, they've got to stop
9 at stop signs, they've got to stop at red lights,
10 they've got to stay within the lines, they've got
11 to stay within the speed limit, they've got to not
12 crash into -- I mean, they have those type of
13 regulations or constraints in their operation,
14 yeah.

15 BY MR. GALLUZZO:

16 Q. Are the regulations and constraints
17 faced by automobile drivers similar to those faced
18 by and controlling rail vehicle operators?

19 A. Yes and no. Some rail operators are
20 operated off of vis- -- visual cues and signalling
21 like you would if you're driving a car to -- for a
22 stop sign or a speed limit sign and so forth, yeah.

23 Q. Okay. Earlier you had testified that
24 automobile operators have to comply with mandatory

1 directives.

2 Is that also true of rail vehicle
3 operators?

4 A. Yes.

5 Q. Do you agree with me that both the
6 automobile and the railway industry are interested
7 in avoiding collisions?

8 A. Of course.

9 Q. Do you agree that collisions in either
10 industry can lead to death, damage, loss of income,
11 bad things?

12 A. Yes.

13 Q. Now, you might want to look at your CV
14 in answering this question, which is appended to
15 the back of either of Exhibit 2012. You don't have
16 to, but it's there if you want to.

17 A. Sure.

18 Q. I'd like to focus on the period prior to
19 2011, and, generally speaking, were you familiar in
20 your work or in your studies with any collision
21 avoidance systems for any industry prior to 2011?

22 A. Yes. I want -- I want to say several,
23 but the first one that comes to mind was I was a
24 lead engineer on the AF900 proj- -- product for

1 Union Switch & Signal, which was their first
2 microprocessor-based safety system, and it was a
3 signalling system for the Los Angeles Metro -- the
4 Los Angeles Green Line, and so I was involved from
5 that from concept through installation and
6 commissioning as lead engineer for both the wayside
7 and the car-borne equipment.

8 Q. And if you'd look at Page 52 of Exhibit
9 2012, this is the beginning of your CV, is that the
10 item that's identified under Bullet No. 3 of
11 "Achievement/Skills, Led SIL-4 safety development,"
12 and it goes on? Is that what you were identifying
13 as --

14 A. Yeah, that issue, uh-huh, yes.

15 Q. I'll come back to that, but so that we
16 first start with a comprehensive list, were there
17 any other collision avoidance systems that you were
18 familiar with prior to 2011?

19 A. Well, I was involved in MicroLok II,
20 which was an update of their MicroLok product, so
21 that -- that also is an interlocking system that
22 controls the movement of trains, yes.

23 I was involved lightly with a CBTC
24 system at ADtranz, which was -- it quickly turned

1 to DaimlerChrysler Rail Systems when I was there,
2 and I was involved just at a high level, a system
3 level with their CBTC offering. I'm not even sure
4 I state that here, but yes.

5 And -- and then when I went back to
6 Union Switch & Signal 2005 to 2008, I was involved
7 in their next-generation CAD electronics and their
8 CBTC for a China -- a CBTC project for China, yes.
9 More at a system level and safety assurance level,
10 yeah.

11 Q. What company did you work on the
12 MicroLok II?

13 A. Union Switch & Signal.

14 Q. And you said earlier you worked on CBTC
15 for ADtranz.

16 Is ADtranz the same as Daimler?

17 A. It is, yeah. In fact, it's in
18 parentheses there, "ADtranz," and the -- it
19 was ADtranz, which was ABB. The A was ABB and the
20 was D was DaimlerChrysler, and then Daimler bought
21 out ABB and it became DaimlerChrysler Rail Systems
22 shortly after I started there.

23 Q. So on my list I have the AF900, I have
24 the MicroLok II, I have CBTC at ADtranz Daimler and

1 CBTC at Union Switch & Signal.

2 Are there any other collision avoidance
3 systems that you were familiar with whether from
4 your work or studies prior to 2011?

5 A. Oh, now you're -- prior to 2011, right,
6 not that I can think of at this time.

7 Q. All right. Let's start with the AF900
8 system.

9 You said that was the first
10 microprocessor safety system?

11 A. For Union Switch & Signal, yes.

12 Q. Was -- and just to confirm, you said
13 that was for the Los Angeles Light Rail?

14 A. Yes.

15 Q. That's a rail vehicle system?

16 A. Yeah. It was one of their new
17 greenfield systems. It was what was called the LA
18 Green Line that they were just putting in at the
19 time, yeah. So it was a new system, yeah.

20 Q. At a high level, how did that AF900
21 collision avoidance system work?

22 A. Well, it was a track circuit type of
23 system where you -- where the wayside would
24 transmit signals to the track at fixed blocks, and

1 then as the train would come into that block, it
2 would shunt the two rails together and pick up --
3 coils would pick up the signals that were running
4 on the track, and that was FSK modulated.

5 So the uniqueness of it was that prior
6 to that, it was a lot of on/off modulated systems
7 where you'd say, okay, you've got 20 -- you know,
8 you have a speed code of 20 miles an hour and it
9 would be on/off modulated at some frequency, and
10 then you would -- if it was 30 miles an hour, it
11 would be a different frequency and so on.

12 This was -- was able to transmit to the
13 train 200 baud of information, so -- so it could
14 give it speed and other information, as well, speed
15 limits and so on.

16 Q. Because it was a track circuit system,
17 did it have any wireless communication systems
18 involved?

19 A. I don't believe -- I don't believe so.
20 There was fiberoptics from the central control to
21 the wayside bungalows, and I don't recall from the
22 safety perspective if there was a wireless comms
23 backup for any reason, but I don't think so.

24 Q. Do you recall if AF900 involved GPS?

1 A. I don't believe so.

2 Q. Did the AF900 system have an in-cab
3 display or interface?

4 A. Yes.

5 Q. What did that do in terms of
6 communicating with the operator of the rail
7 vehicle?

8 A. Well, this was quite a few years ago, so
9 that kind of detail I would not be certain of. I
10 would as- -- but it would probably show the track
11 with the track segments and show his location and
12 show locations of other trains.

13 Q. How would the system know the location
14 of the train on which the system was running?

15 A. How did the -- the train know?

16 Q. How did the train know its own location?

17 A. So when it -- when it shunted that
18 particular track circuit, it would be given a --
19 part of the 2- -- 200-baud message would be it
20 would be given a track circuit number, so it would
21 know that it's now occupying that track segment.

22 Q. Would the train for the AF900 system
23 also know the location of other trains based on
24 communication through the track circuit?

1 A. No. Well, it would know -- it would
2 know based on communication back to central, and
3 central would -- would -- could then tell it that
4 there are trains two segments ahead, three segments
5 behind.

6 Q. What kind of communication means did
7 this communication with central take? Withdrawn.
8 I'll -- I'll re-ask.

9 How -- how would the train communicate
10 with central to get that information?

11 A. I'm not certain. I assume it was -- I'm
12 not certain. I think it was Ethernet protocol via
13 fiberoptics.

14 Q. That was separate from the track circuit
15 system that AF900 was using?

16 A. Well, it was part of it because it
17 communicated with the bungalows which were on the
18 wayside which would then code the message to go to
19 the track.

20 So it was a dynamic, you know, unlike
21 prior systems where you had fixed codes and they
22 pretty much stayed the same and now and then you
23 could change -- you could lower -- you could -- you
24 could lower the speed limit -- you could never

1 raise it, but you could lower it if there was
2 something happening or something.

3 This allowed you to dynamically control
4 the movement of the trains, you know, and in a
5 sense you could -- you wouldn't have a fixed speed
6 limit for one track circuit. It would depend on
7 the traffic so you could manage the headways
8 better, "headway" meaning the separation between
9 the trains.

10 Q. This was all managed by central?

11 A. Yes.

12 Q. Central involved a dispatching system?

13 A. Yes.

14 Q. Would you refer to that as a CAD or a
15 computer-aided dispatch system?

16 A. Yes.

17 Q. How would the dispatch system used for
18 the AF900 keep track of which trains were on which
19 tracks?

20 A. Well, it would have a -- you've seen
21 them in movies, perhaps a large control center with
22 all of the tracks, and it would show the trains and
23 what -- where their position was.

24 Q. From a data perspective, how would it

1 keep track of all of that data?

2 MR. CHIPLUNKAR: Objection, form.

3 MR. GALLUZZO: Good -- good objection. I'll
4 withdraw.

5 BY THE WITNESS:

6 A. Yeah, I'm not sure where -- where you're
7 headed --

8 BY MR. GALLUZZO:

9 Q. Yeah, I --

10 A. -- in terms of --

11 Q. I withdrew the question, so I'll ask a
12 new one.

13 How would the computer-aided dispatch
14 system used in conjunction with the AF900 keep
15 track of the trains and which tracks they were on?
16 Would it use some sort of data structure to do
17 that?

18 A. Data structure? What do you mean by
19 that?

20 Q. Would it use a database?

21 A. I would assume so, sure.

22 Q. Would that database keep track of all of
23 the tracks involved in the system?

24 A. Yeah.

1 Q. Would it keep track of all of the trains
2 involved in the system?

3 A. Yes. And again, I wasn't -- that was a
4 separate group that handled all of those type of
5 things, but yeah, that's in general what -- what it
6 did. But I was not intimately involved with that.

7 Q. Even though you weren't intimately
8 involved and even though it was another group, in
9 your work on AF900, you came to understand and know
10 some of the circumstances of how the dispatch
11 system worked, right?

12 MR. CHIPLUNKAR: Objection, mischaracterizes
13 prior testimony.

14 BY THE WITNESS:

15 A. Not really. I -- I wasn't -- you know,
16 I'm an engineer. I -- if I don't know the details,
17 I don't quite understand it, and so I -- I can't
18 tell you exactly how they did what they did.

19 You know, using databases, you know,
20 those type of things, I -- I can't -- I'm not
21 intimately involved, and how they handled the
22 safety aspect of what -- their portion of it, I
23 don't know other than the visual cues.

24 So I don't -- I don't understand the

1 central control from a system perspective, not in
2 much detail.

3 BY MR. GALLUZZO:

4 Q. Throughout your career, you've been
5 involved with control systems that do interface
6 with dispatch systems in rail vehicles and railway
7 applications, correct?

8 A. Yes.

9 Q. So is it your testimony that you have no
10 idea how the dispatch systems work?

11 A. Well, I know their function, but if
12 you're going to quiz me on the technical details of
13 how they did do it and what type of databases and
14 what type of language and what type of, you know,
15 interlocking-type safety constraints that they use,
16 I'm not quite sure.

17 Q. Yeah, I don't -- I apologize. I wasn't
18 going to quiz you on that. I just wanted to make
19 sure that you were confident that those dispatch
20 systems used a database to keep track of trains and
21 keep track of tracks.

22 Are you confident in that?

23 A. Sure.

24 Q. Talking about the AF900 system again,

1 did that have a -- did the in-cab interface provide
2 a warning to operators of the rail vehicle?

3 A. I'm sure it did. I'm -- what type of
4 warning and how it worked, the details -- the
5 details of it I don't recall. This was 30 years
6 ago.

7 Q. Yeah, and -- and just to pause on that
8 point for a moment, your work on the AF900 system
9 took place again in the mid '90s, I believe?

10 A. This was, yeah, '91 to '96 probably,
11 that timeframe.

12 Q. Do you know if the AF900 system was
13 applicable to protect work vehicles or maintenance
14 of way vehicles?

15 A. It may have been because it was the
16 first driverless system in the US, automatic train
17 operation, so -- in other words, you didn't need an
18 operator. I always argued that's the last person
19 you want to eliminate, but yeah, it was the first
20 automatic train operation.

21 So could it be adapted in a kind of
22 dynamic situation where you say, well, in this
23 track circuit, we've got people working there,
24 alert them? It could have been done. Was it? I

1 don't -- I don't know. It could easily have been
2 done because, again, if you know someone is working
3 in a track circuit, you could alert a train.

4 Q. All right. I'd like to talk about the
5 MicroLok II system.

6 During which period of your car- -- of
7 your career were you working on that system?

8 A. Yeah, that was coincident with this --
9 with this -- with this project, I believe. I don't
10 believe I got involved in that back in 2005. It
11 was coincident in the -- in the '90s, yes, if I
12 recall.

13 Q. Okay. At a high level, how did the
14 MicroLok II system function in terms of its
15 collision avoidance functionality?

16 MR. CHIPLUNKAR: Objection, form.

17 BY THE WITNESS:

18 A. Yeah, and I'll be honest, I do not know
19 the actual intimate -- intimate details of how that
20 operated. I was involved more in the hardware
21 design and safety assessment, hey, this hardware
22 needs to do A, B and C, and so -- and -- and when
23 you do a safety system, you -- there's a lot of
24 rigor in terms of process involving hardware and

1 software design. The process is important -- as
2 important as the design.

3 So I was involved in those intricate
4 details and getting our safety case together,
5 proving it did the certain -- it -- the hardware
6 and software performed certain safety functions,
7 and I was not involved, unlike AF900, from a system
8 level. Although it was a legacy -- and it was a
9 legacy product before I was there and then I was
10 involved in MicroLok II, which is an updated
11 version of theirs, and it was more of a redesign
12 and refresh of their design and a recertification
13 to higher safety standards.

14 So that's what I was involved with,
15 not -- not so much the actual how the interlocking
16 worked.

17 BY MR. GALLUZZO:

18 Q. Do you recall anything about the design
19 of the collision avoidance aspects of the
20 MicroLok II?

21 A. Again, not too much. Of course it was
22 collision avoidance in the sense it -- it was a
23 safety system that avoided -- that helped trains
24 from crashing into each other and helped organize

1 their -- the switching in yards and so forth.

2 Q. Do you recall any details about how it
3 did that?

4 A. Not too much, no.

5 Q. What do you recall?

6 A. That it did that.

7 Q. No idea how even at a high level?

8 MR. CHIPLUNKAR: Objection, asked and
9 answered.

10 BY THE WITNESS:

11 A. No. I -- no, I -- I wouldn't speculate.

12 BY MR. GALLUZZO:

13 Q. Now, I -- next you worked on two
14 different CBTC systems, one for Daimler and one for
15 Union Switch & Signal.

16 A. Yes.

17 Q. CBTC is a -- somewhat of a standard, is
18 that right?

19 A. Yeah. It's a -- it's a known acronym in
20 the community. It's communication-based train
21 control. The IEEE wrote an overarching standard on
22 its functionality, and so that's how, you know,
23 the -- the term became -- came adopted was from
24 that -- probably from that IEEE standard, and it's

1 more of a moving block system versus a fixed block.

2 So it's a still -- it's somewhat block
3 based, but they're moving.

4 Q. I -- I'm going to try to shortcut us
5 here, and if it's okay if -- if this is not true,
6 but is it true that the CBTC system that you worked
7 on for Daimler at least at a high level is
8 functionally the same as the CBTC system you worked
9 on for Union Switch & Signal?

10 MR. CHIPLUNKAR: Objection, form.

11 BY THE WITNESS:

12 A. I can't recall the system details to
13 say -- to say that it was, but functionally it was,
14 sure.

15 BY MR. GALLUZZO:

16 Q. So I'll ask you generally about the CBTC
17 systems you worked on, but I'll ask that if in
18 answering my questions you need to make a
19 differentiation in your memory between the one you
20 worked on for Daimler and the one you worked on for
21 Union Switch & Signal, I'd ask that you please do.

22 A. Yeah.

23 Q. Is that okay?

24 A. Sure.

1 Q. So the CBTC systems that you worked on,
2 did those include wireless communication?

3 A. Yes.

4 Now, if you're talking about ADtranz
5 Daimler, I managed three groups, the hardware
6 design group and the -- the test group and the
7 prints or layout group, so I was involved a bit in
8 the system design, but it was mainly hardware
9 design and so on, and, you know, if there was a
10 safety certification, I had to support that, as
11 well, yeah.

12 Q. Were you involved in the system design
13 for Union Switch & Signal?

14 A. I was involved on the Union Switch &
15 Signal side more from a safety assurance, so --
16 which is to take the system and prepare the safety
17 case, prepare the -- help with all the massive
18 amount of artifacts you have to generate to prove
19 that you followed a very rigorous hardware and
20 software design process, including independence of
21 various people in terms of who designed the
22 hardware, who tested it, who from the insur- --
23 assurance side audited it and made sure it was
24 ready for safety assessment.

1 So I was involved more from a safety
2 assurance side and -- and somewhat of a systems
3 side being that I designed these in the past, so
4 yeah, these type of systems, but...

5 Q. While not your primary function on
6 either the Daimler or the Union Switch & Signal
7 teams, were you still familiar at least at a high
8 level with the design of the CBTC systems?

9 A. Yes.

10 MR. CHIPLUNKAR: Objection, form.

11 BY MR. GALLUZZO:

12 Q. So for those CBTC systems -- systems,
13 you said that it included wireless communications?

14 A. Yes.

15 Q. What kind of wireless communications?

16 A. I believe it was a radio system.
17 440-megahertz maybe comes to mind, but I'm -- I'm
18 not certain. There was -- I believe by 2005, 2008
19 you had cellular -- a cellular path, as well.

20 So in any safety system, you need
21 redundancy and diversity to -- to achieve the
22 highest level of safety, so -- so just
23 redundancy -- if you just have redundancy, you
24 could have common mode faults that can take both

1 channels out, and then you're in an unsafe state.

2 So there -- because you need redundancy
3 and diversity, you may have a 440-hertz mega --
4 440-megahertz radio system and you may have a --
5 which I think was somewhat standard in S- -- CBTC,
6 and then you'd have a -- another wireless means,
7 which would be possibly a cellular, and they may
8 have had a third radio system that was another
9 frequency. I wasn't quite -- I wasn't quite sure,
10 but there would have had to have been a divers- --
11 a redundant and diverse path for com- -- for comms,
12 yes, and it would have been wireless.

13 Q. Would any of those wireless
14 communication means, whether radio, cellular or
15 other, involve train-to-train communication?

16 A. I'm uncertain. I don't -- I don't
17 believe so. They were mostly train to central and
18 then central would dispatch, similar to the AF900.
19 Central would -- would set the blocks around the
20 train.

21 Q. Central -- sorry.

22 A. Yeah, so central would set -- the moving
23 block is -- would be effectively the train, and it
24 would set the blocks based on traffic in front and

1 behind as well as other factors.

2 Q. Central again being the -- the dispatch
3 system like what we were talking about earlier?

4 A. Yes. So I don't know that there would
5 have been -- there could have been train to train,
6 but it would have had to pass through central at
7 that point, yeah, in 2005.

8 Q. Do you know if the CBTC systems you
9 worked on had GPS?

10 A. These -- these systems in 2005 had --
11 had GPS, I'm -- I'm pretty sure. This is -- again,
12 this is still -- this is 15 years ago, but I
13 believe they did, yes, absolutely.

14 Q. Did the CBTC systems you worked on have
15 an in-cab interface for the operators of the rail
16 vehicles?

17 A. Of course.

18 Q. Did that interface provide a warning?

19 A. Of course.

20 Q. What kind of warning?

21 A. That's a broad question. I don't know
22 what you -- what you mean, what kind of warning.

23 Q. Was it a -- a light, a sound, both?

24 A. Probably both.

1 Q. Would that light or sound change
2 depending on how great the warning was or how
3 impending a potential collision would be?

4 MR. CHIPLUNKAR: Objection, form.

5 BY THE WITNESS:

6 A. Not that I'm aware of. It would
7 probably override the system and put the brakes on.

8 BY MR. GALLUZZO:

9 Q. So just to be clear, in the CBTC systems
10 you worked on, to your memory, were there any
11 changes in the warning signals such as a
12 progressive warning?

13 A. I don't recall. I think it would be
14 essentially you're either overspeeding or you're
15 not, and when you've got -- when you -- when they
16 got an overspeed or when there's a block violation,
17 it would -- he would have to pull the brakes until
18 that went off.

19 And I'm -- I don't -- I don't recall
20 exactly how the -- the mechanism worked with the
21 cab interface, but typically if you're -- it's
22 overspe- -- you're either overspeeding or you're
23 not, you either have violated a block and you need
24 to decelerate and -- or not, and it could in fact

1 automatically override him and put the brakes on.

2 Q. Do you recall whether the CBTC systems
3 you worked on could operate to protect maintenance
4 of way vehicles?

5 A. Again, as I stated earlier, I -- they
6 could have done that, but -- I don't recall that
7 being an application, but it -- that's -- in my
8 mind, that's part of what central would do. They
9 would -- they would send -- they would send either
10 certain block restrictions based on this activity
11 that's going on the track.

12 Similarly, if you had a crossing that
13 was being violated quite a lot, they could change
14 the approach to that block, to that -- so it would
15 be similar to a highway crossing being -- you know,
16 you may have a gate down or you may have -- for
17 some reason people are more aggressive at this
18 crossing, so they could change.

19 And that would be similar to how could
20 use the maintenance of way. If you knew where
21 people were working and you could make it dy- -- in
22 the aspect of it where you could make it dynamic.
23 If they're working for two hours, you could set up
24 this restriction and then you could take it off

1 when they're done.

2 Q. Are you familiar with trip cock systems?

3 A. What's that? Sorry.

4 Q. They are systems where there's an arm
5 hanging off of the rail vehicle that hits when --
6 when you --

7 A. I've heard about them, yes.

8 Q. What have you heard about them?

9 A. I -- I don't -- yeah, that there was --
10 that the arm was actually the restriction
11 enunciator, if you will, or -- or safety mechanism
12 by which if it's traversed and the arm gets moved
13 that -- that it would signal that this is a
14 dangerous situation and that part of the
15 interlocking might be to put -- to lower the
16 restriction to the car and possibly put the brakes
17 on because then the car would pick up the lower
18 restriction, realize it's overspeeding, and if
19 the -- you know, because you overspeed in two ways,
20 you accelerate past the high -- the speed
21 restriction, or if you have a -- if they lower the
22 speed restriction while you're moving at 30 -- if
23 the speed is 40 and you're moving at 30 and then
24 you lower the speed restriction to 20, you could

1 overspeed and then you can enunciate that to the
2 vehicle.

3 Q. Were you familiar with such systems
4 prior to 2011?

5 A. This trip cock thing?

6 Q. Yes.

7 A. I heard about it. I've never worked on
8 anything like that.

9 Q. So --

10 A. I don't know exactly how they work, and,
11 you know, they -- I don't know the details of it.

12 Q. So you --

13 A. That's primitive, I think, pretty -- I
14 think in terms of railroads versus a transit, I
15 don't know if that was used, but I'm not sure.

16 Q. So you are unable to say whether or not
17 such systems were or could have been used prior to
18 2011 to protect maintenance vehicles or other rail
19 vehicles?

20 A. Trip cock?

21 Q. Correct.

22 A. I don't know.

23 Q. We've been going approximately an hour.
24 I'm happy to keep going, but I wanted to give you a

1 chance if you'd like a break.

2 A. Yeah, maybe a five-minute break would be
3 good.

4 Q. Sure.

5 A. If you wouldn't mind.

6 THE VIDEOGRAPHER: Going off the record at
7 10:05 a.m.

8 (WHEREUPON, the deposition was
9 recessed from 10:05 to 10:16 a.m.)

10 THE VIDEOGRAPHER: Going on the record at
11 10:16 a.m.

12 BY MR. GALLUZZO:

13 Q. Mr. Conti, do you have any experience in
14 UWB systems?

15 A. Well, I have experience in rail transit
16 signalling systems, but I've not included UWB in
17 any designs that I've done or considered it.

18 Q. Have you done any studies about UWB
19 apart from this case?

20 A. No.

21 Q. Had you ever worked on any UWB systems
22 in the rail industry or any other industry prior to
23 your work on this case?

24 A. No.

1 Q. All right. Looking back at your CV, I
2 note -- and I don't mean this in a bad way --
3 you've worked at a lot of different companies
4 before you started your own?

5 A. Yes.

6 Q. In your work at all of those companies,
7 you were aware that those companies were spending
8 resources on research and development, right?

9 A. Of course.

10 Q. Why were they spending resources on
11 research and development?

12 A. Because you need -- every company needs
13 to develop new products to stay viable.

14 Q. Why?

15 A. Why? Because eventually products become
16 obsolete.

17 Q. And you would agree with me one of the
18 goals of research and development is to innovate?

19 A. Yes.

20 Q. And the companies that you worked for
21 were innovative?

22 A. Yes.

23 Q. The companies you worked for also
24 operated in the rail --

1 A. Innovative? I wouldn't -- you know,
2 I -- I'd couch that a bit.

3 Q. How would you couch it?

4 A. Well, they weren't innovative enough, in
5 my view, certainly in rail transit.

6 Q. What would have been innovative enough
7 in your mind?

8 A. Well, one example is I -- you know, when
9 I designed the first -- I -- I had to convince them
10 that we could design a safety system using
11 microprocessors and that that's not too complex, or
12 the -- or the failure mode -- it was seen that
13 perhaps the failure modes were infinite or too
14 complex to be a safety -- to be certified, and --
15 and then after that I had wrote an innovation award
16 on FP- -- on using FPGAs, field programmable gate
17 arrays, for safety systems as an innovation award
18 to our Italian parent, again because Union Switch &
19 Signal then became Ansaldo, bought by an Italian
20 company, and I wrote an innovation award using a
21 program to use FPGAs in a safety system, so take
22 the safety architecture that I designed and enhance
23 it a bit because the microprocessor was too
24 burdened by doing this checking.

1 So I said, well, we can have offload
2 that a lot with FPGAs, and so I wrote this paper.
3 They sent me to Italy because they said the
4 Italians were using FOPGIs, as they called them,
5 and -- and I submitted it, and it -- it didn't get
6 submitted. My boss stopped it, said it -- and --
7 which was surprising because my -- the person that
8 was -- the person who did R&D for Ansaldo and
9 did -- you know, helped to decide the R&D funds and
10 who would get R&D funds told me to submit it
11 because he felt like we should be going down that
12 path and exploring it, and he came back to me and
13 said, "Why didn't you submit it? I thought we had
14 agreed you would do that." And I said, "I did.
15 My -- I don't know where -- what happened to it."

16 And it turned out my boss's boss said it
17 was too conceptual and didn't submit it, and I got
18 into a large argument with him telling him that
19 "The R&D director told me to submit it, so why
20 would you hold it up and say it's too conceptual?
21 That's foolish." I might have used other language.

22 And then a year went by, and I submitted
23 it personally, and I won the award, so you -- you
24 fight innovation within companies.

1 And then there's a large, you know,
2 impediment to innovation in -- in the rail industry
3 for lots of reasons which I could go on for -- such
4 as you have a lot of legacy equipment. Like I'm
5 sure New York City has some signalling systems that
6 date back in the -- prior to the '50s that they
7 still use because perhaps changing them would be
8 too -- too much effort, and --

9 Q. Mr. -- Mr. Conti, I think we're straying
10 a little bit beyond the -- the -- where my question
11 originally was, so just -- I don't mean to
12 interrupt you --

13 A. Sure.

14 Q. -- but I'd like to, you know --

15 A. Okay.

16 Q. -- lead us along by asking questions, if
17 that's okay.

18 A. All right. Sure.

19 Q. You first started your answer by talking
20 about having to convince your bosses, I'm guessing
21 at Union Switch & Signal, about a microprocessor
22 safety system.

23 A. Right.

24 Q. Now, you did eventually succeed in

1 con- -- in convincing them to create a
2 microprocessor safety system that became the AF900,
3 correct?

4 A. Yes.

5 Q. And, in fact, that was the first
6 driverless system in the entire United States? Not
7 cars, not planes, it was your driverless system,
8 yes?

9 A. First rail driverless system. I -- I
10 don't -- yeah.

11 Q. I mis- -- I misunderstood your CV, then.
12 So that was the first rail driverless
13 system?

14 A. Rail driverless system. There wasn't --
15 well, there wasn't driverless cars and -- but I
16 didn't intend it to mean driverless system, I meant
17 rail driverless system, yes.

18 Q. Okay. I'm sorry for misunderstanding.
19 Let me --

20 A. It had automatic -- what we called ATO,
21 automatic train operation.

22 Q. Yeah, let me back up a bit and re-ask a
23 new question with that better understanding.

24 So here's my question: You were able to

1 successfully convince Union Switch & Signal to be
2 innovative in that you created the first rail
3 driverless system while working for them, is that
4 right?

5 A. Yes.

6 Q. Now, Union Switch & Signal is a company
7 that operates in the rail industry?

8 A. Yes. They're one of the first ones back
9 from George -- they evolved from George
10 Westinghouse -- or Westinghouse and George
11 Westinghouse, yes, so they are one of the founding
12 rail companies, yes.

13 Q. DaimlerChrysler Rail Systems or ADtranz,
14 is that also a company that operates in the rail
15 industry?

16 A. Yes.

17 Q. And the other companies that are listed
18 on your CV are -- do all of them also operate in
19 the rail industry?

20 A. Well, the first two that I -- my first
21 experience out of college was McDonnell Douglas
22 Astronautics in California. That was defense and
23 aerospace. And then MIT Draper Lab -- Charles
24 Stark Draper Lab is -- was defense, as well.

1 So I had eight -- eight years of defense
2 experience, and then the rest was in rail transit
3 with the exception of in 2000 when I went off with
4 two Carnegie-Mellon professors and we started
5 Applied Electro-Optics, got acquired by AcceLight
6 Networks to do a high-speed optic switch fabric.

7 So that was the only deviation from rail
8 after I -- after I left.

9 Q. All right. So if I understand you
10 right, apart from McDonnell Douglas, MIT Labs,
11 Applied Electro -- Electro-Optics and AcceLight
12 Networks, all of the other companies you worked
13 for --

14 A. Right.

15 Q. -- operated and serviced the rail
16 industry?

17 A. Yes.

18 Now, at SIL4 Systems I have done work
19 for driverless vehicle -- for vehic- -- cars, I've
20 done a safety assessment of a wind turbine, so
21 I've -- SIL4, Safety Integrity Level 4, Systems has
22 done work in industrial automation, as well, but
23 primarily it's been rail there, as well.

24 Q. Does SIL4 Systems create products?

1 A. Yes.

2 Q. What markets do you market those
3 products to?

4 A. Primarily rail, but I do -- we do
5 embedded systems, embedded computing systems. We
6 do market them in other -- for -- for industrial
7 automation, but even industrial automation, we're
8 doing test benches for Wabtec, Wab- -- which is
9 Westinghouse Air Brake, so they're rail oriented,
10 but they're -- you know, they seek our expertise in
11 safety systems and making a bench -- mak- --
12 because it tests their brake valves, so it's
13 safety -- it's safety related in a sense, but
14 primarily it's rail trans. I mean, if you'll look
15 at our website, you know, you'll -- you'll see
16 that.

17 Q. Other than rail transit, does
18 SIL4 Systems market its products to any other
19 transportation industries?

20 A. No. We're -- we -- well, we do if
21 you -- buses -- we -- we are attempting to move
22 into the bus market, which is -- usually a transit
23 authority will run trains and buses, so -- but
24 we're moving into the bus market, but mostly rail

1 transit, yes.

2 Q. How common is it for transit authorities
3 in the United States to manage both trains and
4 buses?

5 A. I think it's fairly common.

6 Q. Do you know why it's so common?

7 A. Well, they're both municipal services
8 that again are run by the same agency typically. I
9 think, you know, they might have divisions that are
10 devoted to bus and rail. Obviously the fleet
11 management is different, the maintenance and
12 dispatching is different, but -- but yeah, I -- I
13 imagine that's why.

14 Q. Focusing specifically on the rail
15 transportation industry again, are you familiar
16 with the term "link" or "track link"?

17 A. Well, I'm familiar with it with respect
18 to this patent -- to one of the patents I reviewed.

19 Q. The Douglas reference?

20 A. I believe so, yeah. I'd have to look,
21 but --

22 Q. If you would like to look, it's I'm sure
23 next to you.

24 A. The link ID and link -- yes.

1 Q. The -- the question I'm going to ask --
2 and I don't mean to interrupt you from looking.

3 A. Yeah, I don't -- yeah.

4 Q. To ground you, the question I'm going to
5 ask is: Were you familiar with links or track
6 links in the railway industry prior to your review
7 of the materials in this case?

8 A. Not necessarily in that terminology, no.

9 Q. Is there a different terminology you
10 would use to convey that same structure or concept?

11 A. Well, I -- I'm not sure because I'm not
12 sure that "links" -- what they talked about in
13 terms of that patent, "links" were well defined.

14 There's always a question in my mind as
15 to what is the length of a link and what is -- you
16 know, what -- it was somewhat -- it was ambiguous
17 in my mind what exactly was meant by a link.

18 Q. Are you familiar with segments of track
19 such as -- I believe they're called side rails.
20 Are you familiar with that phrase?

21 A. I don't know that term.

22 Q. I could be using the wrong term.

23 What is the term to -- that -- that
24 describes the segment of track that runs parallel

1 to a main segment of track but isn't used very
2 often and perhaps might be used for loading up
3 industrial --

4 A. Oh.

5 Q. -- materials on --

6 A. I think it's just called siding.

7 Q. Thank you. Siding.

8 A. Yeah.

9 Q. That's the one I couldn't come up with.

10 A. Yes.

11 Q. Are you familiar with siding?

12 A. Yes.

13 Q. Are you familiar with other segments of
14 track apart from the main segment that link other
15 larger segments of track together?

16 A. Sorry. Could you say that again?

17 Q. Are you familiar with other segments of
18 track that like siding are not the main segment of
19 track on which trains usually operate but still
20 connect those main segments of track?

21 A. You'd have a yard. Siding is typically
22 used I think for a train to pull over so another
23 could pass, but when you say -- that's a broad
24 question. I'm -- I'm sure there's -- I don't know

1 what you mean by other -- I mean, one example would
2 be a yard, but -- but yeah, you'd also have I
3 suppose connections to two lines.

4 Q. In your experience, in terms of length,
5 how long can a connection between two lines be?

6 A. I don't know.

7 Q. Do you have any idea of whether -- at a
8 high level or a ballpark how long that connection
9 between two lines segment of track might be?

10 MR. CHIPLUNKAR: Objection, asked and
11 answered.

12 BY THE WITNESS:

13 A. Yeah, I -- I don't know. I'm not even
14 sure what you mean by "lines."

15 BY MR. GALLUZZO:

16 Q. It's the phrase you used. You said you
17 could have connection between lines.

18 What were you intending to convey in
19 that phrase?

20 A. Well, if you're taking a train to the
21 airport, you have segments, the green line, blue
22 line, and there can be connecting track or there
23 could be -- or not. You could have where people
24 would have to -- have to walk. You could have --

1 you know, there's -- there's transit -- you have
2 lines that go from suburbs to -- to the city that
3 oftentimes are pulled by a locomotive, and then
4 those lines may connect to the inner city subway
5 system potentially. There could be that type of
6 connection.

7 Q. And you call that connecting track?

8 A. I suppose you could. I -- I'm -- I'm
9 not an expert at that type of thing, the full
10 system and how you would -- what you would call
11 these type of things where you'd make a decision to
12 put connecting track or just, say, have people walk
13 a block to change trains. You know, I don't -- I'm
14 not familiar with that level of transit system
15 design.

16 Q. Are you familiar with how long a
17 connecting track can be?

18 MR. CHIPLUNKAR: Objection, asked and
19 answered.

20 BY THE WITNESS:

21 A. No.

22 BY MR. GALLUZZO:

23 Q. Are you familiar with how short a
24 connecting track can be?

1 A. No.

2 Q. I forgot to ask you earlier, but did the
3 AF900 system you worked on know the speed of the
4 train?

5 A. When you say the system knew the speed
6 of the train, what part of the system? You have
7 central, you have wayside, you have the onboard.

8 Q. Fair question. Did the AF900 on-train
9 portion of the system know the speed of the train
10 on which that --

11 A. Well, it knows the speed of its own --
12 its train. It has a speedometer.

13 Q. How does it determine its own speed for
14 purposes of the speedometer?

15 A. There's a tachometer on the axle.

16 Q. Were tachometers on axles common at that
17 time?

18 A. Sure.

19 Q. Are they still common today?

20 A. Sure.

21 Q. Was there any time between the mid '90s
22 and today when tachometers on axles were not
23 common?

24 A. No.

1 Q. Is ground speed something that the
2 tachometer would read?

3 A. Uh-huh. Well, what do you mean by
4 "ground speed"?

5 Q. The speed of the train or rail vehicle
6 relative to the ground.

7 A. Yeah.

8 Q. Is there another understanding of
9 "ground speed" different from the one I just gave
10 you that you're aware of?

11 A. No.

12 Q. In your mind --

13 A. Except that, you know, if --
14 your tachometers can slip and slide and, thus, the
15 speed is in error, and if it's on a grade, there
16 could be some -- if you're using a ground
17 reference, it could be faster than the actual --
18 say, a 2-D map, right? If you're going downhill,
19 you could be traversing at a higher speed than
20 you're actually showing the ground speed.

21 But yeah, that's the technical point.
22 It's not -- I don't think it's to your question,
23 but yeah.

24 Q. Yeah, and just to clarify, the potential

1 air conditions like slippage or the -- the hill
2 conditions you were discussing, even with those,
3 the tachometers are generally attempting to measure
4 with some approximation the speed of the rail
5 vehicle against the ground, is that right?

6 A. The speed of the wheel, and the wheels
7 vary in size, so you have error there, yes.

8 Q. In your mind, is ground speed the same
9 thing as absolute speed?

10 A. I don't know what "absolute speed" is.
11 What do you mean by that?

12 Q. Are you familiar with maintenance of way
13 vehicles?

14 A. Generally, yes, but not -- familiar in
15 what -- at what level?

16 Q. Are you aware how fast they're allowed
17 to travel during normal operation?

18 MR. CHIPLUNKAR: Objection, calls for
19 speculation.

20 BY THE WITNESS:

21 A. I'm not. I'm assuming it's pretty slow,
22 5, 10 miles an hour --

23 BY MR. GALLUZZO:

24 Q. Why are you --

1 A. -- maximum.

2 Q. I'm sorry. I didn't mean to interrupt
3 you. Were you finished?

4 A. I -- I should say I don't know, but I
5 assume it would be pretty slow, 5 or 10 miles an
6 hour.

7 Q. Why would you assume that?

8 A. For safety reasons.

9 Q. What do you mean?

10 A. So they don't change position abruptly
11 and -- and I'm not even sure -- well, I'm not sure
12 how they're actually let's say administered onto
13 the track or off the track, so I couldn't comment
14 as to what -- I shouldn't answer as to what speed
15 they would be allowed to move.

16 Q. Are you familiar with how long it takes
17 them to stop?

18 A. A maintenance of way vehicle?

19 Q. Yes.

20 MR. CHIPLUNKAR: Objection --

21 BY THE WITNESS:

22 A. No.

23 MR. CHIPLUNKAR: -- calls for speculation.

24 BY THE WITNESS:

1 A. No, I -- no. I imagine they're light or
2 somewhat light, so they would -- could stop quicker
3 than a train or locomotive, but I don't know.

4 BY MR. GALLUZZO:

5 Q. Are you familiar with high rail
6 vehicles?

7 A. No. I've heard the term.

8 Q. Are you familiar enough with high rail
9 vehicles to know that they are modified trucks, in
10 essence?

11 A. Yeah, I think so. I think they drive
12 above the rails. I'm not sure.

13 Q. Do you know whether they have a steering
14 wheel?

15 A. I don't know.

16 Q. Do you know whether they control and
17 dictate position by steering?

18 A. I'm not familiar.

19 Q. Are you familiar with the Rail Safety
20 Improvement Act of 2008?

21 A. I'd have to refresh my memory. Is that
22 the one where they -- where they desired to have
23 PTC installed on all -- all railroads by 2015 or
24 something? Is that --

1 Q. That's the one, the one that was --

2 A. That's the one?

3 Q. And that's the one that the Chatham
4 [sic] accident led to, is that right?

5 A. I'm not familiar with the Chatham
6 accident.

7 Q. What -- so with the understanding -- and
8 I'll represent to you that that is the act of
9 Congress that led to the requirement for PTC
10 implementation, at least in its first
11 implementation in 2015, later got amended, as you
12 may know.

13 A. Yeah.

14 Q. With that understanding, what do you
15 know about the Rail Safety Improvement Act?

16 A. Well, I know that Congress mandated that
17 all railroads have PTC installed by 2015 -- I'm
18 working from memory here and I believe it's in my
19 declaration -- and -- and, accordingly, they issued
20 funding for that because the railroads weren't
21 going to hold bake sales to try to pay for it.

22 So -- so there was a funding initiative
23 associated with it, and then it got extended when
24 it wasn't met by 2015. That's what I can work --

1 that's what I know from memory. I might have
2 gotten into a little more detail in my declaration,
3 but...

4 Q. Before I ask you another question, would
5 you like a moment to find it in your declaration?

6 A. Okay.

7 Q. And maybe I could shortcut us by
8 pointing you to Paragraph 49.

9 A. Okay.

10 Q. Are you there with me?

11 A. Yes.

12 Q. What kind of funding to your knowledge
13 did Congress provide for PTC implementation?

14 A. What kind?

15 Q. Yes.

16 A. What -- what do you mean what -- "what
17 kind"? I'm not sure what you mean.

18 Q. How much did they provide?

19 A. Oh, I don't know. I -- I think it was
20 hundreds of millions, perhaps billions. I don't --
21 I don't recall, but it was a large number because
22 it's a large effort.

23 Q. Do you recall to whom -- to which
24 companies the funding went? Was it the railroads?

1 Was it the developers? Who did the money go to?

2 A. I don't recall.

3 Q. You said PTC was a large effort.

4 Why do you say that?

5 A. Well, I mean, you had -- it's a -- you'd
6 have to define what you mean by "PTC" and what
7 safety conditions you're trying to mitigate and
8 then you have to put together I would assume a
9 minimum functional requirement for what constitutes
10 a PTC system and then you have to put together a
11 safety assessment to show that -- that it actually
12 meets -- it mitigates the risk that you're trying
13 to mitigate and it -- so it was -- there was
14 some -- I think in the early days there was some
15 question as to what exactly constituted a PTC
16 system in terms of functionality.

17 Q. Was there any debate whether a PTC
18 system must attempt to avoid collisions?

19 A. I don't believe so, no. That was one of
20 the primary impetuses to -- yeah.

21 Q. Did the Rail Safety Improvement Act of
22 2008 to your knowledge require implementation of
23 collision avoidance systems as part of PTC?

24 A. Well, it's an odd question. I don't

1 know what you mean by that.

2 I mean, functionality -- it would have
3 some type -- level of collision avoidance
4 functionality. To say that it had a collision
5 avoidance system as part of it is -- you know, I'm
6 not sure. I'm not sure the railroads went out and
7 looked for collision avoidance systems to implement
8 PTC. I -- I think they went to the large
9 manufacturers to put together -- upgrade their
10 signalling systems to do PTC.

11 I -- I don't know. I'm speculating, so
12 I should stop there.

13 Q. Why do you think they went to the large
14 manufacturers?

15 MR. CHIPLUNKAR: Objection, asked and
16 answered.

17 BY THE WITNESS:

18 A. I -- I don't -- again, I'm -- I'm
19 speculating. I shouldn't -- I shouldn't even go
20 there. I don't know -- they allocated funding.
21 How -- how you qualified for that funding and
22 whom -- what the criteria was for that, I'm -- I'm
23 uncertain.

24 BY MR. GALLUZZO:

1 Q. I'd asked you a question earlier about
2 the Rail Safety Improvement Act. You gave me a --
3 a good response that I had maybe asked a poor
4 question, so I'm going to ask you a new one. It
5 might sound similar to an old one, but -- but
6 here's my question: To your knowledge, did the
7 Rail Safety Improvement Act of 2008 require
8 collision avoidance functionality as part of PTC
9 systems it was requiring?

10 A. Yes, I believe so, sure. In certain
11 instances. Not all collision avoidance. It
12 didn't -- it didn't take -- I'm not saying it
13 went -- it said all collisions should be avoided,
14 but it -- I think it addressed certain risk
15 miti- -- risk mitigation areas such as crossings
16 and so on.

17 Q. At the time of the Rail Safety
18 Improvement Act -- I'm looking at your CV now --
19 were you simultaneously working for Gigahertz and
20 for RVB+A?

21 A. In 2008?

22 Q. Yes. I'm sorry. I misread your CV.
23 Were you working at Gigahertz at the
24 time?

1 A. In 2008, yes.

2 Q. And when the Rail Safety Improvement Act
3 came out, was Gigahertz interested in trying to
4 compete or create products for the PTC market?

5 A. Yes and no. Well, in the sense that
6 when I -- when I did -- if you drop back to 2000, I
7 was in Applied Electro-Optics and AcceLight
8 Networks -- which was acquired by AcceLight
9 Networks. The person that funded that company, I
10 approached him in 2008 and said I wanted to start
11 my own company "and would you be interested in
12 funding it," and he said, "Yes," and so I -- to do
13 rail -- to do rail transit safety systems, back to
14 that story where I told Union Switch & Signal we
15 need to do -- we need a new rail safety platform,
16 and I said -- well, when I left, I said, "I'll --
17 I'll have it when you need it because it will take
18 you too long to do decide whether to do it with the
19 inertia in the company."

20 So I went to -- he -- his company was
21 Gigahertz, and so I jumped over to his company for
22 a short period of time and then founded my own and
23 he funded it, the early -- the early stages of it,
24 so that's why I went to Gigahertz with an eye --

1 with an eye solely to start my own company and
2 develop my own safety platform, which -- again,
3 primarily for rail transit, yeah.

4 Q. When the Rail Safety Improvement Act
5 came out in 2008, were you interested in trying to
6 compete for the funding from Congress to --

7 A. I believe I had a thought that I could
8 design an onboard safety system and there's a large
9 fund -- there's a large push, a large funded need
10 for safety systems, and yeah, there was an
11 opportunity there, yeah.

12 Q. Was that opportunity --

13 A. Was it -- was it my primary impetus?
14 Maybe not, but certainly it was on my radar screen
15 that I could design a safety platform that could do
16 ATP, ATO, ATS and PTC and perhaps eventually morph
17 into a CBTC system, if you -- if you want to know
18 where my mind was at that time, yeah.

19 Q. To your knowledge, did others in the
20 industry see the same opportunity as you?

21 A. I'm sorry?

22 Q. To your knowledge, did others in the
23 industry see the same opportunity as you?

24 MR. CHIPLUNKAR: Objection, calls for

1 speculation.

2 BY THE WITNESS:

3 A. I don't know.

4 BY MR. GALLUZZO:

5 Q. Do you know whether new companies
6 entered the market to try to compete for the PTC
7 money?

8 MR. CHIPLUNKAR: Objection, calls for
9 speculation.

10 BY THE WITNESS:

11 A. I don't know. Again, I don't know how
12 the funding was -- whether if you're Burlington
13 Northern and Norfolk Southern where you'd put an
14 RFQ out for a PTC system and someone bids on, I
15 don't know exactly how it all went, but I know they
16 had the mandate that all these railroads had to put
17 these systems in place.

18 So how the market reacted to that, I --
19 I -- I don't know.

20 BY MR. GALLUZZO:

21 Q. I'm going to change gears a little bit
22 here and talk about your retention in this case, so
23 here's my question: When were you first retained
24 to offer your services in this case?

1 A. It was a while ago. I believe over a
2 year ago. I'm not -- I'm not certain. I'd have to
3 look at my records, which I don't -- you know, I
4 don't have all -- I don't have it here except on my
5 laptop, but I believe it was over a year ago.

6 Q. How were you first contacted?

7 A. Greg contacted me as -- and I -- I'm
8 not -- I mean, he -- I think he contacted me as
9 someone who's an expert in the industry, yeah, and
10 so Greg contac- -- contacted me directly.

11 Q. Have you worked with Mr. Shodde before?

12 A. No. And I'm not sure if there's a
13 database where I'd done another expert witness
14 deposition that he may have accessed. I'm not even
15 sure of that, but yeah, he contacted me and asked
16 about my background and told me a little about the
17 case and if I --

18 Q. Just to be clear, I'm not interested in
19 your discussions with Mr. Shodde --

20 A. Sure.

21 Q. -- or Mr. Chiplunkar.

22 A. Okay.

23 Q. Between the time that you were retained
24 formally on this case and the date on which you

1 issued your declaration, which is the 15th of
2 September of this year, how much time do you
3 believe you spent on this case?

4 A. Oh, I don't know. I -- again, this is
5 over probably a 15-month period. Possibly a
6 hundred hours.

7 Q. Could it have been more?

8 A. It could have been slightly more, give
9 or take. I don't -- I don't recall exactly.

10 Q. Could it have been less?

11 A. It could have been less, but I think
12 it's...

13 Q. What's the hourly --

14 A. That's the ballpark.

15 Q. I'm sorry. I didn't mean to --

16 A. I said that's a ballpark number. I
17 don't -- again, over 15 months where there were
18 several months where I did nothing.

19 Q. And since you issued your report -- I'm
20 sorry. Since you issued your declaration in
21 September, how much time have you spent on this
22 case?

23 A. I don't recall. 20, 30 hours maybe.

24 Q. Was that all in preparation for today's

1 deposition?

2 A. Yeah. I'd say yeah.

3 Q. How much time did you spend with counsel
4 for Metrom in preparation for today's deposition?

5 A. Not much. A couple hours on the phone
6 and then a session yesterday.

7 Q. How long was yesterday's session,
8 approximately?

9 A. Well, I was -- I was here reviewing my
10 declaration. I probably spent two or three hours
11 with Raj, but -- and then the rest of it was here
12 just reviewing my declaration, refreshing myself on
13 the various patents and so forth.

14 Q. Other than talking to Mr. Chiplunkar or
15 anyone else who works at the McAndrews firm in
16 preparation for this deposition, have you talked to
17 anybody else?

18 A. No. Kurt was on the call one -- with
19 Greg about a week or two ago, a 20-minute
20 conversation --

21 Q. What was that conversation --

22 A. -- with Mr. Gunther.

23 Q. What was that conversation about?

24 MR. CHIPLUNKAR: Objection, calls for

1 privileged information. I'm going to instruct the
2 witness not to answer.

3 BY MR. GALLUZZO:

4 Q. I'll withdraw and ask a new question.

5 A. I don't remember Kurt saying much of
6 anything.

7 Q. No, I --

8 A. I don't remember what it was about,
9 yeah.

10 THE WITNESS: Sorry.

11 MR. GALLUZZO: When I object to a -- make a
12 privilege objection, you are not supposed to answer
13 anything.

14 THE WITNESS: Okay.

15 MR. CHIPLUNKAR: Go ahead.

16 THE WITNESS: Sorry. I missed it.

17 BY MR. GALLUZZO:

18 Q. Is anything that you were told or
19 discussed on that call with Mr. Shodde and
20 Mr. Gunther something that you are relying on to
21 form the basis of your opinions in this case?

22 A. No.

23 Q. What's your hourly rate on this case?

24 A. \$250 an hour.

1 Q. And what does that hourly rate cover?

2 A. My time.

3 Q. It covers your time on -- on all matters
4 in this case?

5 A. Yes.

6 Q. I understand that you've provided some
7 opinions related to obviousness.

8 Have you considered or provided opinions
9 related to anything else such as infringement or
10 other issues that are not in your declaration,
11 Exhibit 2012?

12 A. I'm sorry. What was the question?

13 Q. Yeah, I'll simplify it.

14 As part of your work on this case, have
15 you considered any other potential opinions outside
16 of what's in Exhibit 2012 such as infringement
17 issues?

18 A. Outside of 2012, what do you mean by
19 that?

20 Q. Exhibit -- I'm sorry. Outside of your
21 declaration, which is Exhibit 2012.

22 A. Oh, okay. No.

23 Q. Have you considered issues of copying?

24 A. Copying? I don't know what you mean.

1 Q. Have you considered issues of copying or
2 allegations of copying of any Metrom products?

3 A. Well, in the early time when I put
4 together a chronology, I looked at all the patents
5 that were presented to me related to this, related
6 to the case.

7 Q. And you're not providing any opinions on
8 copying of any Metrom products in your declaration,
9 Exhibit 2012, correct?

10 A. No.

11 Q. Okay.

12 A. I was not asked to.

13 Q. And --

14 A. No.

15 Q. -- because of the form of the question,
16 by "no," you mean correct, you have not --

17 A. Correct, I've not offered any assessment
18 of copying of patents.

19 Q. Or of products?

20 A. Or of products.

21 Q. Did you write your declaration?

22 A. Of course.

23 Q. Are there any other materials that you
24 considered in coming to your opinions in your

1 declaration that are not cited in your re- -- in
2 your declaration?

3 A. Do I have a list of --

4 Q. If you look at Paragraph 16, there is a
5 list.

6 A. All right.

7 Q. My question is: Apart from what's
8 listed in this Paragraph 16, did you consider any
9 other materials in coming to your opinions in your
10 declaration?

11 A. Well, I would have had to look at -- if
12 Mr. Andrews cited Richardson, Grisham, I would have
13 had to have looked at those patents, as well, and I
14 don't see them listed here.

15 Q. Okay. And that was actually where I was
16 going.

17 Did you consider the prior art
18 references such as Grisham, Nixon, Suzuki, the --
19 the whole lot, in coming to your opinions in this
20 case?

21 A. Yes. I commented on them.

22 Q. Do you know why they're not listed here?

23 A. No.

24 Q. One of the items on this list is

1 Paper 10, the Decision Granting Institution of
2 Inter Partes Review.

3 Do you see that?

4 A. Yeah.

5 Q. And just to confirm, you did in fact
6 review that institution decision?

7 A. Yes, I believe so. I'm not recalling it
8 offhand.

9 Q. I'm sure we could get you a copy if you
10 need one to answer this question, but my question
11 is: What do you believe your declaration adds
12 beyond what was already considered by the Board in
13 its institution decision?

14 A. Oh, that's a huge --

15 MR. CHIPLUNKAR: Objection, form.

16 BY THE WITNESS:

17 A. That's a huge question, and I'd -- I'd
18 have to review what was decided by the Board there
19 and comment on it.

20 So I don't know how I would begin to
21 answer that. I'd need more time to -- to review
22 that to see exactly what they said and what I'm
23 adding to. I don't know.

24 BY MR. GALLUZZO:

1 Q. I don't want to waste all of our time by
2 having you do that, so let me just ask one closeout
3 question: Without doing that side-by-side
4 analysis, sitting here today, are you able to
5 identify anything in your declaration that you add
6 to the conversation beyond what the Board already
7 considered in its institution decision?

8 A. Same answer. I -- I don't know what
9 they -- I don't have fresh in my mind what they
10 said such that I could say I added or subtracted or
11 multiplied from. I -- I don't -- I'm not trying to
12 be -- I just don't know.

13 Q. You don't --

14 A. I can't answer. I'd be happy to look at
15 it, but I -- you know, again, it would take more
16 time than we have today I would assume to answer
17 that question.

18 Q. I'd like to talk to you a bit about the
19 structure of your declaration.

20 A. Yeah.

21 Q. Apart from in Ground 1A, are you -- bear
22 with me a second.

23 (WHEREUPON, there was a short
24 interruption.)

1 BY MR. GALLUZZO:

2 Q. Apart from Grounds 1A, 1E and 1F, are
3 you opining that the prior art fails to disclose
4 the claim limitations or are you just opining that
5 Mr. Andrews did not provide enough explanation in
6 his opinions?

7 A. Wait. That's a very broad question.
8 Can you say that again?

9 Q. Yeah, I -- so I'll give you some
10 background.

11 A. Are you asking me to summarize my entire
12 declaration? I -- I don't think I could do that.

13 Q. No, and I'm -- I'll give you some
14 background, and then I'll ask a question.

15 A. Okay.

16 Q. We will talk about Grounds 1A and the
17 other ones I talked about earlier --

18 A. Yeah.

19 Q. -- because I see those as different, but
20 for the grounds where you are discussing prior art
21 references, are you in general saying the prior art
22 reference cited is missing these limitations,
23 whatever they may be, or are you saying instead
24 Mr. Andrews does not explain with sufficient

1 particularity or detail that the prior art
2 references meet the limitations?

3 A. Well, I would say that I said what I
4 said. If it -- if you want to -- if A -- you've
5 given two instances. If it applied to one, I
6 said -- that's what I said, I'd have it look at --
7 I'd have to look to -- I'd have to look at which
8 paragraph you're talking about to -- to make a --
9 you know, you're asking me again to summarize
10 broadly my declaration. I don't know if I can do
11 that. I'm not sure where -- where you're headed.

12 Can you restate the question or -- to
13 something I can answer with some level of certainty
14 that's narrow enough that I can understand what you
15 want?

16 Q. Did you understand your task in this
17 case to be rebutting Mr. Andrews or to be
18 independently analyzing the prior art against the
19 claims of the Metrom patents?

20 A. Inde- -- what was the last -- how did --
21 how did you phrase the last part?

22 Q. Independently analyzing the prior art
23 against the claims in the Metrom patents.

24 A. Well, I think I was asked to do both.

1 Q. Are -- are you finished with your
2 answer? I don't want to interrupt you.

3 A. Yeah, I -- I don't -- again, it's too --
4 too broad for me to -- to go any further. If you
5 want to point to a specific point in my declaration
6 that you want me to, you know, expand on or
7 clarify, I can do that, but I don't know that I can
8 speak generally.

9 Q. I'd like to talk about claim
10 construction. You have a portion with the title
11 "Claim Construction" from Paragraphs 31 to 33 of
12 your declaration.

13 My question is: Are you providing any
14 opinions on claim construction or that the Board
15 should adopt any particular understanding of any
16 claim term used in the Metrom patents?

17 A. Well, I was expressing my understanding
18 of claim construction in 31, 32 and 33.

19 Q. And just to confirm, I believe this is
20 how your declaration's written, but I want to
21 confirm from you: You're not providing an opinion
22 on claim construction, you're not providing an
23 opinion that the Board should adopt a particular
24 meaning of a term that's used in the Metrom patent

1 claims, is that right?

2 A. Again, if you're talking about 31
3 through 33, I'm -- I'm expounding on how I
4 understand claim construction, nothing more,
5 nothing less.

6 Q. And to foreclose the possibility of
7 having to respond to something that's not in your
8 declaration, are you providing any opinions,
9 whether in your declaration or not, that a
10 particular term should take a particular meaning in
11 the context of the Metrom patents?

12 A. I don't know. It's an odd question.
13 Every word has a meaning. What do you -- what do
14 you mean? I'm not sure what you -- what you mean.

15 Q. Claim construction is a very particular
16 process in patent law --

17 A. Yeah, okay.

18 Q. -- and sometimes experts provide
19 opinions about what terms in claims should mean by
20 giving additional words to describe that term.

21 A. Well, I -- I do talk about secondary
22 considerations for obviousness --

23 Q. Yeah.

24 A. -- as my understanding of them, yeah --

1 Q. And I --

2 A. -- if that's what you -- if that's an
3 example of what you mean.

4 Q. I promise I'm not trying to confuse you
5 with legal process.

6 A. No, no. I'm just saying that's -- when
7 you say do I want the Board to adopt, this is, as I
8 understand, secondary considerations on
9 obviousness, and -- and then we expound on how I
10 think they're applicable here, and that's -- that's
11 all.

12 Does that answer your question? I don't
13 know. We --

14 Q. Let me try it differently.

15 Secondary considerations is another
16 legal process. I just want to make sure that you
17 aren't either in your declaration or otherwise
18 going to say to the Board, "Board, I want you to
19 construe this particular term from the claims of
20 the patents to mean this particular phrase or
21 thing." I don't see it in your declaration, I
22 don't think it's in your declaration --

23 A. You mean in terms of --

24 Q. Hold -- hold on. One -- one moment,

1 please.

2 I don't see it in your declaration, I
3 don't believe it's there. I want to make sure you
4 are not opining on claim construction or the
5 meaning of a term.

6 So does that help you understand and can
7 you answer that question?

8 A. Yeah, I -- I can't think of a -- an
9 instance when I -- when I did that, but again,
10 unless we're talking about a specific paragraph of
11 my declaration, I -- I can't say for sure.

12 Q. Can you -- can you point to any
13 paragraph in your declaration where you are opining
14 on the meaning of a claim term?

15 A. On the meaning of a claim term?

16 Q. And that the Board should adopt a
17 particular understanding of that term.

18 A. You mean from a legal patent perspective
19 or from a -- from a railroad -- a transit expert
20 perspective? In other words, I'm -- I'm saying
21 he's using this term in railroad -- in a rail -- in
22 a general term and it's more specifically this or
23 vice versa, or are you saying because of some type
24 of legal patent interpretation? I -- I don't

1 follow your question.

2 I mean, Doug- --

3 Q. Well --

4 A. -- Douglas talks about zones and
5 location and so on and, you know, these of terms
6 are used and -- and "link," and these are some
7 things I can think of where I wasn't quite sure
8 that it was well enough defined that I could fully
9 understand what was being presented there.

10 There's -- there's that.

11 Q. That isn't something --

12 A. Okay.

13 Q. -- you say in your declaration, though,
14 is it?

15 A. I don't -- I don't recall. I -- I
16 have -- well, I do say -- I do express the
17 confusion there where I say --

18 Q. Which paragraph?

19 A. We're talking -- it would be Paragraph
20 57 where I say, "The ID equates Douglas's 'zone' of
21 station 30 with the 'location' recited in claim 2.
22 Assuming for the sake of argument that a zone is
23 location," but I don't -- I don't know what he
24 exactly means. Douglas does not contemplate

1 tracking the zone of the train.

2 Q. Do you --

3 A. So that's an instance where a term was
4 used that I was -- was not -- it was -- was too
5 broad to be --

6 Q. Is "zone" a claim term, a term that's
7 used in the claims of the Metrom patents?

8 A. You're talking about the Metrom patent.
9 Well, the -- "zone" was used in Douglas's -- I
10 believe "zone" was used in Douglas. I'd have to
11 double-check that.

12 Q. And, Mr. Conti, I promise I'm not trying
13 to pull a fast one on you or trick you. I just
14 want to get a contour of the scope of your
15 opinions.

16 A. I'm not --

17 Q. One moment, please.

18 A. Yeah, I don't think you are. I'm just
19 trying to -- I'm trying to answer your question.

20 Q. I understand. I don't see anything in
21 here that says an opinion that the Board should
22 adopt a particular meaning of any claim term in
23 Paragraph 57. In fact, I don't see it anywhere in
24 your declaration. I.

1 Want to know -- while you say in
2 Paragraph 33 you are not providing any opinions on
3 claim construction, I want to make sure you truly
4 are not trying to provide an opinion on claim
5 construction for any term.

6 MR. CHIPLUNKAR: Objection, mischaracterizes
7 the declaration.

8 BY MR. GALLUZZO:

9 Q. So here's my question: Are you
10 providing any opinions on claim construction?

11 A. If by saying I'm -- if -- if by saying
12 I'm refuting Andrews equating certain claims to
13 some certain -- certain other claims, yes, but I
14 don't know if that's what you're asking. Claim
15 construction?

16 Q. Claim construction such as you describe
17 it in Paragraphs 31 and 32.

18 I'll tell you what. Let me try it this
19 way. I'll withdraw that question.

20 In Paragraph 33 you state, "In this
21 declaration, I am using the ordinary meaning of the
22 claims as I interpret them. In my review, I did
23 not see anything in the patent or the file history
24 that suggests that the claims mean anything other

1 than what the ordinary meaning would have been to a
2 person in this art at the time the patent
3 application --"

4 A. Yes.

5 Q. -- "was filed."

6 Do you see that?

7 A. Of course, yes.

8 Q. Is that an accurate summary and
9 recitation of your opinions relating to --

10 A. Yes.

11 Q. -- claim construction in this case?

12 A. Yes, yes. Sorry I took so long to get
13 there, but yes.

14 Q. No, it's -- it's fine. The one -- one
15 thing I will ask you, Mr. Conti, in terms of just
16 deposition process, let's try not to talk over each
17 other and -- I know I've interrupted you a few
18 times in your answers. I will try not to do that.
19 If you could also let me finish answering --

20 A. Sure.

21 Q. -- asking my questions before you begin
22 to answer.

23 A. Absolutely.

24 Q. Thank you. All right. Let's talk about

1 the level of skill in the art. This begins in
2 Section V in Paragraph 34.

3 A. Yes.

4 Q. Are you there with me?

5 A. Yes.

6 Q. And in Paragraph 36 you recite your
7 understanding about some factors that may be
8 considered in determining the level of skill in the
9 art.

10 Are you there with me?

11 A. Yeah. And to be clear, you're on 468 or
12 470?

13 Q. I believe the paragraph numbers are the
14 same, but I am looking at Exhibit 2012 in the 468
15 case.

16 A. Okay. Yeah, I just want to make sure
17 because they diverge at least eventually, but yeah,
18 okay, sure.

19 Q. I'll represent to you that the
20 paragraphs are identical in the --

21 A. I believe they are, yes.

22 Q. -- two cases as to Paragraph 36.

23 A. They are.

24 Q. All right. Are you there with me?

1 A. Yes.

2 Q. The first factor that you list is the
3 education level of the inventor --

4 A. Uh-huh.

5 Q. -- is that right?

6 A. Yes.

7 Q. Did you consider that in coming to your
8 proposed level of skill in the art?

9 A. Yes.

10 Q. What did you consider?

11 A. Well, I -- I considered that -- well,
12 I -- I considered the education level of the
13 inventor, and I -- I don't know that I agreed
14 with -- I don't think I agreed with Andrews in the
15 sense that he felt like a Ph.D. was a substitute
16 for experience. But yes, I've -- I considered
17 that, yes.

18 Q. Did you consider the education level of
19 each inventor? There were four of them.

20 A. Which patent are we talking about?

21 Q. Well, I'll represent to you that there
22 are three inventors on the '227 patent and there is
23 a -- I'm sorry, there are only three -- three
24 inventors on both of the patents, so I misspoke.

1 Let me ask the question again.

2 Did you consider the education level of
3 each of the three inventors in coming to your
4 opinions on the level of skill in the art?

5 A. I don't think I direct- -- I didn't
6 directly do that. I -- I considered what I -- in
7 my experience what I felt the level of education
8 would be needed to -- to be a person skilled in the
9 art at the time, yes. I -- I didn't scrub each
10 patent to find -- and -- and do research as to what
11 their education level was to -- to confirm or -- or
12 not my opinion.

13 Q. You didn't consider the actual education
14 level of Richard C. Carlson?

15 A. No.

16 Q. You didn't consider the actual education
17 level of Kurt A. Gunther?

18 A. No.

19 Q. You didn't consider the actual education
20 level of Marc W. Cygnus?

21 A. I just told you I didn't scrub the
22 education level of the people who did the patents.
23 I gave an opinion as to what I felt a person
24 skilled in the art would -- would have been in my

1 experience in designing systems in this industry,
2 not necessarily people who wrote patents.

3 Q. My question was: You didn't consider
4 the actual education level of Marc W. Cygnus, is
5 that correct?

6 A. I answered that already. Yes, I did
7 not.

8 Q. The second -- withdrawn.

9 The fourth item in Paragraph 36 that you
10 considered was the rapidity with which innovations
11 are made.

12 Do you see that?

13 A. Yes, uh-huh.

14 Q. What does the word "innovation" mean in
15 this context?

16 A. Well, when you're considering a person
17 of skill in the art in rail transit in 2011, 2012,
18 20- -- that -- that timeframe and -- so I was
19 considering what I -- what I experienced as a
20 rapidity of innovations and how they're made.

21 If you're talking about AI today, okay,
22 the innovation is daily, weekly, and so it would
23 be -- you'd need a cutting-edge, state-of-the-art
24 person who knew AI and -- versus what I felt the

1 level of innovation was happening at the time in
2 rail transit.

3 So -- so that's what I considered in
4 terms of a person skilled in the art, yeah.

5 Q. What do you mean by the word
6 "innovation"? What were you considering?

7 A. A new product, a new idea, approach -- a
8 new -- a new -- a new approach to solve a problem
9 or a new approach to improve a system, yeah.

10 Q. In coming to your opinions on level of
11 skill in the art, were you limiting innovations to
12 commercialization?

13 A. No, because it's an industry that is --
14 that has large suppliers who tend to have a lot of
15 influence.

16 When I designed an event recorder to
17 replace an 8-track tape-recorder for Wabtec, I went
18 with a salesman, and we went to -- we visited CEOs
19 of the biggest railroads in the country. I mean,
20 if you're a small innovator company, you're not
21 going to be getting that level of access, but it
22 was with Wabtec, which was -- in 20- -- in 1990, it
23 was, you know, one of the largest suppliers.

24 So -- so it's an industry dominated by

1 larger suppliers, and for a couple reasons, for --
2 for a couple organic reasons. It's that they've
3 got so much equipment out there, they've got so
4 much relationship and also because they -- they
5 gobble up smaller companies that do innovate.

6 Q. So innovation --

7 A. So -- so yeah. So I'd say, you know,
8 the level of -- you know, I gauge the level of
9 innovation on the industry when I think of a person
10 skilled in the art at the time, yeah.

11 Q. So innovation in the context of your
12 Paragraph 36 could just be coming up with an idea?

13 A. I don't know the point of your question,
14 but yeah, just coming up with an idea, and again,
15 the example I -- I gave you, it can hit resistance
16 even in -- in your own company when it seems
17 logical that it would benefit.

18 So yes, a -- and I guess I would --
19 would consider it on that level, yeah.

20 Q. Did you review the number of railroad
21 patents -- withdrawn.

22 Did you review the number of patents and
23 applications filed in the year prior to the Metrom
24 patents that were related to the rail industry?

1 A. Did I review the num- -- the number of
2 patents -- sorry, that -- I reviewed patents that
3 were provided to me as support material. I did
4 some other searches on -- or research on
5 innovation, on patents, on papers, so I did some
6 general research, as well.

7 Q. But you don't know the number of patents
8 and applications filed related to the railroad
9 industry in 2010, do you?

10 A. Oh, no.

11 Q. Now, Mr. Andrews and you provide --

12 A. And I -- no. I -- no. I just don't
13 equate -- I don't equate patents with innovation,
14 either, because I think a lot of patents never get
15 productized for whatever reason.

16 MR. GALLUZZO: Objection, move to strike --
17 move to strike as non-responsive.

18 BY MR. GALLUZZO:

19 Q. You and Mr. Andrews provide two
20 different definitions for "level of skill in the
21 art."

22 A. Yes.

23 Q. I understand that your declaration
24 provides opinions under your level of skill in the

1 art.

2 A. Yes.

3 Q. Do you -- do you provide any opinions
4 under Mr. Andrews's level of skill in the art?

5 A. I'm sorry. Would you -- what do you
6 mean under his -- I provided opinion of what I felt
7 was the person skilled in the art and took
8 exception to Mr. Andrews in -- with respect to any
9 aspect that I felt he was inaccurate.

10 Q. And did you provide any opinions in this
11 case assuming that Mr. Andrews's level of skill in
12 the art was correct and adopting that level of
13 skill in your analysis?

14 A. I'm sorry. I didn't follow that
15 question.

16 Q. Did you provide any opinions in this
17 case in which you even for argument's sake adopted
18 Mr. Andrews's level of skill in the art?

19 A. "Background in wireless electronics,
20 including at least --" I'm -- I'm reading his --

21 Q. Mr. Con- --

22 A. I'm reading his -- I'm reminding myself
23 of what Mr. Andrews proposed --

24 Q. And --

1 A. -- as opposed to, and so I'm reading in
2 Paragraph 40 to myself, yeah.

3 Q. That's fine. If you read to yourself,
4 if you wouldn't mind just doing it in your head.

5 A. Okay.

6 Q. Every word you say must be taken down in
7 the transcript.

8 THE WITNESS: Sorry about that.

9 (WHEREUPON, there was a short
10 interruption.)

11 BY THE WITNESS:

12 A. Yeah, you know, even when he says "has a
13 background in wireless elec- -- electronics," if
14 I'm building a PTC system or a CBTC system, if
15 somebody -- and I'm actually having some meetings
16 next week with a group of people that do a lot of
17 wireless comms. You don't need to be a wireless
18 expert to apply wireless -- necessarily to apply
19 wireless comms technology. You -- you could be,
20 but you don't need to be. It would help, but
21 oftentimes you're buying off the shelf and using it
22 as a function block.

23 So I'm not even sure I would agree
24 necessarily with that, but I'll continue.

1 BY MR. GALLUZZO:

2 Q. Let -- again, to ground us, my question
3 is: Do you provide any opinions in this case
4 related to secondary considerations or obviousness
5 in which you adopted Mr. Andrews's proposed level
6 of skill in the art as opposed to your own?

7 A. Yes. Obviously electrical engineering
8 background I would be in agreement, and I didn't
9 take -- I didn't take exception to that. Two years
10 experience, I did -- I don't believe I took
11 exception to that. I did take exception to the
12 fact that advanced -- advanced education or Ph.D.
13 might substitute for experience because I've worked
14 with a lot of Ph.D.s, and they know more and more
15 about less and less, and so they -- their
16 usefulness outside a very narrow scope can be very
17 limited.

18 So I don't necessarily agree with that,
19 and that's -- you know, so...

20 Q. And I'm -- it's probably my fault, but I
21 feel like we're talking past each other, so let me
22 try to --

23 A. It could be. I'm trying to answer your
24 question, though.

1 Q. I -- I know you are. I'll try to ask
2 a -- a more clear question.

3 In Paragraph 40 you discuss the dispute
4 about what the level of skill of the art should be.

5 A. Yes.

6 Q. Is it true that you then go on to apply
7 your level of skill in the art to inform your
8 opinions that come after Paragraph 40 in your
9 declaration?

10 A. Yes. Well, yes, but I'm -- I -- I had
11 to take into consideration what I felt was the
12 state of the art at that time and then a person
13 with the skills at that time.

14 So I had to take -- I had to take into
15 account the time, and it was a time that I was
16 very -- I don't know, I would say aware because I
17 was -- that was a time -- 2009 is when I founded my
18 company, so that was in the time in which I was
19 pondering lots of different products and
20 technologies, and so yeah, but I -- but I had to
21 take into account the timeframe in which the patent
22 was rendered and so on.

23 Q. And did you take --

24 A. And -- go ahead. Yeah.

1 Q. Please. Were you finished?

2 A. I was going to say, you know, so I -- it
3 was not only -- it was the state of the art at the
4 time and the person skilled in that state of the
5 art at that time. I had to take into consider
6 both, obviously.

7 Q. If you look at Paragraph 37, that's
8 where you lay out your level of skill in the art.
9 Do you see that?

10 A. Yes.

11 Q. And that requires, among other things,
12 at least two years of experience in the field of
13 designing safety systems for railroads.

14 Do you see that?

15 A. Yes. When you're talking collision
16 avoidance, yes.

17 Q. As part of your opinions in this case --

18 A. The last thing you want to do in a
19 safety system is have people rely on a safety
20 system and -- and it not work.

21 So it -- it -- it would be as if you
22 were driving a car and you had a collision
23 avoidance system and you assumed it worked so
24 you're paying less attention and you're approaching

1 a car and you assume it's going to put the brakes
2 on and it doesn't. That -- that would be more
3 dangerous, a collision. So yes. Sorry.

4 Q. As part of your opinions in this case,
5 did you consider your analysis of secondary
6 considerations or obviousness through the eyes of
7 person of skill in the art who did not have at
8 least two years of experience in the field of
9 designing safety systems for railroads?

10 MR. CHIPLUNKAR: Objection, form.

11 BY THE WITNESS:

12 A. Can you repeat the question? I
13 apologize. I -- what -- what was the actual
14 question?

15 MR. GALLUZZO: Would you read it back, please?

16 THE WITNESS: Sorry.

17 (WHEREUPON, the record was read by
18 the reporter as requested as
19 follows:
20 "Q. As part of your opinions in
21 this case, did you consider your
22 analysis of secondary
23 considerations or obviousness
24 through the eyes of person of skill

1 in the art who did not have at
2 least two years of experience in
3 the field of designing safety
4 systems for railroads?")

5 MR. CHIPLUNKAR: Objection, form.

6 BY THE WITNESS:

7 A. Yeah, that's a complicated question, at
8 least -- at least in my simple mind. I -- I might
9 be overanalyzing it.

10 Can you -- can you narrow it a bit or
11 something? I'm sorry.

12 BY MR. GALLUZZO:

13 Q. Yeah, again, this isn't supposed to be a
14 trick question. I'm trying to understand the --
15 the eyes through which you analyzed the opinions
16 and came to the opinions in your declaration.

17 So here's some background. I'll
18 represent to you that the law requires the issues
19 that you opine on in this case to be analyzed
20 through the eyes of a person of ordinary skill in
21 the art. I'll also represent to you that there is
22 a dispute between the parties about the level of
23 skill in the art.

24 A. Yes.

1 Q. What I'm trying to understand -- and
2 I'll get to a question, but this is background.
3 What I'm trying to understand is: Did you apply
4 your definition, did you apply Mr. Andrews's
5 definition, did you apply both?

6 So here's my question: In coming to the
7 opinions in this case that you have in your
8 declaration, did you analyze the issues only under
9 your proposed level of skill in the art?

10 A. I think so. I tried to, you know,
11 esp- -- especially if you're looking at secondary
12 consider- -- considerations and you talk about
13 things like a strong-felt need or a -- you know,
14 expert -- an opinion of experts and so on, I tried
15 to consider what the market was at the time,
16 what -- what was required at the time and what --
17 and -- and what type of person would be, you know,
18 wrestling with these problems in this industry at
19 the time, yes.

20 Q. Looking back at Paragraph 37, if an
21 expert witness does not meet your definition of a
22 person of skill, for example, because they lacked
23 that two years of experience in the field designing
24 safety systems for railroads, would you consider

1 their testimony helpful to the Board in this
2 matter?

3 A. If they lacked -- would I con- -- I'm
4 sorry. Can you repeat the question? I think it's
5 important -- I was -- what I was say- -- I'll tell
6 you what I was saying here, and you can tell me if
7 I answered your question.

8 What I was saying is I think you -- you
9 need to have experience in safety systems because
10 if you're designing a collision avoidance system,
11 which is clearly a safety system, it has to --
12 there's -- there's another level of design rigor
13 that needs to -- needs to go on there --

14 Q. And --

15 A. -- besides just getting it to work,
16 besides just getting it to sense a vehicle in front
17 of you and stop, let's say.

18 Q. You also specified that it must be
19 safety systems for railroads, so let me focus on
20 the "for railroads."

21 A. Yeah.

22 Q. If an expert witness does not have two
23 years of experience for railroads, would you still
24 consider their testimony helpful to the Board in

1 this matter?

2 A. Yes and no. Possibly, but, you know,
3 for instance, when I designed a safety system for a
4 railroad, it was EN50126, 1- -- 50128, 129.

5 Those -- that's sort of the universal standard for
6 safety systems. There's a -- there's a standard
7 for embedded computing safety systems, IEC61508. I
8 did one on -- I happen to be a safety systems
9 expert for embedded safety systems in a lot of
10 different industries. Nuclear has their own
11 industry -- safety -- safety standard, aerospace
12 has their own safety standard. I studied that
13 because they use FPGAs a lot, and I wanted to see
14 how they handled that.

15 So every industry -- even though there's
16 a lot of commonality, every industry has its own
17 safety standard that you have to meet and that you
18 have to design to and certify to.

19 Q. Are those safety standards for the
20 railway industry recited in the claims of the
21 Metrom patents that are at issue here?

22 A. I'd have to look at it. I'm not certain
23 they are. I don't --

24 Q. They should be next to you.

1 A. I don't recall.

2 Q. Exhibit 1001 in both cases should be
3 next to you, the '227 and the '131 patents, and to
4 ground us as you're looking, my question is whether
5 those particular safety requirements in the railway
6 industry are recited in the challenged claims of
7 the two patents.

8 A. Well, you know, it's 34 pages. I don't
9 recall seeing it, but remember, my larger point was
10 that -- or my -- I was just discussing a person
11 skilled in the art, yes. I don't -- I don't recall
12 that this addresses those, but, frankly, it seems
13 to me there's a number of diversity and redundancy
14 that it would be certifiable.

15 I -- that -- what goes on in my mind as
16 I'm looking at a patent for a safety system is
17 could this even be certified? Is there even the --
18 the saf- -- is -- the safety system, is it robust
19 enough to -- you know, when I -- when I look at a
20 safety system, I'm already thinking about many
21 failure modes and I'm -- I'm assessing it per that,
22 and I frankly see '131 with a lot of diverse paths,
23 diverse signal structures such that it could be
24 certifiable. I wasn't asked to opine on that, but

1 I -- I see that as a strong point.

2 Q. The claims are the last just few pages
3 of each patent.

4 A. Yes.

5 Q. Do you agree with me that the claims
6 don't require a system that is certifiable?

7 A. Right, they do not.

8 Q. And the claims --

9 A. And that -- and that would, you know,
10 be part of a system that could be built and
11 commercialized and a system that is somebody's, you
12 know, fantasy.

13 Q. The claims don't require something to be
14 built or commercialized, correct?

15 A. Of course they don't.

16 Q. The claims don't require the system to
17 meet the particular industry standards for railroad
18 applications, correct?

19 A. They don't, but when they say they're
20 solving a safety problem, you know, it's -- it
21 comes in -- it's -- and I live and breathe safety
22 every day. It comes -- it's in my mind is this
23 truly -- can this system truly be certified as a
24 safety system? Can it -- it's -- can it

1 functionally do what it's saying, yes, but can
2 it -- could it be certified? I -- I think in those
3 terms, and that's why I put that in there. I'm
4 sorry if --

5 MR. GALLUZZO: Let's go off the record.

6 THE WITNESS: Okay.

7 THE VIDEOGRAPHER: Going off the record at
8 11:40 a.m.

9 (WHEREUPON, the deposition was
10 recessed from 11:40 to 11:50 a.m.)

11 THE VIDEOGRAPHER: Going on the record at
12 11:50 a.m.

13 BY MR. GALLUZZO:

14 Q. Mr. Conti, I'd like you to focus on
15 Paragraph 42 of your declaration. For the record,
16 I'm looking at the -- it's the one at the 468 case,
17 but you can look at the 470 case, if you'd like.

18 A. Yeah. 468, yeah.

19 Q. And you're on Paragraph 42?

20 A. Paragraph 42, yes, sir.

21 Q. The second sentence says, "These systems
22 use visual signals, track circuits, and in more
23 modern times, narrow band radio to communicate
24 train orders and movement authority."

1 Do you see that?

2 A. Yes.

3 Q. What time were you referring to as "more
4 modern times"?

5 A. Well, when -- you know, obviously I'm --
6 I'm -- I'm commenting on the time of the patent,
7 and so I say in more modern times would be from the
8 time of the patent until today or as -- as time
9 proceeded from the patent time.

10 Q. Are you aware of the use of narrow band
11 radio to communicate train orders and movement
12 authority before 2011?

13 A. No, not that I'm aware of.

14 Q. And that's based on your -- your
15 personal awareness? You're not opining, for
16 example, that there was no such use of that
17 technology in the industry?

18 A. Yeah, that's correct.

19 Q. The next sentence also talks about your
20 awareness of systems -- I'll just paraphrase it
21 here -- related to maintenance of way vehicles.

22 A. Uh-huh, yes.

23 Q. Is that sentence also limited to your
24 personal knowledge and you're not opining, for

1 example, that there was no such technology or
2 systems in the industry?

3 A. That's right, and I believe I did a
4 little bit of research, but did I do exhaustive
5 research to -- to back that sentence? No.

6 Q. On Paragraph 43 that spans Pages 15 and
7 16, I'd like to focus on the portion on Page 16,
8 the first full sentence beginning, "During."

9 A. Uh-huh.

10 Q. Are you there with me?

11 A. Yes, sir.

12 Q. It says, "During and after the initial
13 FCC specification of the UWB radio bands and IEEE
14 specifications," and so on.

15 What time period are you referring to in
16 that during and after the initial FCC
17 specification?

18 A. Well, okay. So I think when I say F- --
19 the FCC released the UWB band in 2002. It
20 basically allowed it to be used to -- for
21 commercial applications. Before it was
22 restricted -- before that it was restricted, and
23 then IEEE came out with a -- with their
24 publication, IEEE 80215, on wireless personal area

1 networks that discuss ultra-wideband.

2 And so, I'm sorry, did that answer your
3 question? That -- that was the timeframe that I
4 was talking about, from 2002 and then 2004 and then
5 the time after that.

6 Q. Did --

7 A. So it would be -- when I say during and
8 after the initial FCC specification and the IEEE,
9 that would be during and after 2004 -- 2002 and
10 2004, yes.

11 Q. In this paragraph and the other
12 paragraphs in your declaration talking about the
13 history of UWB --

14 A. Uh-huh.

15 Q. -- is this information that you learned
16 as part of your research for this case?

17 A. Was what?

18 Q. Is this all information that you newly
19 learned as part of your work on this case?

20 A. Yes.

21 Q. You testified in answer to a previous
22 question that the FCC initially released the
23 bandwidth in 2002.

24 Did I hear you right that you said they

1 later restricted it?

2 A. I don't think I -- I said that. I
3 don't -- you mean hear -- hear me say that today?
4 I don't recall, no.

5 Q. I might have misheard. I just wanted
6 to --

7 A. Okay.

8 Q. -- clarify.

9 A. No.

10 Q. So my -- my question is: Is it your
11 understanding that the FCC released the bandwidth
12 for UWB and then later restricted that bandwidth?

13 A. I'm not sure. I know there were some
14 issues with it interfering with GPS, there was talk
15 of -- because people -- some people were using UWB
16 and wanted it wider, broader, less restrictive,
17 some people using GPS wanted it more restrictive.
18 There was a fight in 2019 -- as late as 2019, I
19 think that was still being battled.

20 Have they restricted it since then? I'm
21 not sure. I -- I can't say for sure since -- since
22 the initial allotment of the bandwidth, and they
23 allot power spectrum, too, yeah.

24 Q. In this Paragraph 43 you list a number

1 of, quote, "initial features were proposed for the
2 technology."

3 A. Yes.

4 Q. One of those features being GPS
5 augmentation?

6 A. Yes.

7 Q. Can I take this to mean that UWB and GPS
8 in combination have been proposed?

9 A. No. You can take it to mean that that
10 appears -- that appeared in the -- either in the
11 IEEE reference -- I believe it appeared in the IEEE
12 reference verbatim.

13 Q. That IEEE had proposed the combination
14 of UWB and GPS?

15 A. They wanted it -- GPS augmentation, yes.

16 Q. In other words, the use of UWB in
17 conjunction with GPS?

18 A. Yes.

19 Q. Earlier you'd referred to the FCC.

20 Are those of skill in the art, as -- as
21 you defined it or as Mr. Andrews defines it,
22 familiar with the FCC?

23 A. I think eventually you'd have to run up
24 against FCC standards as you're getting into

1 wireless design and applications, so I would think
2 you would need to be familiar with F- -- to begin
3 to invent, to begin to deploy wireless systems, you
4 know, but if you're using your own transmitter --
5 in other words, you know, a lot of sub- -- a lot of
6 systems are put together using off-the-shelf
7 wireless systems. Now, you'd have to get FCC
8 certification oftentimes for that product, and so
9 you'd have to be -- you'd eventually run up against
10 it.

11 Would you need that out of the -- right
12 out of the box? I don't know. Not necessarily.

13 Q. The FCC's a governmental organization
14 here in the United States?

15 A. Yes.

16 Q. They make public rulemaking and they
17 issue reports and opinions that are public, is that
18 right?

19 A. Yes, and they allot bandwidth that could
20 be used and power segments to be -- in that
21 bandwidth so that they can be commercialized for
22 certain applications and they restrict certain band
23 for -- for safety in military reasons and other
24 reasons, yeah.

1 Q. Those of skill in the art would be aware
2 of the public decisions and reports of the FCC, at
3 least in relation to UWB?

4 A. Again, probably they -- they'd
5 eventually run up -- run up against it if you're
6 building your own UWB trans- -- when you're
7 building your own transmitter/receiver product,
8 you -- you will have to get FC- -- probably get FCC
9 certification.

10 Q. Even if you don't have to get FCC
11 certification, persons of skill in the art would be
12 aware of the reports and rulemaking of the FCC,
13 right?

14 A. Again, I'm not sure at the start, but
15 eventually I think you would.

16 Q. In Paragraph 46 you opine that most
17 experts in radio communications across many if not
18 all industries have declared UWB dead, and you cite
19 to a singular Exhibit 2024.

20 Do you see that?

21 A. Yes, uh-huh.

22 Q. Prior to your work on this case, were
23 you aware of Exhibit 2024?

24 A. No.

1 Q. Did you acquire Exhibit 2024 or was it
2 provided to you?

3 A. I acquired it. I was doing research
4 into UWB applications and history and so forth.

5 Q. And this is the only exhibit that you
6 cite and provide as an exhibit in relation to
7 research into UWB applications and history and so
8 forth, is that right?

9 A. Well, I cite the US Department of
10 Transportation Intelligent Transportation Systems
11 Joint Program in 2012 where they state lots of --
12 lots of shortcomings of UWB.

13 Q. Did you provide that exhibit?

14 A. Did I provide it? I -- I reference it
15 here. Did I provide -- I provided it to coun- --
16 you know, Greg and Raj, I believe, sure.

17 Q. Do you see it cited as -- cited as an
18 exhibit that was provided to petitioners and the
19 Board in this case?

20 A. Was it? I don't believe so. Would that
21 be that table in Paragraph 16? I didn't know if it
22 had to be -- when I cite it in a document, then
23 it's a reference, so I -- I don't know. I can
24 certainly provide it for you.

1 Q. No, I'm not -- that's not what I'm
2 asking. I was asking about whether it was in your
3 declaration, but fair enough.

4 So I'm going to move on to Exhibit 2024.
5 If you'd like to pull it out, I've got some
6 questions for you. It's the --

7 A. Okay.

8 Q. -- the Novelda article. I'm sorry, the
9 Lande article.

10 A. Yeah, okay.

11 Q. Are you there with me?

12 A. Yes.

13 Q. Who is Novelda?

14 A. I don't know offhand.

15 Q. The author of this exhibit is noted to
16 be a Tor Sverre Lande.

17 A. Yes.

18 Q. Who is Mr. Lande?

19 A. I don't know. I don't -- I didn't
20 research his background.

21 Q. I note that this Exhibit 2024 was
22 published August 2022.

23 Do you see that?

24 A. Yes, uh-huh.

1 Q. That's 11 years after the -- the date of
2 the Metrom patents here?

3 A. Yes. Currently Novelda does radar
4 systems, yes.

5 Q. You'd also agree with me that in this
6 just over two-page exhibit, there is only one
7 single citation that is to McEwan "Micropower
8 Impulse Radar -- Radar"?

9 A. I'm sorry? There's only one citation?
10 What do you mean?

11 Q. Are you familiar with peer-reviewed
12 articles and publications?

13 A. Yes.

14 Q. Is this a peer-reviewed article or
15 publication?

16 A. I don't believe so.

17 Q. Do peer-reviewed articles and
18 publications usually contain many citations to
19 other people's work?

20 A. I would assume so.

21 Q. Why? Why do they contain so many
22 citations?

23 A. So you'd get multiple opinions. Of
24 course COVID proved that to be not as valuable as

1 we first thought.

2 Q. Apart from your views on -- on that
3 issue, is it important to have multiple citations
4 in an article so we can be sure the author isn't
5 just making it up?

6 A. It can add weight, but it can also
7 add -- there's lots of peer-reviewed articles again
8 recently that were -- you have a group of people
9 who collaborate a little less perfect world than
10 you're proposing. Peer reviewed does not
11 necessarily mean it's fully vetted, in other words,
12 yes, but I -- I see your point and I -- and I --
13 yes.

14 Q. Do you agree?

15 A. Do I agree what?

16 Q. With my point.

17 A. Again, with the caveat that there's a
18 peer-review community that tend to collaborate to
19 promote each other at times that does a disservice
20 to the people at large that they claim to serve.

21 Q. Apart -- well, withdrawn.

22 While not fully vetted, are
23 peer-reviewed articles at least vetted in some
24 form?

1 A. Yes, uh-huh.

2 Q. Do you know whether Exhibit 2024 was
3 vetted in any way other than by Mr. Lande himself?

4 A. No, but it carried some weight that --
5 that he's in this industry and, you know, that they
6 do radar systems. I remember now -- you asked me
7 the question, and I forgot what Novelda did, but --
8 and this is something I pulled out of research, and
9 how I ended up -- I felt this was pretty strong,
10 but yes, it's one person's opinion, I would agree.

11 Q. Would you also agree that this is more
12 marketing material than it is anything else?

13 A. I don't know. Understanding
14 ultra-wideband technology, I -- I -- I don't know
15 that I would agree with that.

16 Q. Going back to one of the questions that
17 spurred this line, you would agree with me that
18 there is only one citation to someone else's work
19 in this Exhibit 2024, and that's to the McEwan
20 article, correct?

21 A. Yes, and there's the -- the second
22 supporting thing which was a supporting article of
23 the Department of Transportation Intelligent
24 Transportation Systems Programs where they discuss

1 the limitations and -- of ultra-wideband.

2 Q. Did Mr. Lande cite to that US DOT
3 report?

4 A. No.

5 Q. Is there any indication in Exhibit 2024
6 that anyone else other than Mr. Lande believes this
7 to be an accurate account?

8 A. I know that I did a lot of -- I did some
9 research to -- to see if I could find something to
10 the contrary, like, oh, here's a lot of activity
11 here, and, oh, this is not -- these are -- these
12 limitations are trivial, and I didn't see that --

13 Q. Maybe --

14 A. -- but I -- but I -- did I exhaustiv- --
15 exhaustively vet his comment? No, but I did check
16 it in terms of him stating UWB -- UWB was dead
17 and -- and that it was mostly -- I think I saw some
18 articles -- when I say it's mostly an academic
19 endeavor, I saw some articles written that were
20 very convoluted, you know, Ph.D. or, you know,
21 research -- research papers that were not -- did
22 not look like they were, you know, commercially
23 viable, and so it seemed like people were doing --
24 that's the third reference where I say it seemed

1 like it was an academic endeavor from my research.
2 This is what -- what I saw.

3 MR. GALLUZZO: Object, move to strike as
4 non-responsive.

5 BY MR. GALLUZZO:

6 Q. Mr. Conti, my question was a little bit
7 different.

8 Is there any indication in Exhibit 2024
9 that anyone other than Mr. Lande believed this to
10 be an accurate summary of the history of UWB?

11 A. Well, he works for a company and he's
12 publishing under their banner, so I assume somebody
13 would have -- would have looked at it and taken it
14 to some level of scrutiny.

15 Q. Is that just an assumption you're making
16 or is there anything you can point me to in Exhibit
17 2024?

18 A. I think most companies do that. They
19 don't publish -- they don't allow people to publish
20 articles without some level of vetting.

21 Q. Do you know whether that happened here?

22 A. Of course not.

23 Q. All right. So, Mr. Conti, you rely on
24 Exhibit 2024 to support your opinion about

1 industries having declared UWB dead.

2 A. Uh-huh.

3 Q. Can -- does that mean that it's your
4 opinion that there was no development in UWB in
5 2010?

6 A. No, but it was my opinion that it was
7 not obvious that UWB would be a strong candidate to
8 solve this problem coupled with the idea that I
9 hadn't heard of UWB while I was contemplating
10 various types of systems and coupled with the idea
11 that you'd have all this PTC activity going on and
12 from what I'm aware not a lot of them -- not a lot
13 of people that participated in that market used
14 UWB.

15 That's -- that was the strength of all
16 of this together, not just one article as, you
17 know, you're trying to, you know, characterize it
18 as --

19 Q. Well --

20 A. -- that it was not obvious that "UWB,
21 hey, this is a winner. My God, thank you for
22 this -- thank you for this band- -- bandwidth.
23 It's long overdue, and now we can seize the
24 moment."

1 No, it was -- it had a lot of
2 shortcomings and people were -- were not solving
3 those problems, they were actually finding they
4 were true and very difficult, and it didn't seem
5 like anybody was -- was using it, so I thought it
6 was a -- you know, it was not obv- -- not obvious
7 that that would be a winner here at this -- at this
8 period of time, so that's what I --

9 MR. GALLUZZO: Objection, move to strike as
10 non-responsive.

11 BY MR. GALLUZZO:

12 Q. Mr. Conti, I'm sorry, my question was
13 just a little bit different.

14 A. Well, I was trying to expand upon why
15 the -- my testim- -- or my declaration is built as
16 it is. That's all.

17 Q. I -- I appreciate that. You had your
18 opportunity to make your testimony in your
19 declaration. I'm --

20 A. Okay.

21 Q. -- asking questions about it now.

22 A. Uh-huh.

23 Q. And so I -- I'm going to focus on
24 particular aspects that I'm interested in.

1 A. Okay.

2 Q. So my question is: Is it your testimony
3 that there was no development, that there was no
4 innovation related to UWB in 2010?

5 A. No, I don't think I say that. I -- what
6 I say is that -- I cited -- I cited an article
7 which expressed -- you have an article of the IEEE
8 which -- which talks about the type of features you
9 can deploy and then you have a -- an article which
10 is -- which is the Department of Transportation
11 systems article where they talk about the
12 shortcomings of -- or the difficulties in applying
13 UWB and you have the Lande article talking about
14 UWB is dead.

15 I had to -- I had also put in -- I -- I
16 didn't cite any references, but there were -- it
17 seemed to me the papers where I was looking for
18 activity there seemed to be academic and also PTC.

19 That's -- am I saying there was no
20 development of UWB systems at that time for -- no,
21 I can't -- I can't say that. I -- my overarching
22 article or -- or opinion is just as stated here.

23 Q. Is your opinion that UWB was dead based
24 on a review of the entire Lande article, Exhibit

1 2024, or just a portion of it?

2 A. Well, I'm sure I read the entire
3 article. I'd have to read it again to --

4 Q. Did you read the portion that states,
5 quote, "UWB was not dead after all," end quote?

6 A. No. It says, "However, these UWB
7 systems merely --"

8 Q. Mr. -- Mr. Conti, just speak slowly if
9 you're going to read, please.

10 A. Okay. So it says verbatim, "However,
11 these U- -- UWB systems merely worked at a very
12 short distance and towards 2020 most -- 2010 most
13 of these efforts were stopped declaring 'UWB is
14 dead.' What went wrong? Well, they didn't account
15 for the extremely low signal levels -- signal
16 levels allowed."

17 So like I said, when they allot -- when
18 they allot a spectrum, they -- they set the signal
19 levels, as well, and so they did not allow very
20 high signal or noise ratio signal levels, and so --
21 and where do you cite the -- I don't see where you
22 cited the --

23 Q. Two paragraphs lower, the one
24 starting --

1 A. Yeah.

2 Q. -- "For radar systems" --

3 A. Right, okay.

4 Q. -- the last --

5 A. Uh-huh.

6 Q. -- six words of that paragraph, seven --

7 A. Yes.

8 Q. -- words say, "so, UWB was not dead
9 after all," exclamation point.

10 A. Yeah.

11 Q. Did you consider that in coming to your
12 opinion that UWB was dead?

13 A. Yes. I read this entire article.

14 Q. Do you believe Mr. Lande would agree
15 that UWB was dead?

16 A. Well, let me -- let me finish -- refresh
17 my memory. It's been quite a while since I read
18 this one.

19 (WHEREUPON, there was a short
20 interruption.)

21 BY THE WITNESS:

22 A. Well, they talk about the 7.5-gigahertz
23 ultra-wideband granted by the FCC in the US was not
24 adapted by the rest of the world, not adopt- --

1 adapted, somewhat reduced bandwidth from -- is now
2 adapted worldwide.

3 So they -- they made some innovations
4 and got it to work for their prototype system, the
5 innovation being enabled recovery of extremely weak
6 pulses virtually buried in the noise. So with
7 their innovations, they said, "Well, hey, maybe
8 it's not dead after all," but this is one -- this
9 is one technical paper where they -- they made some
10 innovation and they said, "Hey, there's some
11 promise here," yes.

12 Q. And this is also the one technical paper
13 that you decided to cite in your declaration?

14 A. Yes.

15 Q. And that technical paper says UWB was
16 not dead after all, correct?

17 A. Yes, but again, my overarching point was
18 that it was not obvious that UWB was going to be a
19 solution here. That's my only point, not that it
20 could never be used and I can sit here and
21 technically say, you know, you're doomed if you try
22 it, but my point is it was not obvious that this
23 would -- this is a difficult hill to climb is -- is
24 my -- was my point, and I still stand by that based

1 on this article and the other ones -- the other
2 context that I cited.

3 Q. And that opinion is based on not knowing
4 anything about UWB in 2010, right?

5 A. Well, it's based on being in the
6 industry and trying to solve similar problems and
7 not hearing anybody -- and I've worked with a lot
8 of researchers and I've worked with people in --
9 the systems people who might say, "Look at this,
10 look at that," and it never came up that, "Hey,
11 well, let's look at UWB."

12 It never came up, and by then -- you
13 know, with we're talking 2010 -- the internet was
14 pretty -- pretty mature at the time, so doing this
15 type of research would not be difficult, and it
16 didn't come up, so I -- I just felt like it was not
17 an obvious solution.

18 Q. It --

19 A. That's my point, an obvious technology
20 deployed to solve this problem.

21 Q. It didn't come up in your personal
22 experience?

23 A. That's all I can speak to.

24 MR. GALLUZZO: Okay. Let's go off the record.

1 THE VIDEOGRAPHER: Going off the record at
2 12:21 p.m.

3 (WHEREUPON, the deposition was
4 recessed for lunch from 12:21 to
5 1:13 p.m.)

6 THE VIDEOGRAPHER: On the record at 1:13 p.m.
7 BY MR. GALLUZZO:

8 Q. Welcome back, Mr. Conti. I would like
9 to focus on the two patents at issue in this case,
10 which are both Exhibit 1001, the '131 patent and
11 the '227 patent, and specifically I'd like to focus
12 on the claims of those patents.

13 A. Okay, all right.

14 Q. Mr. Conti, do you have the two patents
15 in front you?

16 A. Yes, I do.

17 Q. So I'm going to ask you some questions
18 generally about the claims of the patents. The
19 claims are the numbered paragraphs on the last few
20 pages of the patents --

21 A. Yeah.

22 Q. -- and if at any time you need to read
23 the claims or refer to them, please do.

24 A. All right.

1 Q. Let me ask you a question to kind of
2 show you how this is going to go, so here's my
3 first question: Would you agree with me that the
4 claims of the two Metrom patents are not limited to
5 work vehicles or maintenance of way vehicles?

6 A. That they are not limited to rail
7 vehicles and -- and maintenance way vehicles or
8 what was -- sorry. What was the question again?

9 Q. Would you agree with me that the claims
10 of the Metrom patents are not limited to work
11 vehicles or maintenance of way vehicles?

12 A. Well, the title of the patent is
13 "Collision Avoidance System for Rail Line
14 Vehicles." That carries some weight, does it not,
15 or no?

16 Q. Let me maybe ask you a better question.
17 Would you agree with me that the claims
18 of the Metrom patents are broader than application
19 to work vehicles or maintenance of way vehicles?

20 A. Well, in general, yes, but like claim 17
21 says, "A rail vehicle mod- -- module mountable to
22 the first rail vehicle."

23 Q. Would you agree me that the phrase "rail
24 vehicle" encompasses more types of vehicles than

1 maintenance of way vehicles or work vehicles?

2 A. Yes.

3 Q. It encompasses freight cars?

4 A. It could, sure.

5 Q. Locomotives?

6 A. Yes, it could.

7 Q. Passenger cars?

8 A. Yeah.

9 Q. Ancillary vehicles like a caboose?

10 A. Yeah, it could.

11 Q. Would you agree with me that the claims
12 do not require a certain communication distance
13 capability between rail vehicles?

14 A. I'd have to look at all the claims to --
15 to assess that.

16 Q. That's fine. Please do if you need to.

17 A. And the question is they don't re- --
18 require a specific distance, a certain minimum
19 distance, maximum distance? What -- what is your
20 que- -- I'm sorry. What was your question?

21 Q. The claims don't require a certain
22 communication distance capability between trains.
23 There's no minimum, there's no maximum, there's
24 just no discussion --

1 A. No discussion --

2 Q. -- of the communication distance between
3 trains.

4 (WHEREUPON, there was a short
5 interruption.)

6 BY THE WITNESS:

7 A. Well, there is claim 18 where they talk
8 about a rail vehicle mount- -- module mountable on
9 the first vehicle and then a second wireless
10 communications antenna mounted on the first vehicle
11 that -- and the antenna mounted on the first
12 vehicle is at an offset distance from the wireless
13 comms antenna, so there would be some distance.

14 It says the rail vehicle module is
15 operable to receive calibration information related
16 to the length of the vehicle, so a mounting
17 location of the first wireless communication system
18 and the mounting location of the second wireless
19 communication system would I think apparently be
20 used to determine the length of the vehicle.

21 BY MR. GALLUZZO:

22 Q. That discussion in claim 18 relates to
23 the components on a single rail vehicle.

24 A. Yes.

1 Q. So my question is about whether the
2 claims have any requirements on communication
3 distance between two different rail vehicles.

4 (WHEREUPON, there was a short
5 interruption.)

6 BY THE WITNESS:

7 A. It's hard for me to scan the entire
8 body of it to see if they discuss any distance
9 limitations, but yes, I don't see any in the claims
10 referencing distance.

11 BY MR. GALLUZZO:

12 Q. Are you familiar with the concept of
13 noise on a communications signal?

14 A. Sure.

15 Q. Do the claims require any certain noise
16 threshold for the communications encompassed by the
17 claims?

18 A. Again, that's a very broad question. I
19 would have to look to the claim -- I would have to
20 look -- you know, I made no -- I don't believe I
21 made any comment with respect to noise or signal to
22 noise.

23 Q. If you need to look at the claims to
24 answer my question, please do.

1 A. I also want to see if I mentioned...
2 (WHEREUPON, there was a short
3 interruption.)

4 BY THE WITNESS:

5 A. I don't see anything in the claims that
6 references noise, in-band noise, outside, yeah.

7 BY MR. GALLUZZO:

8 Q. The claims also don't specify particular
9 signalling data technology needed, whether packet
10 or waveform, correct?

11 (WHEREUPON, there was a short
12 interruption.)

13 BY THE WITNESS:

14 A. I don't think the -- they don't specify.
15 They say send and receive data wirelessly. They do
16 not specify the data protocol, I don't believe.

17 Now, could that detail appear somewhere
18 in the body? I -- I am not certain.

19 BY MR. GALLUZZO:

20 Q. You would agree with me it's not in the
21 claims?

22 MR. CHIPLUNKAR: Objection, form.

23 BY THE WITNESS:

24 A. Again, what was the question exactly?

1 BY MR. GALLUZZO:

2 Q. That's okay. I'll move on. I've got a
3 question that relates specifically to the '131
4 patent only.

5 A. Okay.

6 Q. You'd agree with me that the claims of
7 the '131 patent do not require a particular
8 frequency band of the wireless communications
9 between trains -- or between rail vehicles, excuse
10 me, correct?

11 (WHEREUPON, there was a short
12 interruption.)

13 BY THE WITNESS:

14 A. Well, obviously in the body of the
15 patent, they specify ultra-wideband, but they don't
16 delineate further within that band on -- in the
17 claims, no.

18 BY MR. GALLUZZO:

19 Q. Does the claim even require
20 ultra-wideband? Withdrawn.

21 Do the claims of the '131 patent even
22 require ultra-wideband?

23 (WHEREUPON, there was a short
24 interruption.)

1 BY THE WITNESS:

2 A. Well, in the body of the patent,
3 obviously it says -- it contains sentences like in
4 Paragraph -- detailed description in Paragraph 65
5 that "The present disclosure describes a collision
6 avoidance system for rail line vehicles that may
7 utilize a combination of sensor technologies,
8 including ultra-wideband sensing technology, to
9 counter the limitations of previous systems."

10 So obviously ultra-wideband is
11 referenced in the body.

12 BY MR. GALLUZZO:

13 Q. Is it referenced in the claims of the
14 '131 patent?

15 A. "In some embodiments, a VMM installed on
16 a vehicle may include more --"

17 Q. Mr. Conti --

18 A. -- "than one ultra-wideband unit," so --

19 Q. Mr. Conti, just as a reminder, if you
20 read, please do so slowly.

21 A. Okay. It -- it is clearly a patent that
22 uses ultra-wideband, but it does not specify UWB
23 verbatim in the claims.

24 Q. I'm now going to ask you questions back

1 about both of the patents again --

2 A. Okay.

3 Q. -- so in conjunction.

4 Claims 5, 6 and 18 of both of the
5 patents require an offset between transponder
6 modules.

7 Do the claims specify the distance that
8 offset needs to be?

9 A. Claims 5, 6 and 7?

10 Q. 5, 6 and 18.

11 A. And 18.

12 Q. And withdraw the question because I made
13 a misstatement earlier.

14 Here's my corrected question: Claims 5,
15 6 and 18 of both patents require an offset between
16 certain components of the collision avoidance
17 systems. Would you agree with me that the claims
18 do not require a certain distance that that offset
19 must be?

20 A. The claims don't limit that. Yes, the
21 claims do not.

22 Q. The offset could be a mile?

23 A. Yes. Presumably, yes.

24 Q. The offset could be a few feet?

1 A. Well, it implies that it would be used
2 for the length of the vehicle, so they would be
3 towards the end of the vehicle. A few feet would
4 not probably be what they're describing.

5 So I would say at minimum, the length of
6 the vehicle that they're -- plus or minus a foot or
7 two at the edge of the vehicle to mount it, but
8 it's meant to -- yes, it's a -- but not -- not that
9 close. It would -- minimum length would be roughly
10 the length of the vehicle.

11 Q. What's that understanding based on?

12 A. Based on the wording that says, claim
13 18, the rail vehicle module is operable to receive
14 calibration information related to the length of
15 the rail vehicle a moun- -- at a mounting location
16 of the first wireless communication antenna and a
17 mounting location of the second wireless antenna or
18 wireless communications antenna.

19 So that to me implies they're at the end
20 of the vehicle -- ends of the vehicle.

21 Q. You would agree with me that the claims
22 of the Metrom patents do not require operation
23 within a tunnel?

24 A. They do not require?

1 Q. Let me ask a better question perhaps.

2 You would agree with me that the claims
3 of the Metrom patents are not limited to operation
4 within a tunnel; the claims encompass operation in
5 an open air track, for example?

6 A. I'm not certain. I'd need some time to
7 study that to make sure that that would be the
8 case. I -- I'm not sure.

9 Q. I assume by "study," you would need to
10 look at the claims, is that right?

11 A. Well, the ent- -- and the entire patent
12 to see if they addressed a tunnel in any way. I
13 did not comment on a tunnel application in my -- in
14 my declaration, so I can't speak knowledgeably
15 about that right now.

16 Q. So you have no opinions in this case
17 about whether the system can or cannot be used in a
18 tunnel; just irrelevant to your opinions, is that
19 right?

20 MR. CHIPLUNKAR: Objection, mischaracterizes
21 prior testimony.

22 BY THE WITNESS:

23 A. I have no opinion on whether it could be
24 used in a tunnel or not, yes.

1 BY MR. GALLUZZO:

2 Q. All right. Let's go back to your
3 declaration. Let's this time do the one on the 470
4 IPR.

5 A. Okay.

6 Q. I'd like to focus on Paragraph 63.

7 A. Okay.

8 Q. This Paragraph 63 is in a section
9 relating to claims 5 and 6, is that right?

10 A. That's correct.

11 Q. In Paragraph 63 approximately five lines
12 from the bottom of the page, there's a reference to
13 "Claim 20."

14 Is that a typo? Do you know the -- the
15 reason for that reference there?

16 (WHEREUPON, there was a short
17 interruption.)

18 BY THE WITNESS:

19 A. Well, claim 20 does claim -- have the
20 verbiage, "The rail vehicle module is operable to
21 receive calibration information related to the
22 length of the rail vehicle, the mounting location
23 of the first wireless communications antenna and
24 the mounting location of the second wireless

1 communications antenna," so that -- the verbiage in
2 quotes in Paragraph 63 appears in claim 20 of '227.
3 BY MR. GALLUZZO:

4 Q. With that, my question is: Why are you
5 including a discussion of claim 20 within a section
6 at least by its title is limited to claims 5 and 6?

7 A. Claims 5 and 6.

8 (WHEREUPON, there was a short
9 interruption.)

10 BY THE WITNESS:

11 A. Well, my point in Paragraph 63 was that
12 Mr. Andrews cites Richardson and Richardson's
13 diagram on how the four UWB transceivers works over
14 a distance RV, and I don't have the patent in front
15 of me, but I remember it was -- the example was on
16 the order of one or two meters and it -- it -- I
17 think it extended only out to 40 meters, working
18 from memory, and so my point of I think citing
19 claim 20 is that again, as we discussed earlier,
20 these transponders and the auxiliary transponder
21 would be the length of the vehicle, which could be
22 as long as a mile, so I didn't feel as though that
23 was a -- I didn't feel that that taught anything
24 that '131 was trying to solve or anything that --

1 any feature they were trying to implement, let's
2 say.

3 BY MR. GALLUZZO:

4 Q. I'm going to turn back to your other
5 declaration in the 468 case --

6 A. Okay.

7 Q. -- Paragraph 50, but the paragraph is
8 the same in the 470 case, so if you'd prefer to
9 stay there, you can.

10 A. Okay, okay.

11 Q. Are you at Paragraph 50?

12 A. Paragraph 50 did you say?

13 Q. 5-0.

14 A. Yeah, let me -- let me get there. Okay.

15 Q. It starts, "To summarize these points"?

16 A. Yes.

17 Q. It says, "To summarize these points, by
18 2012."

19 Why are you opining about 2012?

20 A. Well, prior to that -- well, Paragraph
21 49 which precedes 50, I talk about positive train
22 control and the -- the initiative that was put
23 together by Congress in 2008, and then I say
24 that -- so there was a broad initiative to

1 implement PTC from 2008 to 2015 that got extended
2 to 2020, but none of the implemented solutions used
3 terrestrial radio that I'm aware of and -- and
4 there were no proposals to implement PTC in this
5 way in 2012.

6 Why I used the date 2012 in 49, I
7 don't -- I don't recall why -- or what reference
8 that came at, but to summarize the points, by 2012
9 there had been a long-felt need -- unresolved need
10 related to col- -- collision avoidance and 2012 was
11 around the time of these patents. I'm not sure why
12 I selected 2012.

13 Your question was again?

14 Q. Well, I asked why you had used 2012, but
15 my question now is: You'd agree that 2012 is a
16 year after the earliest priority date of these
17 patents?

18 A. Right. It was 2011, yeah.

19 Q. I'd like to continue on that sentence,
20 and I don't want to read it all, but there's a
21 clause that starts, "there had been."

22 Are you there with me in Paragraph --

23 A. Line 50 --

24 Q. -- 50? I'm sorry for speaking over you.

1 A. 50.

2 Q. Paragraph 50.

3 A. "There had been the failure of every
4 other UWB/RADAR system --"

5 Q. That --

6 A. -- "so far to go to market," yes.

7 Q. Yes, that sentence.

8 Can you name any of the UWB radar
9 communication systems to go to market by 2012?

10 A. I can't name any. I don't know of any.

11 Q. And so that means you don't know why
12 they failed?

13 A. I would have to study all of them. I'm
14 sure very few private companies published their
15 failure reports, but I think the larger point is
16 there had not been one on the market at that time
17 that I could find.

18 Q. Well, what's written here is that there
19 had been a failure of every other system so far to
20 go to market, so my read is that implies that you
21 believe there were some that went to market. You
22 just testified you didn't know of any, so my
23 question to you is: Are you aware of any that had
24 gone to market?

1 A. I'm not. That's why I said -- I think I
2 meant a failure to go to market versus maybe a
3 failure of every other radio system. Obviously it
4 implies that they weren't able to get it to work,
5 to commercialize it, but yes, I -- I felt a failure
6 to go to market.

7 Q. Well, a failure at least in you having
8 seen them?

9 A. That's right.

10 Q. You don't know whether there was a
11 failure to go to market, though?

12 A. That seemed to be the case from my
13 research, yes.

14 Q. But you don't know that to be true?

15 A. My research suggested that was true.

16 Q. Can you definitively tell me that it's
17 your testimony that there was not a single UWB
18 radar communication --

19 A. I cannot, no.

20 Q. The last sentence -- oh, I'm sorry, that
21 sentence continues and there's another clause that
22 states "and the largest."

23 Are you there with me? It's just after
24 the Lande --

1 A. Yes, "the largest practical --" yes.

2 Q. It says, "the largest practical
3 opportunity to implement a new collision avoidance
4 system in the industry."

5 Is that referring to the Railroad Safety
6 Improvement Act?

7 A. Yes.

8 Q. And it continues, "did not use UWB or
9 any other form of terrestrial radio for
10 location/ranging determinations."

11 Do you see that?

12 A. Yes.

13 Q. You do agree with me that PTC
14 implementations did use terrestrial radio, though?
15 I understand you might say not for location and
16 ranging, but you would agree that it used
17 terrestrial radio?

18 A. I'm not -- well, what -- the term
19 "terrestrial radio," let's -- let's define that
20 because I don't know -- any form of terrestrial
21 radio, I -- I can't speak specifically if -- I'd
22 have to look up what -- what is implied or what --
23 what terrestrial radio, what -- what was bound --
24 what bounds that term. I'd need to --

1 Q. As you used it in your declarations,
2 what does "terrestrial radio" mean?

3 A. I'd have to do -- I'd have to -- I'd
4 have to look at that. I -- I think I meant it to
5 be synonymous with UWB, but I'm not a hundred
6 percent certain of that, and -- or -- I'd have to
7 look up the definition of "terrestrial radio" and
8 what I meant there, why I used that term. I don't
9 recall why.

10 Q. Where would you -- where would you have
11 to look?

12 A. I'd have to do some research as to the
13 origins of that term --

14 Q. Sitting --

15 A. -- and why I used it. I -- I don't
16 remember why I used it.

17 Q. Sitting here today, you can't tell me
18 what that word means as it was used in your
19 declaration?

20 A. I can't tell you what bounds -- what
21 that word -- what the boundaries of what that
22 word -- what that means, "terrestrial radio." I'd
23 have to -- I'd have to get back to you on that. I
24 don't have an answer for you.

1 Q. The last sentence of this Paragraph 50
2 in the second clause of it says, "it had been
3 demonstrated to be not successful and panned by
4 experts."

5 Do you see that?

6 A. Yes.

7 Q. Can you name me one demonstration where
8 UWB technology had been demonstrated to not be
9 successful?

10 A. Well, again, I -- I -- that's a summary
11 statement based on my declaration discussing the
12 implementation of UWB systems and -- and what
13 features could be used, the limitations in this one
14 article, the research that I did that showed that
15 UWB was not -- was not being widely used and that
16 it had been -- the -- the bulk of discussion that I
17 found circa 20- -- or 2012 was that -- were
18 academic papers, and with the large PTC effort that
19 was undertaken from 2008 to 2012 and thereabouts,
20 UWB was not used for location and ranging, and so
21 when I -- "panned by the experts" meaning it was
22 not used by the experts who were doing -- looking
23 for location and ranging schemes.

24 So that -- that's my -- that's my point

1 there, that it was not -- it was not a scheme that
2 people seemed to be using successfully that -- that
3 I could find anywhere and -- and that the people
4 that seemed to be actively implementing it,
5 researching it were more academic endeavors than
6 actual products and, you know, solving these issues
7 in the rail industry.

8 That's -- that's my -- that was my
9 impression from the research I did.

10 Q. And your testimony and your research is
11 limited to what you looked at last year and this
12 year, is that right?

13 A. Yes.

14 Q. You weren't living this what you claim
15 to be UWB --

16 A. I was --

17 Q. -- unsuccessful and panning by experts in
18 2011 and 2012?

19 MR. CHIPLUNKAR: Objection, form.

20 BY THE WITNESS:

21 A. Well, I was living in this industry
22 working on these types of systems, but -- yes, so
23 from that perspective, yes, I was -- again, I
24 worked mainly in R&D departments of these

1 companies. We have -- there's smarter people than
2 me there.

3 When we're sitting around discussing
4 innovations and how to build certain systems, what
5 commonality would be used in this system versus
6 this system versus a new system, UWB never came up
7 in -- in the conversation, "Hey, this is an
8 interesting technology. We should look at this."
9 It just didn't come up for -- for -- and location
10 and localization, as we called it, would -- was not
11 a -- it was not a solution that came up for that.

12 Could -- could we have missed it?
13 Possibly, but it was not on my radar, it was not on
14 the radar of the people I was working for, which
15 were leaders in the industry at the time I felt
16 or -- you know, not -- not all of the leaders but
17 certainly a portion of them, and no one mentioned
18 UWB as a -- even a solution to investigate.

19 BY MR. GALLUZZO:

20 Q. Did you ever --

21 A. That's my -- that's my point.

22 Q. Did you ever have any involvement with
23 Quantum Engineering?

24 A. No.

1 Q. Did you ever have any involvement with
2 Time Domain Corporation?

3 A. No. I remember seeing that patent or
4 paper, yeah.

5 Q. So going back to Paragraph 50, what you
6 have provided in your declaration here is a
7 statement in your testimony --

8 A. Uh-huh.

9 Q. -- that it had been demonstrated to be
10 not successful.

11 Can you provide me one example of any
12 demonstration where UWB technology had been
13 demonstrated to not be successful by 2012?

14 MR. CHIPLUNKAR: Objection, asked and
15 answered.

16 BY MR. GALLUZZO:

17 Q. You can answer.

18 A. Well, perhaps "not successful" is -- is
19 a term that implies I've witnessed a lot of
20 failures, but I did not see any -- any use by
21 which -- in the industry that it was being used
22 either by competitors or by -- or being proposed by
23 the people I worked with nor in any of the -- and,
24 again, the internet is pretty well established in

1 2012 where you can look at -- if you're trying to
2 solve -- solve a localization problem and you're
3 looking for various ways to do that in a wireless
4 manner in which you can detect the position of a
5 train from a distance without a -- without a direct
6 connection, it didn't come up.

7 Q. Sir, are you able to provide a single
8 example that would support your testimony that it
9 had been demonstrated to be not successful?

10 MR. CHIPLUNKAR: Objection, asked and
11 answered.

12 BY THE WITNESS:

13 A. The example is there's no system on the
14 market, there was no one selling, "Hey, we've got a
15 UWB location pod here. You can use it to apply how
16 you -- how you wish for finding the location of a
17 vehicle." I didn't see anything there.

18 BY MR. GALLUZZO:

19 Q. Is the answer --

20 A. I -- I -- again, you can ask the
21 question three different ways, but in the -- in the
22 end, as I lived at this time and as I was looking
23 at various technologies, I didn't see any
24 indication that UWB -- I didn't -- it didn't appear

1 on my radar screen.

2 So I cannot say -- I cannot tell you why
3 it didn't except that it was probably not a -- a
4 viable technology at that time, and even people
5 that were possibly working on it were -- it was not
6 offered commercially.

7 MR. GALLUZZO: Object, move to strike as
8 non-responsive.

9 BY MR. GALLUZZO:

10 Q. Mr. Conti, you could have written in
11 your declaration that you didn't see it, but you
12 wrote "it had been demonstrated to not be
13 successful."

14 A. Well, and I --

15 Q. Hold on, hold on.

16 A. Yes. Go ahead.

17 Q. This is my one chance to figure out what
18 you meant when you said that.

19 A. Yes.

20 Q. And so can you provide me with one
21 example of a demonstration or can you not provide
22 me with an example of a demonstration?

23 MR. CHIPLUNKAR: Objection, asked and
24 answered.

1 BY THE WITNESS:

2 A. This band was opened up in 20- -- 2002
3 offering capabilities in this regard and other
4 regards, and nobody had solved the problem at
5 that -- by that point and nobody had solved or
6 offered a sol- -- a solution such that it even
7 appeared on a radar screen for someone who might
8 have been looking for a localization solution.

9 Does that mean we could have missed it?
10 Sure, it does mean it could have -- could have been
11 missed, but it -- it was not widely discussed in
12 the industry at all. There was nobody -- nobody
13 had -- and we -- and believe me, when we're doing
14 R&D, we look at a lot of new technologies that we
15 bring in samples and we try to figure out can it do
16 this, can it sense that, can it solve this problem,
17 can it reliably do this and do that. Nobody --
18 nobody mentioned, "Let's look at UWB."

19 That's -- that's my only point there,
20 and that's where I'll leave it. I'm not -- you
21 know, if "not successful" is a -- I'm saying there
22 was a market for localization technologies and to
23 use an ATP system, ATC, ATO, PTC, CBTC, ETMS for --
24 in the European realm, and it did not show up in

1 the industry as I was -- you know, as I -- as I saw
2 it. That's all I'm telling you. That's all I'm
3 saying in my declaration here.

4 MR. GALLUZZO: Object and move to strike as
5 non-responsive.

6 BY MR. GALLUZZO:

7 Q. Mr. Conti, I'm just going to give you
8 one more chance.

9 Can you provide me any information or
10 evidence about any demonstration of UWB where it
11 was demonstrated to be not successful --

12 MR. CHIPLUNKAR: Objection --

13 BY MR. GALLUZZO:

14 Q. -- by 2012?

15 MR. CHIPLUNKAR: Objection, form, asked and
16 answered.

17 BY THE WITNESS:

18 A. Can you tell me one instance where it
19 was used as -- for localization or ranging in PTC?

20 BY MR. GALLUZZO:

21 Q. Mr. Conti, you're -- you're the one here
22 to answer the questions. You are the one --

23 A. Well, that was --

24 Q. Hold on. You're the one saying that it

1 had been demonstrated to be not successful. There
2 are other words you could have chosen. You wrote
3 the declaration. I'm trying to determine what
4 demonstrations you're referring to here.

5 A. PTC, the entire market, the massive
6 market of PTC, which fundamentally where is the
7 train and -- and is it approaching a dangerous
8 area, fundamentally the localization of that train,
9 why did none of these systems use UWB? That's --
10 to me, that's equivalent to failed to be successful
11 or failed to show up on the radar screen of these
12 system integrators, system designers.

13 That's -- that's all I'm saying. That's
14 what -- that's what I'm saying.

15 MR. GALLUZZO: Object, move to strike as
16 non-responsive.

17 Let's go off the record.

18 THE WITNESS: Okay.

19 THE VIDEOGRAPHER: Going -- going off the
20 record at 2:02 p.m.

21 (WHEREUPON, the deposition was
22 recessed from 2:02 to 2:14 p.m.)

23 THE VIDEOGRAPHER: Going on the record at 2:14
24 p.m.

1 BY MR. GALLUZZO:

2 Q. Mr. Conti, earlier today you testified
3 that you were familiar with some maintenance of way
4 vehicles, is that right?

5 A. Generally, yes.

6 Q. Of the maintenance of way vehicles that
7 you're familiar with, are any shorter than 40
8 meters?

9 A. I would assume so. I -- I would suspect
10 so, but I'm not certain, sure.

11 Q. Okay. Knowing that you haven't gone out
12 and taken a measuring tape to them or something --

13 A. Yeah.

14 Q. -- to your knowledge, are at least some
15 of the maintenance of way vehicles shorter than 40
16 meters?

17 A. I would think so. Some of them are sort
18 of truck-like, yes, so they're like a -- like a
19 surface truck, so yeah.

20 Q. As in a typical pickup truck you might
21 see on the street?

22 A. Pickup truck, yes.

23 MR. GALLUZZO: All right. Thank you. I'll
24 pass the witness. No further questions from me

1 right now.

2 THE WITNESS: Okay.

3 MR. CHIPLUNKAR: Off the record.

4 THE VIDEOGRAPHER: Going off the record at
5 2:15 p.m.

6 (WHEREUPON, the deposition was
7 recessed from 2:15 to 2:45 p.m.)

8 THE VIDEOGRAPHER: Going on the record at 2:45
9 p.m.

10 EXAMINATION

11 BY MR. CHIPLUNKAR:

12 Q. Mr. Conti, how long have you been
13 involved with railroad collision avoidance systems?

14 A. Since the 1990s, so 33 years.

15 Q. In your knowledge, are there any
16 differences between automobiles and trains?

17 A. Yes.

18 Q. Are there different considerations when
19 designing safety systems for automobiles and
20 railroad vehicles?

21 A. Yes.

22 Q. Would a railroad system use an
23 automobile collision system on its railway
24 locomotives?

1 A. No.

2 MR. GALLUZZO: Objection to form, scope.

3 BY THE WITNESS:

4 A. No, I've never seen that and -- no.

5 BY MR. CHIPLUNKAR:

6 Q. Were you aware of railroad collision
7 avoidance systems that used UWB prior to the
8 2011-2012 timeframe?

9 A. No.

10 Q. Were you aware of railroad collision
11 avoidance systems that used UWB and GPS prior to
12 the 2011-2012 timeframe?

13 A. No.

14 Q. Do you recall Mr. Galluzzo asked you
15 questions regarding companies and their need to
16 continuously innovate?

17 A. Yes.

18 Q. Were you aware of any of these
19 innovative companies that innovated using UWB for
20 collision avoidance in the railroad industry in the
21 2011-2012 timeframe?

22 MR. GALLUZZO: Objection, form.

23 BY THE WITNESS:

24 A. No.

1 BY MR. CHIPLUNKAR:

2 Q. In your experience, is the railroad
3 industry resistant to change?

4 MR. GALLUZZO: Objection, form, scope.

5 BY THE WITNESS:

6 A. Very much so.

7 BY MR. CHIPLUNKAR:

8 Q. Does the railroad industry readily
9 accept new solutions?

10 MR. GALLUZZO: Objection, scope.

11 BY THE WITNESS:

12 A. No.

13 BY MR. CHIPLUNKAR:

14 Q. Do you recall you were answering a
15 question asked by counsel and you mentioned legacy
16 systems and railroads and you were cut off?

17 A. Yes, yes.

18 MR. GALLUZZO: Objection, form,
19 mischaracterizes.

20 BY MR. CHIPLUNKAR:

21 Q. Can you go ahead and complete your
22 answer regarding legacy systems and railroads?

23 MR. GALLUZZO: Objection, form.

24 BY THE WITNESS:

1 A. Well, again, the -- the industry as a
2 whole is -- is resistant to change. The leaders in
3 the industry tend to be older folks who are tied to
4 the older technologies, number one.

5 Number two, you're -- when you're --
6 when you're changing a signalling system or when
7 you're changing a vehicle system, there's a lot of
8 implications with the legacy system. It has to be
9 compatible until you can roll out the new solution,
10 and -- and then there's -- you know, and so we're
11 talking tens of millions, hundreds of millions of
12 dollars a lot of times. There has to be a
13 procurement process by which the authority that's
14 going to -- that's going to, you know, implement a
15 new system would have to get funding for it and so
16 forth.

17 You have -- in every contract, RFQ,
18 whether it's for a subsystem, whether it's for an
19 overhaul of a new vehicle, whether it's for a new
20 vehicle, you have a lot of -- you have proven in
21 use where you've got to show where you've -- where
22 you've proven the system in use multiple times over
23 mult- -- over -- over a significant period of time.

24 So it's very difficult for new

1 innovations to even get a look let alone to become
2 accepted. There are -- there are a lot of -- a lot
3 of barriers to that. And then there's just general
4 momentum created by the larger companies that tend
5 to dictate innovation to a degree.

6 So for those reasons and reasons I cited
7 in terms of even when I worked at one of those
8 larger -- larger leading companies where there's
9 resistance to innova- -- the resistance to, you
10 know, innovation even internally.

11 So you have resistance internally, you
12 have resistance from the larger suppliers and you
13 have resistance from the -- the transit authorities
14 and railroads who are tied to the older suppliers
15 as well as tied to their older technology, and
16 rolling out new technology is a big undertaking, so
17 it's just -- it's very resistant to -- to
18 innovation, yes.

19 BY MR. CHIPLUNKAR:

20 Q. Do you recall a question Mr. Galluz- --
21 Mr. Galluzzo asked that discussed bus systems and
22 train systems?

23 A. Yes.

24 MR. GALLUZZO: I'm sorry. There's a -- can we

1 go off the record real quick?

2 THE VIDEOGRAPHER: Going off the record at
3 2:50 p.m.

4 (WHEREUPON, the deposition was
5 recessed from 2:50 to 2:52 p.m.)

6 THE VIDEOGRAPHER: Going on the record at 2:52
7 p.m.

8 BY MR. CHIPLUNKAR:

9 Q. Mr. Conti, do you recall Mr. Galluzzo
10 asking you questions regarding bus -- a bus system
11 and a train system?

12 A. Yes.

13 Q. Would a person of ordinary skill in the
14 art use a bus collision avoidance system on
15 railroads?

16 MR. GALLUZZO: Objection, form, scope.

17 BY THE WITNESS:

18 A. No.

19 BY MR. CHIPLUNKAR:

20 Q. Do you recall Mr. Galluzzo asking you
21 questions about helpful testimony to the Board?

22 A. Yes, I believe so, yeah.

23 Q. In your opinion, would the testimony of
24 someone who has no railroad safety experience be

1 helpful to the Patent Board in this case?

2 A. I would say no.

3 Q. Why not?

4 A. Well, because I think rail safety is --
5 is unique. Again, it -- the safety standards are
6 unique to rail typically in 50126, 128, 129, but
7 also when you have -- let's say you have an
8 incident with a railcar. It could affect hundreds
9 of people and hundreds of lives instantly, so you
10 could have -- you could have lots of death or
11 injury versus a vehicle. That doesn't necessarily
12 make it worse, but it -- it certainly is a -- a
13 different level of -- a level of concern. It's a
14 public authority versus private individuals driving
15 in cars.

16 Rail safety again for the reasons we
17 talked about would have a lot of hurdles to
18 innovation. When I talk, I also reassert that
19 my -- my declaration in terms of a person of --
20 skilled in the art would be -- would be specific to
21 this industry versus -- certainly versus a vehicle
22 versus a car or an automobile or automotive.

23 So yes, I don't think it would be
24 particularly analogous or useful.

1 Q. Could you go to Paragraph 43 of your
2 expert declaration?

3 MR. GALLUZZO: Does it matter which one,
4 counsel?

5 THE WITNESS: '131?

6 MR. CHIPLUNKAR: No, it does not.

7 BY MR. CHIPLUNKAR:

8 Q. Paragraph 43.

9 A. Okay.

10 Q. And Paragraph 43 starts, "In 2002," is
11 that correct?

12 A. Yes, yes.

13 Q. Okay. Do you recall counsel asking you
14 if the IEEE considered UWB with GPS augmentation?

15 A. Yes.

16 Q. In that -- in that section, did the IEEE
17 propose UWB with GPS augmentation for collision
18 avoidance?

19 A. I don't believe so.

20 Q. Did the IEEE propose UWB with GPS
21 augmentation for collision avoidance in railway
22 systems?

23 A. No.

24 Q. You relied on Exhibit 2024, which is an

1 article by Mr. Lande.

2 Do you recall that?

3 A. Yes, uh-huh.

4 Q. And do you recall Mr. Galluzzo, for lack
5 of a better word, cast aspersions on -- on the
6 Lande article?

7 A. Yes.

8 MR. GALLUZZO: Objection, characterization.

9 BY MR. CHIPLUNKAR:

10 Q. I -- I am going to pass you a printout
11 of an article from IEEE. It will be marked Exhibit
12 2032.

13 (WHEREUPON, a certain document was
14 marked Deposition Exhibit No. 2032,
15 for identification.)

16 MR. GALLUZZO: Yeah, I'm -- I'm going to
17 object to the use of this exhibit as being outside
18 the scope and also outside the scope of available
19 evidence for Patent Owner at this point.

20 BY MR. CHIPLUNKAR:

21 Q. Do you -- do you see the name of the
22 author -- or the name of the individual on Page 1
23 of this --

24 A. Yes.

1 Q. -- publication I gave you?
2 Is the name of this person Tor Sverre
3 Lande?

4 A. Yes.

5 Q. And what's the name of the author of the
6 article that you have in front of you, our 2024,
7 Exhibit 2024?

8 A. Tor Sverre Lande.

9 Q. Do you have any reason to believe that
10 these two individuals are not the same person?

11 A. They look to be the same person because
12 I see here that he is a co-founder of -- or he's --
13 he's a co-founder of Novelda, and Novelda is the
14 website from which this article came from.

15 Q. In the biography section of Exhibit
16 2032, can you tell me how many scientific
17 publications Mr. Lande has authored?

18 MR. GALLUZZO: Objection, scope.

19 BY THE WITNESS:

20 A. It says he's authored or co-authored
21 more -- more than 150 scientific publications and
22 two books.

23 BY MR. CHIPLUNKAR:

24 Q. In your opinion, is Dr. Lande a credible

1 individual?

2 MR. GALLUZZO: Objection, form, scope.

3 BY THE WITNESS:

4 A. He certain- -- he certainly seems to be
5 a -- he certain- -- certainly seems to be one, yes.

6 BY MR. CHIPLUNKAR:

7 Q. Do you have any reason to believe that
8 the statements in Exhibit 2024 are incorrect?

9 MR. GALLUZZO: Objection, form, scope.

10 BY THE WITNESS:

11 A. No reason to believe they're incorrect.

12 BY MR. CHIPLUNKAR:

13 Q. The last set of questions.

14 Could you turn to claim 1 of the '131
15 patent?

16 A. Sure.

17 MR. GALLUZZO: I'm sorry, counsel, just
18 housekeeping, what did you mark this as exhibit
19 number?

20 MR. CHIPLUNKAR: 2032.

21 MR. GALLUZZO: Thank you.

22 BY THE WITNESS:

23 A. Claim which one? Sorry.

24 BY MR. CHIPLUNKAR:

1 Q. Claim 1 of the '131 patent.

2 A. Oh, okay.

3 Q. In claim -- you recall Mr. -- well,
4 strike that.

5 Do you see claim 1 recites in part
6 "operable to send and receive data wirelessly"?

7 A. Yes. "The first transponder sensor
8 module operable to send and receive data
9 wirelessly," yes.

10 Q. Do you recall Mr. Galluzzo asked you
11 questions suggesting that the wireless technology
12 was not limited to UWB?

13 A. Yes.

14 Q. Okay. If you could still stick with
15 claim 1 and turn to Column 31, Line 49.

16 Do you agree that this is still claim 1
17 of the '131 patent?

18 A. What line was that? Sorry.

19 Q. Column 31, Line 8.

20 A. Line -- Line 8. Yes, this is still part
21 of claim 1.

22 Q. Do you see the element that recites
23 "time of flight"?

24 A. Yes. "The first vehicle mounted module

1 and a second vehicle mounted module are operable to
2 apply a time of flight --"

3 Q. Okay. Can you --

4 A. -- "technique."

5 Q. Can you turn to Column 13, Line 49?
6 Column 13, Line 49.

7 A. Line 49, yes.

8 Q. You see it says, "This technique may be
9 referred to as time of flight."

10 Do you --

11 A. Yes.

12 Q. -- see that sentence?

13 A. Yes.

14 MR. GALLUZZO: Objection, scope.

15 BY THE WITNESS:

16 A. Uh-huh.

17 BY MR. CHIPLUNKAR:

18 Q. Can you read the prior few sentences?

19 A. Yeah. It says --

20 MR. GALLUZZO: Objection, form.

21 Do you want him to read it into the
22 record?

23 MR. CHIPLUNKAR: No, no.

24 BY MR. CHIPLUNKAR:

1 Q. Read it in your mind.

2 MR. GALLUZZO: Objection, form and scope.

3 BY THE WITNESS:

4 A. Okay.

5 (WHEREUPON, there was a short
6 interruption.)

7 BY THE WITNESS:

8 A. Uh-huh.

9 BY MR. CHIPLUNKAR:

10 Q. The time of flight technique -- is
11 that -- is that section discussing time of flight
12 techniques?

13 A. Yes.

14 MR. GALLUZZO: Objection, scope.

15 BY MR. CHIPLUNKAR:

16 Q. What technology -- or what wireless
17 technology is it discussing time of flight in
18 connection with?

19 MR. GALLUZZO: Objection, scope.

20 BY THE WITNESS:

21 A. It clearly says by measuring how long
22 the pulse travels in a particular velocity and
23 measuring how long the wave -- it trav- -- to
24 travel between the two transceivers the dist- --

1 the distance between the two transceivers --
2 between the two UWB units can actually be
3 determined.

4 BY MR. CHIPLUNKAR:

5 Q. What particular wireless technology is
6 it describing?

7 A. UWB.

8 Q. Okay.

9 A. Because even further up there it says,
10 "UWB transmitter receivers," "UWB transmitter
11 receivers" up on Line 37 and 38, so they're --
12 they're very clearly UWB.

13 MR. CHIPLUNKAR: I have no further questions.

14 FURTHER EXAMINATION

15 BY MR. GALLUZZO:

16 Q. Just a few from me, Mr. Conti.

17 First, you said that individuals with no
18 railroad safety experience, their testimony would
19 not be helpful for a number of reasons you
20 testified to.

21 Do you recall that testimony?

22 A. Yes.

23 Q. Have you --

24 A. Yes.

1 Q. Have you ever met Dr. Todar Cooklev?

2 A. No.

3 Q. Are you aware whether he's serving as an
4 expert for Metrom in this case?

5 A. I -- I'm unaware.

6 Q. If I represented to you that he also had
7 no railroad safety experience, would you agree that
8 even though he's an expert for Metrom that his
9 testimony would not be helpful for the same reasons
10 that you described in response to Mr. Chiplunkar's
11 questions on redirect?

12 A. Well, he -- he did -- Raj did say that
13 it was railroad safety. I don't know if your
14 question was railroad safety -- collision avoidance
15 or railroad safety, but I felt railroad safety is
16 further unique -- not just railroad, not just
17 safety, but railroad safety is a unique animal
18 compared to someone who's unfamiliar with the
19 railroad. That -- that's -- that was my point.

20 Q. Yeah, and you said that someone who
21 lacked railroad safety experience, their testimony
22 would be un- -- unhelpful to the Board here.

23 Do you still stand by that testimony?

24 A. Yes, yeah, yes.

1 Q. And if I represent to you that
2 Dr. Cooklev lacks any railroad safety experience,
3 would you agree that his testimony is unhelpful to
4 the Board?

5 A. I guess I would need to know what
6 aspect. There's so many aspects to a case, I
7 can't -- I -- I think when Raj was asking, it was
8 in reference -- I was taking it in reference to
9 collision avoidance safety systems and -- and rail
10 transit versus other sectors of the industry, but
11 yes.

12 Q. Yeah, and let me take that sector of the
13 industry still.

14 If you agree with -- or withdrawn.

15 Taking that sector of the industry
16 still, keeping all of the same exact conditions in
17 Mr. Chiplunkar's questions, if I represent to you
18 that Metrom's expert, Dr. Cooklev, lacks any
19 railroad safety experience, would you agree with
20 your previous testimony that his testimony would be
21 unhelpful to the Board in this case?

22 MR. CHIPLUNKAR: Objection, form.

23 MR. SCHODDE: Foundation.

24 MR. CHIPLUNKAR: Foundation.

1 BY THE WITNESS:

2 A. You know, I -- I was asked to look at
3 specific claims, specific information on this case.
4 I'm not a lawyer and I'm not an expert expert. I'm
5 not a professional expert. I don't know what all
6 other aspects of this case -- where one would seek
7 expertise with, so I -- I -- perhaps I was -- so I
8 wouldn't know what he's -- what this person is
9 speaking on and whether he's not credible to speak
10 on that.

11 But, you know, when he asked the
12 question about specifically safety systems on rail
13 versus other vehicle systems, I would say it's not
14 particularly useful or it's not particularly
15 applicable, not particularly analogous, yes.

16 BY MR. GALLUZZO:

17 Q. And I just want to make sure that you're
18 treating in your own all individuals who lack
19 railroad safety experience the same, whether it be
20 Mr. Andrews, who's representing the petitioners, or
21 Dr. Cooklev, who's representing Metrom.

22 MR. CHIPLUNKAR: Objection, form.

23 BY THE WITNESS:

24 A. Well, again, in truth, I probably --

1 I -- I can't say what -- I -- I guess I would
2 have -- I should have answered the question in what
3 aspect is he an expert at, in what as- -- what
4 aspect is he testifying towards to -- to clarify.

5 So I -- I don't -- maybe my first answer
6 was too broad to say no.

7 BY MR. GALLUZZO:

8 Q. Your first answer in response to
9 Mr. Chiplunkar's questions?

10 A. Yes, possibly. I would need to know
11 specifically what the individual -- who the
12 individual was, what his background was and what he
13 was asked to opine on or, you know, analyze and
14 declare, so...

15 Q. So then you'd agree with me that your
16 testimony is that you're not sure whether --
17 someone who lacks railroad safety experience,
18 whether their testimony would be helpful or not?

19 A. Well, I'll stand by my answer in -- and
20 the reasons I stated why they would not be
21 particularly applicable, analogous to, but to
22 dismiss them out of hand, maybe that was a bit
23 harsh.

24 Q. And those same reasons and that same

1 caveat would also apply to Dr. Cooklev?

2 A. I would say yes.

3 Q. Let's talk about Exhibit 2032.

4 A. Uh-huh.

5 Q. This is the printout from IEEE Explorer.

6 A. Explorer, yes.

7 Q. Have you seen this document before
8 today?

9 A. No.

10 Q. In fact, this was printed today, if you
11 look at the top left corner, November 21 at 2:18
12 p.m.

13 A. Correct, yes.

14 Q. Did you print this?

15 A. No.

16 Q. The -- are you familiar with IEEE
17 Explorer?

18 A. Yes.

19 Q. Have you accessed it before?

20 A. Not in a long time. Not in a while,
21 yeah.

22 Q. Is it public?

23 A. I'm not sure.

24 Q. Do you think it would be possible for

1 you to have acquired this same exact printout
2 before you issued your declaration?

3 A. Possible, sure.

4 Q. But you didn't, right?

5 A. No, but when one -- when -- when you're
6 doing a lot of research, there are other kind of
7 soft things that you take into account when you
8 say, "Okay. This is a credible article."

9 I can't speak as to why -- like, for
10 instance, you asked me who's Novelda. I didn't
11 remember that it was a company that did radar
12 systems, and so -- so in answer to your question,
13 which was what? I'm sorry. I --

14 Q. You didn't acquire this prior to issuing
15 your declaration?

16 A. I did not, no, right.

17 Q. And when I asked you on --

18 A. He appears to have more credibility than
19 I even gave him at the time.

20 MR. GALLUZZO: Objection, move to strike as
21 non-responsive.

22 BY THE WITNESS:

23 A. Okay, yeah.

24 BY MR. GALLUZZO:

1 Q. When I asked you earlier who Mr. Lande
2 is, you said you didn't know, is that right?

3 A. That's -- that's correct, yes.

4 Q. So until you looked at this document
5 after I was finished with my questions, you had no
6 idea who he was?

7 A. Yeah, again, when you're -- when I --
8 when I put -- I -- I found this article probably
9 six, eight months ago or something. I don't
10 recall -- when you're doing research and you decide
11 to use something and not something else, there's a
12 lot of again soft reasons why you would put
13 credibility on it. I don't remember all the
14 reasons why, but I felt this was interesting on
15 several different points, but yes.

16 But no, I didn't follow through with
17 who -- who this person was.

18 Q. And so your testimony was truthful
19 earlier when you said you had no idea who he was?

20 A. That's right.

21 Q. Instead of relying on Exhibit 23, you
22 just relied on the article, Exhibit 2024, in your
23 declaration, correct?

24 A. Again, I'll state there may have been

1 other reasons that I did not document why I felt
2 this was a strong piece of information.

3 Q. You also testified on Mr. Chiplunkar's
4 questions that Mr. Lande is a credible individual.

5 You never met him, though, have you?

6 A. No.

7 Q. And you haven't reviewed the articles
8 and publications cited on Exhibit 2032 that are
9 allegedly associated with him?

10 A. I looked through some of the titles as
11 he was asking me to look at this, yes.

12 Q. You haven't reviewed the articles
13 themselves, have you?

14 A. No.

15 Q. And you haven't reviewed to see whether
16 they have the same problems with peer-reviewed
17 articles that you were lamenting in your testimony
18 today?

19 MR. CHIPLUNKAR: Objection, mischaracterizes
20 prior testimony.

21 BY THE WITNESS:

22 A. No, I didn't, no.

23 BY MR. GALLUZZO:

24 Q. So it's entirely possible that every

1 single one of the articles on Mr. Lande's IEEE
2 Explorer dossier have those same peer-reviewed
3 article issues that you were discussing in your
4 testimony?

5 A. Yes. I -- I was saying -- I -- I think
6 you're exaggerating my point. I was -- I wasn't
7 saying that all peer-reviewed articles are not
8 credible. I -- I just said not all of them are
9 credible. That -- I was -- you know, maybe -- I
10 feel like you're taking that to an extreme that I
11 did not mean.

12 Q. Okay. And I apologize if that's the
13 way --

14 A. Okay.

15 Q. -- it came off, so let me ask a
16 better --

17 A. All right.

18 Q. -- question.

19 Is it possible that all of Mr. Lande's
20 articles are of the not credible variety?

21 MR. CHIPLUNKAR: Objection, calls for
22 speculation.

23 BY THE WITNESS:

24 A. IEEE is a pretty -- a fairly credible

1 organization in terms of who they allow to publish
2 and -- and what they put out there. They publish
3 standards in -- in the industry, so I'd say there's
4 a degree of credibility there, but of course the
5 CDC has similar creds, and they're -- they're not
6 perfect.

7 BY MR. GALLUZZO:

8 Q. But again, you wouldn't know because you
9 haven't read these articles?

10 A. Right, yes.

11 Q. Were you familiar with the concept of
12 time of flight before your work in this case?

13 A. Yes.

14 Q. Is UWB the only way to implement time of
15 flight?

16 A. Oh, I don't believe so. No, absolutely.
17 I've worked with LiDAR systems where you have laser
18 radar where you ping an object with a light beam,
19 yes.

20 Q. What other technologies can implement
21 time of flight?

22 A. Oh, I'm sure there's other radio
23 technologies. I'm sure there's other wireless
24 technologies that can do time of flight. Radar

1 does time of flight.

2 Q. Are there any others --

3 A. Sonar, yeah.

4 Q. Are there any others you can think of
5 sitting here today?

6 A. Not right, yes.

7 MR. GALLUZZO: Thank you, Mr. Conti. No
8 further questions.

9 THE WITNESS: Okay.

10 MR. CHIPLUNKAR: I have a short redirect.

11 MR. GALLUZZO: Re-redirect.

12 MR. CHIPLUNKAR: Re-redirect, yeah. This
13 should be the end of it.

14 FURTHER EXAMINATION

15 BY MR. CHIPLUNKAR:

16 Q. Mr. Galluzzo was asking you certain
17 questions about Dr. Cooklev.

18 Do you recall that?

19 A. Yes.

20 Q. Did you read Dr. Cooklev's declaration?

21 A. No.

22 Q. Do you know the subject matter of
23 Dr. Cooklev's declaration?

24 A. I do not.

1 Q. Do you know what opinions Dr. Cooklev
2 provided in this case?

3 A. No.

4 Q. Would the testimony of someone who has
5 no railroad safety experience be helpful to the
6 Patent Board in deciding the question of
7 obviousness in this case?

8 MR. GALLUZZO: Objection, form.

9 BY THE WITNESS:

10 A. I would say yes because their research
11 could support -- and I'm not sure. Yes, I would
12 say that's a -- a -- I'd say that's a question that
13 may not require saf- -- railroad safety experience,
14 yes, which is why I agreed that -- that -- when he
15 mentioned that maybe I was a little too broad and I
16 dismissed anybody, I'd have know who they are, what
17 their background is and what they're asked to
18 comment on, so I -- yes.

19 So yeah, I think -- I think obviousness
20 is narrow enough, not necessarily related to
21 obviousness that they could have something to say
22 about that, yes.

23 BY MR. CHIPLUNKAR:

24 Q. What is terrestrial radio?

1 MR. GALLUZZO: Objection, scope.

2 BY THE WITNESS:

3 A. So we got hung up on that term -- term,
4 and I -- I was thinking about that because we got
5 hung up on that, and terrestrial radio and why I --
6 I selected that word, and I don't know -- I didn't
7 remember why I selected it, but it just simply
8 means -- "terrestrial" means land-based versus
9 satellite, so it's any land-based radio, and
10 land-based could be vehicle to vehicle, it could be
11 land to vehicle and so on versus a satellite.

12 So that's why I used the term
13 "terrestrial," and it was -- it's a -- it's that
14 delineation. It's only that delineation,
15 land-based versus satellite.

16 BY MR. CHIPLUNKAR:

17 Q. If you had an expert with railroad
18 experience and who doesn't have railroad
19 experience, who would be more helpful to the Patent
20 Board?

21 MR. GALLUZZO: Objection, form.

22 BY THE WITNESS:

23 A. What was the question? I'm sorry.

24 BY MR. CHIPLUNKAR:

1 Q. As between an expert who has railroad
2 experience and one who doesn't have railroad
3 experience, who would be more helpful to the Patent
4 Board --

5 MR. GALLUZZO: Objection, form.

6 BY MR. CHIPLUNKAR:

7 Q. -- in this case?

8 MR. GALLUZZO: Objection, form, calls for --

9 BY THE WITNESS:

10 A. I would say the railroad is a -- is a
11 unique industry and a unique -- with a unique set
12 of parameters and challenges and standards that
13 would make that person more -- everything else
14 being equal more useful, yes.

15 MR. CHIPLUNKAR: I have no more questions.

16 MR. SCHODDE: Wait, wait, wait.

17 BY MR. CHIPLUNKAR:

18 Q. Does Mr. Andrews have any railroad
19 experience, based on his declaration?

20 MR. GALLUZZO: Objection, form, scope.

21 BY THE WITNESS:

22 A. No.

23 MR. CHIPLUNKAR: I have no more questions for
24 the witness.

1 MR. GALLUZZO: No more. You're a free man.
2 Off the record?

3 THE WITNESS: Yay.

4 THE VIDEOGRAPHER: Before we go off the
5 record, can we just get the confirmation on your
6 orders?

7 MR. GALLUZZO: Can you contact my paralegal?

8 THE VIDEOGRAPHER: Sure.

9 MR. SCHODDE: And the video, I do not need it
10 now. We may contact you someday.

11 MR. CHIPLUNKAR: So what's the new date on
12 these PORs?

13 THE VIDEOGRAPHER: Going off the record at
14 3:17 p.m.

15 FURTHER DEPONENT SAITH NOT.

16

17 (TIME NOTED: 3:17 P.M.)

18

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24

REPORTER'S CERTIFICATE

I, VICTORIA C. CHRISTIANSEN, a Certified
Shorthand Reporter of the State of Illinois, do
hereby certify:

That previous to the commencement of the
examination of the witness, the witness was duly
sworn to testify the whole truth concerning the
matters herein;

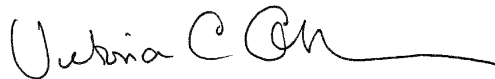
That the foregoing deposition transcript
was reported stenographically by me, was thereafter
reduced to typewriting under my personal direction
and constitutes a true record of the testimony
given and the proceedings had;

That the said deposition was taken
before me at the time and place specified;

That I am not a relative or employee or
attorney or counsel, nor a relative or employee of
such attorney or counsel for any of the parties
hereto, nor interested directly or indirectly in
the outcome of this action.

1 The witness has requested a review
2 pursuant to Rule 30(e)(1).
3

4 IN WITNESS WHEREOF, I do hereunto set my
5 hand at Chicago, Illinois, this 28th day of
6 November, 2023.

7 

8 VICTORIA C. CHRISTIANSEN,
9 Certified Shorthand Reporter.

10
11
12 C.S.R. Certificate No. 84-3192.
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I N D E X

WITNESS

EXAMINATION

CARL EDWARD CONTI

By Mr. Galluzzo.....5, 178

By Mr. Chiplunkar.....164, 189

E X H I B I T S

NUMBER

MARKED FOR ID

Exhibit No. 2032

172

NUMBER

FIRST REFERRED TO

Exhibit No. 1001

111

Exhibit No. 2012

10

Exhibit No. 2024

120

ORIGINAL EXHIBITS RETAINED BY THE PARTIES

DEPOSITION ERRATA SHEET

Our Assignment Number: 10466037

Case Caption: Siemens Mobility, Inc., et al., vs.
Metrom Rail LLC

DECLARATION UNDER PENALTY OF PERJURY

I declare under penalty of perjury that
I have read the entire transcript of my Deposition
taken in the captioned matter or the same has been
read to me, and the same is true and accurate, save
and except for changes and/or corrections, if any,
as indicated by me on the DEPOSITION ERRATA SHEET
hereof, with the understanding that I offer these
changes as if still under oath.

Signed on the _____ day of
_____, 20____.

CARL EDWARD CONTI

DEPOSITION ERRATA SHEET

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